Effective March 16, 2020, Governor Greg Abbott authorized the temporary suspension of certain statutory provisions of the Texas Open Meetings Act. This meeting of the City Council of the City of Midland is being held pursuant to such authorization and will limit face-to-face interactions for the purpose of slowing the spread of the coronavirus (COVID-19).

CITY OF MIDLAND, TEXAS
AGENDA FOR CITY COUNCIL MEETING
December 15, 2020 - 10:00 AM
300 North Loraine
Midland, Texas
Council Chamber - City Hall

Videoconference Information

Please click this URL to join. https://zoom.us/j/92264662928?pwd=QjB5d01IYStRY1ZVS2wwamYyYzhxUT09
Passcode: 992971

Or join by phone:
Dial(for higher quality, dial a number based on your current location):
US: +1 346 248 7799 or +1 253 215 8782 or +1 669 900 9128 or +1 312 626 6799 or +1 646 558 8656 or +1 301 715 8592
Webinar ID: 922 6466 2928
International numbers available: https://zoom.us/u/aCER1tQ6

The City Council may discuss, consider, and take action on any item listed on this agenda.

OPENING ITEMS

1. Invocation – Pastor Andrew Adams, Midland Bible Church

2. Pledge of Allegiance

PRESENTATIONS

3. Presentation of special events, organizations, individuals, or periods of time including, but not limited to:

    3a. Presentation of a proclamation honoring the life of former City Manager Courtney Sharp

CONSENT AGENDA

4. MOTION APPROVING THE FOLLOWING MINUTES:

   4a. REGULAR CITY COUNCIL MEETING OF NOVEMBER 17, 2020

   4b. REGULAR CITY COUNCIL MEETING OF NOVEMBER 23, 2020

5. 2020-204 – RESOLUTION AWARDING A CONTRACT TO FIBER PLATFORM, LLC DBA UNITE PRIVATE NETWORKS, L.L.C., FOR THE CITY-WIDE FIBER PROJECT FOR A COST OF $3,714,000.00; APPROVING CONTINGENCIES IN THE AMOUNT OF $315,000.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS (GENERAL SERVICES)

6. 2020-205 – RESOLUTION AWARDING A CONTRACT FOR THE REPAVING, STRIPING, AND PAINTING OF THE SCHARBAUER SPORTS COMPLEX PARKING LOTS TO DANNY'S ASPHALT AND PAVING, INC., FOR A TOTAL COST OF $266,815.00; APPROVING $26,682.00 IN CONTINGENCIES; AND AUTHORIZING THE TRANSFER OF FUNDS FOR SAID CONTRACT (GENERAL SERVICES)

7. 2020-206 – RESOLUTION AWARDING A CONTRACT FOR THE "A" STREET MILL AND INLAY PAVING PROJECT TO CD KING CONSTRUCTION, LLC, DOING BUSINESS AS JD KING, OF SEMINOLE, TEXAS, AT A TOTAL COST OF $2,108,890.70; AND AUTHORIZING PAYMENT (GENERAL SERVICES)

8. 2020-207 – RESOLUTION AWARDING A CONTRACT FOR THE NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS PROJECT TO BOLER EQUIPMENT SERVICE, INC. OF MIDLAND, TEXAS, AT A TOTAL COST OF $1,484,124.00; AND AUTHORIZING PAYMENT (GENERAL SERVICES)

9. 2020-208 – RESOLUTION AWARDING A CONTRACT TO GARNEY COMPANIES, INC., FOR THE MIDLAND NE WATER SYSTEMS IMPROVEMENTS - PUMP STATION, TRANSMISSION AND DISTRIBUTION (PACKET A) FOR A COST OF $22,063,309.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS (GENERAL SERVICES)

10. 2020-209 – RESOLUTION AWARDING A CONTRACT TO CB&I STORAGE TANK SOLUTIONS LLC, FOR THE MIDLAND NE WATER SYSTEMS IMPROVEMENTS - ELEVATED STORAGE TANK (PACKET B) FOR A COST OF $4,999,000.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS (GENERAL SERVICES)

11. 2020-210 – RESOLUTION AWARDING A CONTRACT TO RED DEER CONSTRUCTION, LLC FOR THE WEST WADLEY AVENUE WASTEWATER LINE EXTENSION PROJECT FOR A COST OF $1,341,052.50; APPROVING CONTINGENCIES IN THE AMOUNT OF $335,263.50; AND AUTHORIZING THE APPROPRIATION OF FUNDS (GENERAL SERVICES)

12. 2020-211 – RESOLUTION APPROVING THE PURCHASE AND UPFITTING OF EIGHT (8) CHEVROLET TAHOES FOR THE GARAGE DIVISION FROM CALDWELL COUNTY CHEVEROLET THROUGH BUYBOARD AT A TOTAL COST OF $559,912.00 (GENERAL

SERVICES)

13. 2020-212 – RESOLUTION APPROVING THE PURCHASE OF A SPARTAN FOUR-DOOR CUSTOM TILT ALUMINUM CAB PUMPER FROM METRO FIRE APPARATUS SPECIALISTS, INC., THROUGH THE HOUSTON-GALVESTON AREA COUNCIL AT A TOTAL COST OF $947,546.00 (GENERAL SERVICES)

14. 140-2020 – MOTION AUTHORIZING THE EXECUTION OF AN INTERLOCAL AGREEMENT WITH REGION 20 EDUCATION SERVICE CENTER FOR THE PURPOSE OF PROVIDING THE CITY OF MIDLAND WITH COOPERATIVE PURCHASING SERVICES THROUGH THE PURCHASING ASSOCIATION OF COOPERATIVE ENTITIES (PACE) PURCHASING COOPERATIVE (GENERAL SERVICES)

15. 2020-213 – RESOLUTION AWARDING CONTRACTS TO THE PLAYWELL GROUP, INC., PLAYWORKS, INC., EXERPLAY INC, AND 4B RECREATION DBA PLAYGROUNDS ETC. FOR THE PLAYGROUND RENOVATION PROJECT AT A TOTAL COST OF $1,688,416.00; AND APPROPRIATING FUNDS FOR SAID PROJECT (GENERAL SERVICES)

16. 141-2020 – MOTION APPROVING A PROMOTIONAL AGREEMENT BETWEEN THE MIDLAND DEVELOPMENT CORPORATION AND THE MIDLAND DOWNTOWN FARMERS MARKET, INC., TO ADVERTISE OR PUBLICIZE THE CITY OF MIDLAND FOR THE PURPOSE OF DEVELOPING NEW AND EXPANDED BUSINESS ENTERPRISES (CITY MANAGER)

17. 2020-214 – RESOLUTION AUTHORIZING THE EXECUTION OF A MEDICAL DIRECTOR AGREEMENT WITH THE MIDLAND COUNTY HOSPITAL DISTRICT FOR THE PURPOSE OF PROVIDING THE CITY OF MIDLAND HEALTH DEPARTMENT WITH PROFESSIONAL MEDICAL DIRECTOR SERVICES; AND AUTHORIZING PAYMENT FOR SAID SERVICES (COMMUNITY SERVICES)

18. 142-2020 – MOTION TO APPROPRIATE THE SUM OF $240,000.00 FROM FUND 077 TO FUND 126 FOR THE COMMUNITY SERVICES DEPARTMENT IRRIGATION AND SOD PROJECT (COMMUNITY SERVICES)

19. 2020-193 – RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS FOR THE FACILITY IMPROVEMENT PROGRAM IN THE AMOUNT OF $244,303.00 (DEVELOPMENT SERVICES) (DEFERRED FROM NOVEMBER 23, 2020)

20. 2020-215 – RESOLUTION GRANTING A VARIANCE FOR AN OIL AND GAS WELL TO BE LOCATED IN SECTION 10, BLOCK 39, T-2-S, T&P RR CO. SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED 2,410 FEET WEST OF RANKIN HIGHWAY AND 515 FEET SOUTH OF WEST INTERSTATE 20) BY ALLOWING SAID OIL AND GAS WELL TO BE NO CLOSER THAN 265 FEET OF AN OCCUPIED COMMERCIAL STRUCTURE OR RESIDENCE; APPROVING THE ISSUANCE OF A PERMIT TO PERMIAN DEEP ROCK OIL CO., LLC (“OPERATOR”) TO DRILL SAID OIL

AND GAS WELL WITHIN THE CITY LIMITS; AND WAIVING THE REQUIREMENT OF A ROAD REPAIR AGREEMENT (DEVELOPMENT SERVICES)

21. 2020-216 – RESOLUTION APPROVING THE ISSUANCE OF PERMITS TO PERMIAN DEEP ROCK OIL CO., LLC ("OPERATOR") TO DRILL TWO OIL AND GAS WELLS LOCATED IN SECTION 3, BLOCK 39, T-2-S, T&P RR CO. SURVEY, CITY OF MIDLAND, MIDLAND COUNTY, TEXAS (GENERALLY LOCATED BETWEEN 2,043 AND 2,343 FEET EAST OF SOUTH GARFIELD STREET AND 320 FEET NORTH OF WEST COUNTY ROAD 111); AND WAIVING THE REQUIREMENT OF A ROAD REPAIR AGREEMENT (DEVELOPMENT SERVICES)

22. 2020-217 – RESOLUTION APPROVING THE TRANSFER OF FOUR OIL AND GAS WELL PERMITS FROM SMC OIL & GAS, INC. ("OPERATOR") TO MCM EXPLORATION COMPANY, LLC ("TRANSFEREE"); AND APPROVING THE TRANSFER OF THE ROAD REPAIR AGREEMENT REGARDING SAID OIL AND GAS WELL PERMITS FROM OPERATOR TO TRANSFEREE; SAID OIL AND GAS WELLS BEING LOCATED IN SECTION 6, BLOCK X, H.P. HILLIARD SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE EAST SIDE OF HOLIDAY HILL ROAD, SOUTH OF MOCKINGBIRD LANE) (DEVELOPMENT SERVICES)

23. 2020-218 – RESOLUTION AUTHORIZING THE CITY OF MIDLAND BUSINESS MICRO-GRANT ASSISTANCE PROGRAM; AUTHORIZING THE APPROPRIATION OF FUNDS IN THE AMOUNT OF $1,000,000.00 FROM THE CARES GRANT; AND AUTHORIZING THE EXECUTION A CONTRACT WITH MIDLAND COLLEGE TO PROVIDE PROGRAM ADMINISTRATIVE SERVICES AT A COST NOT TO EXCEED $37,000.00 (DEVELOPMENT SERVICES)

24. 2020-219 – RESOLUTION AUTHORIZING THE EXECUTION OF A CAPITAL IMPROVEMENTS DEVELOPMENT AGREEMENT WITH MIDLAND STONEBRIDGE PROPERTIES, LP FOR THE CONSTRUCTION OF CERTAIN CAPITAL IMPROVEMENTS RELATED TO THE DEVELOPMENT OF STONEBRIDGE ADDITION, PHASE 3B, CITY AND COUNTY OF MIDLAND, TEXAS; AND APPROPRIATING FUNDS IN THE AMOUNT OF $356,832.00; SAID AGREEMENT BEING AUTHORIZED BY CHAPTER 212, SUBCHAPTER C AND CHAPTER 395, SUBCHAPTER B OF THE TEXAS LOCAL GOVERNMENT CODE (ENGINEERING SERVICES)

25. 143-200 – MOTION ACCEPTING A GRANT AWARD OF $26,352.00 FROM THE FISCAL YEAR 2020 JUSTICE ASSISTANCE GRANT PROGRAM; AND AUTHORIZING THE APPROPRIATION OF SAID FUNDS TO THE POLICE JUSTICE GRANT FUND (074) (POLICE)

26. 144-2020 – MOTION AUTHORIZING THE EXECUTION OF A SURFACE USE AGREEMENT WITH CROWNQUEST OPERATING, LLC REGARDING CITY-OWNED PROPERTY DESCRIBED AS SECTIONS 2, 4, 9, 10, 11, 13, 14, 16, 19, 20, 21 AND 24, BLOCK 37, TOWNSHIP 3 SOUTH AND SECTION 30, BLOCK 36, TOWNSHIP 3 SOUTH, T&P RR CO. SURVEY, MIDLAND COUNTY, TEXAS (UTILITIES)

27. 2020-220 – RESOLUTION AUTHORIZING THE ACCEPTANCE OF A 22.21-ACRE UTILITY EASEMENT OUT OF SECTIONS 9, 10 AND 11, BLOCK 39, T-1-S, T&P RR CO. SURVEY, MARTIN AND MIDLAND COUNTIES, TEXAS, AT A COST NOT TO EXCEED $277,375.00; AND ORDERING RECORDATION BY THE CITY SECRETARY (UTILITIES)

SECOND READINGS

28. 10130 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE A 19.70-ACRE TRACT OF LAND OUT OF SECTION 30, BLOCK 39, T-1-S, T&P RR CO. SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS, FROM MF-16, MULTIPLE-FAMILY DWELLING DISTRICT TO PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT (GENERALLY LOCATED ON THE SOUTH SIDE OF PRINCETON AVENUE, APPROXIMATELY 824 FEET WEST OF NORTH MIDLAND DRIVE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 17, 2020)

29. 10131 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 9, BLOCK 4, REPLAT OF WINDWOOD PARK, CITY AND COUNTY OF MIDLAND, TEXAS, FROM LR, LOCAL RETAIL DISTRICT TO 2F, TWO-FAMILY DWELLING (DUPLEX) DISTRICT (GENERALLY LOCATED ON THE EAST SIDE OF NORTH MAIN STREET, APPROXIMATELY 91 FEET NORTH OF ELM AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 17, 2020)

30. 10132 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO GRANT A SPECIFIC USE DESIGNATION WITH TERM FOR A 3,588-SQUARE FOOT PORTION OF LOT 2, BLOCK 1, WALLACE HEIGHTS, SECTION 2, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE EAST SIDE OF NORTH LOOP 250 WEST, APPROXIMATELY 377 FEET SOUTH OF SINCLAIR AVENUE), WHICH IS PRESENTLY ZONED RR, REGIONAL RETAIL DISTRICT, ALLOWING SAID PROPERTY TO BE USED FOR THE SALE OF ALL ALCOHOLIC BEVERAGES IN A RESTAURANT FOR ON-PREMISES CONSUMPTION; MAKING SAID DESIGNATION SUBJECT TO CERTAIN CONDITIONS AND RESTRICTIONS CONTAINED HEREIN; CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 17, 2020)

31. 10133 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOTS 1, 2, AND 3, BLOCK 1, JADEN KATE ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS, FROM AE, AGRICULTURAL ESTATE DISTRICT, IN PART, AND PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT, IN PART, TO PD, PLANNED DEVELOPMENT DISTRICT FOR A

HOUSING DEVELOPMENT (GENERALLY LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF NORTH ELKINS ROAD AND ARAPAHOE ROAD); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 17, 2020)

32. 10134 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 3, BLOCK 22, GREENWOOD ADDITION, THIRD, FOURTH, AND FIFTH SECTIONS, CITY AND COUNTY OF MIDLAND, TEXAS, FROM MF-22, MULTIPLE-FAMILY DWELLING DISTRICT TO SF-3, SINGLE-FAMILY DWELLING DISTRICT (GENERALLY LOCATED ON THE WEST SIDE OF SOUTH CLAY STREET, APPROXIMATELY 110 FEET SOUTH OF EAST WASHINGTON AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 17, 2020)

PUBLIC HEARINGS

The City Council will hold public hearings on the following items:

33. 10138 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 15A, BLOCK 133, SOUTHERN ADDITION, SECTION 18, CITY AND COUNTY OF MIDLAND, TEXAS, FROM LI, LIGHT INDUSTRIAL DISTRICT, IN PART, AND SF-3, SINGLE-FAMILY DWELLING DISTRICT, IN PART, TO SF-3, SINGLE-FAMILY DWELLING DISTRICT (GENERALLY LOCATED ON THE EAST SIDE OF SOUTH WEATHERFORD DRIVE, APPROXIMATELY 75 FEET NORTH OF EAST WASHINGTON AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

MISCELLANEOUS

34. MOTION MAKING APPOINTMENTS TO VARIOUS BOARDS AND COMMISSIONS (CITY SECRETARY'S OFFICE)

EXECUTIVE SESSION

35. Pursuant to Texas Government Code § 551.101, the City Council will hold an Executive Session, which is closed to the public, to discuss the following matters as permitted under the following sections of the Texas Government Code:

    a. Section 551.071, Consultation with the City Attorney

    a.1. Discuss matters in which the duty of the attorney(s) to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with Chapter 551 of the Texas Government Code.

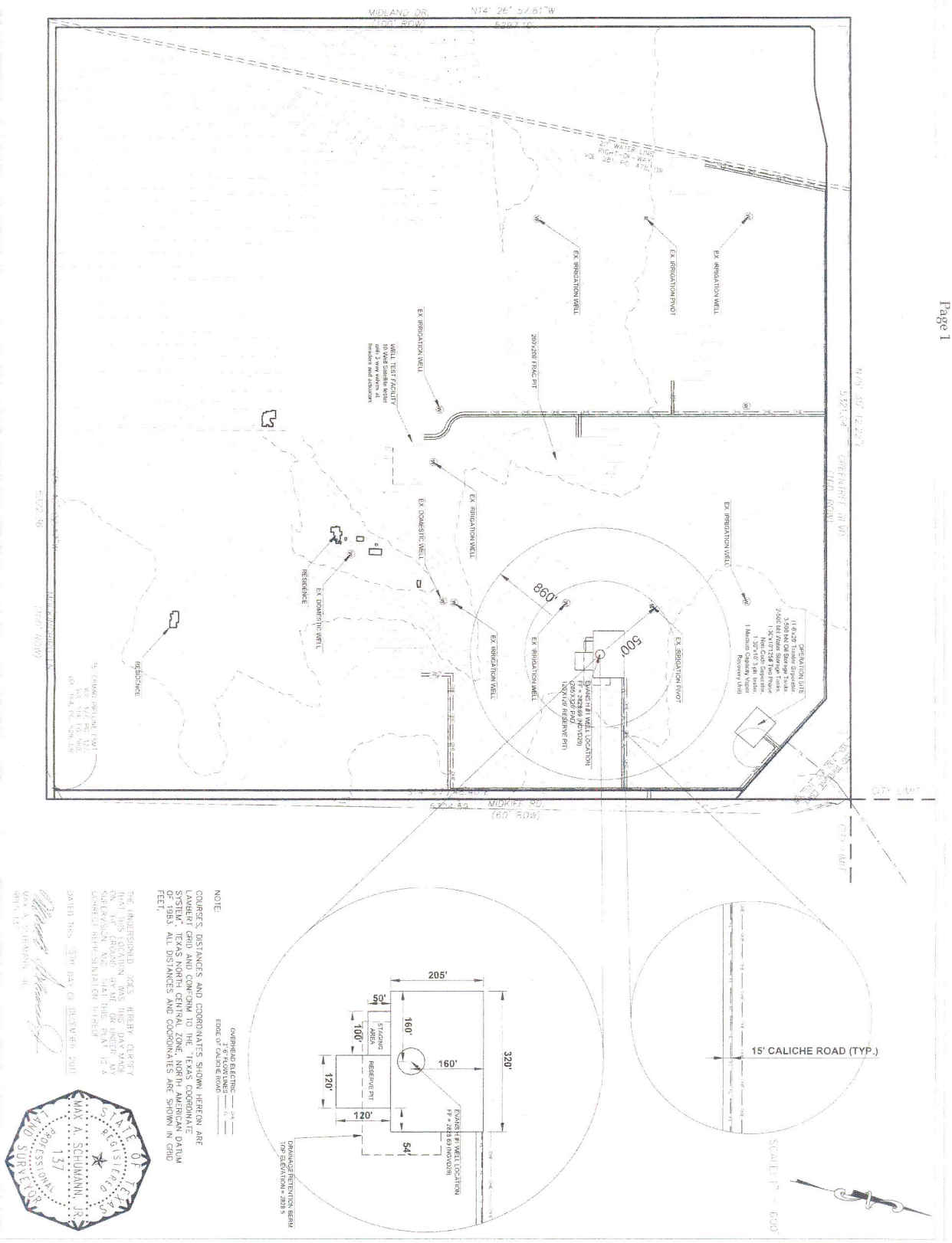
b. Section 551.074, Personnel Matters

b.1. Deliberate the employment, evaluation, and duties of the Interim City Manager.

Respectfully Submitted,

Robert Patrick
Interim City Manager

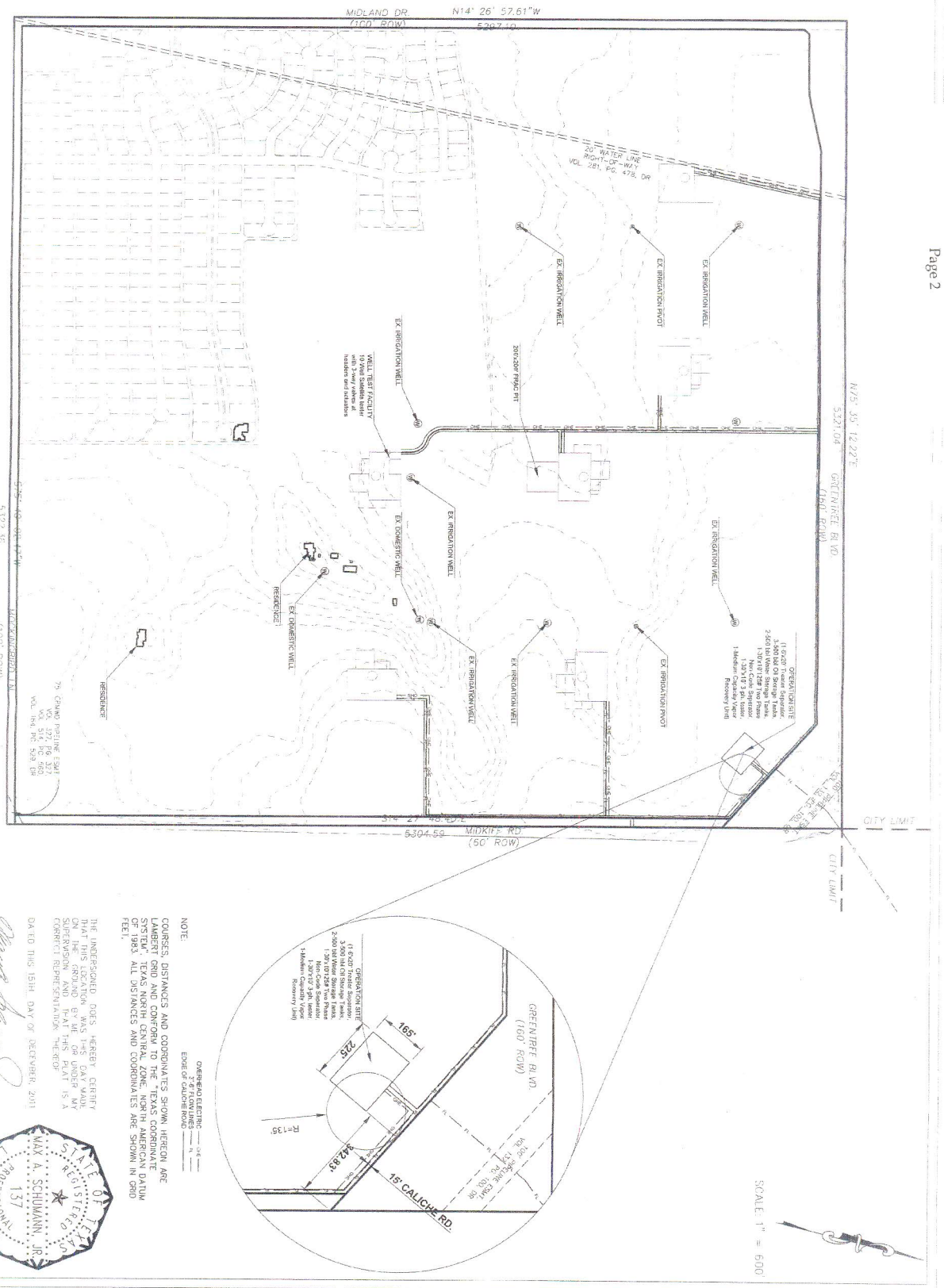
MEETING ASSISTANCE INFORMATION: The Midland City Hall and Council Chamber are wheelchair accessible. If you need special assistance to participate in this meeting, please contact the City Secretary's Office at (432) 685-7430. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to this meeting.



SCHUMANN ENGINEERING CO., INC.
REGISTERED PROFESSIONAL LAND SURVEYORS
LICENSED STATE LAND SURVEYORS
REGISTERED PROFESSIONAL CIVIL ENGINEERS
TEXAS and NEW MEXICO
Civil Engineering ~ Land Surveying
408 N. PECOS STREET - P. O. BOX 504
MIDLAND, TEXAS 79702-0504
Office (432) 684-5548
Fax (432) 684-6973

BLUESTEM ENERGY HOLDINGS, LLC
WELL NO. EVANS "H" #1 EVANS LEASE
1650 FEET FROM THE NORTH AND
990 FEET FROM THE EAST LINE
SECTION 8, ABSTRACT 17, BLOCK X,
T-1-S, H.P. HILLIARD SURVEY,
MIDLAND COUNTY, TEXAS

SITE PLAN
PROJECT: 72747OJD
JOB NO: 72,747-J



NOTE:
COURSES, DISTANCES AND COORDINATES SHOWN HEREON ARE LAMBERT GRID AND CONFORM TO THE TEXAS COORDINATE SYSTEM OF 1983, NORTH AMERICAN DATUM (NAD83). ALL DISTANCES AND COORDINATES ARE SHOWN IN GRID FEET.

THE UNDERSIGNED DOES HEREBY CERTIFY THAT THIS LOCATION WAS THIS DAY MADE ON THE GROUND BY ME OR UNDER MY SUPERVISION AND THAT THE PLAT IS A CORRECT REPRESENTATION THEREOF.

DATED THIS 15TH DAY OF DECEMBER, 2011

MAX A. SCHUMANN, JR.
RPLS 137

STATE OF TEXAS
REGISTERED
PROFESSIONAL
LAND SURVEYOR
MAX A. SCHUMANN, JR.
137

SCHUMANN ENGINEERING CO., INC.
REGISTERED PROFESSIONAL LAND SURVEYORS
LICENSED STATE LAND SURVEYORS
REGISTERED PROFESSIONAL CIVIL ENGINEERS
TEXAS and NEW MEXICO
Civil Engineering ~ Land Surveying
408 N. PECOS STREET - P. O. BOX 504
MIDLAND, TEXAS 79702-0504
Office (432) 684-5548
Fax (432) 684-6973

BLUESTEM ENERGY HOLDINGS, LLC
OPERATION SITE
SECTION 8, ABSTRACT 17, BLOCK X,
T-1-S, H.P. HILLIARD SURVEY,
MIDLAND COUNTY, TEXAS

SITE PLAN
PROJECT: 727470JD
JOB NO: 72,747-D

MIDLAND CITY COUNCIL
MINUTES
November 17, 2020

The City Council convened in regular session in the Council Chamber, City Hall, Midland, Texas, at 10:00 a.m., November 17, 2020.

Council Members present:	Patrick Payton, Spencer Robnett, Michael Trost, Scott Dufford, John Norman, Jack Ladd, Lori Blong
Council Members absent:	None
Staff members present:	City Attorney John Ohnemiller, Interim City Manager Robert Patrick, Assistant City Manager Morris WIlliams

The meeting was called to order at 10:00 a.m.

OPENING ITEMS

1. Invocation – Pastor Phil Allman, Grace Lutheran Church

2. Pledge of Allegiance

CONSENT AGENDA

Spencer Robnett moved to approve Consent Agenda items 3-23, excluding items 4, 6, 15, 16, 17, 19, 20, 21, 22, 23; seconded by Lori Blong.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

3. MOTION APPROVING THE FOLLOWING MINUTES:

   3a. REGULAR CITY COUNCIL MEETING OF NOVEMBER 3, 2020

   3b. REGULAR CITY COUNCIL MEETING OF NOVEMBER 9, 2020

5. 2020-180 – RESOLUTION AUTHORIZING THE PURCHASE OF HERBICIDE FOR

DRAFT

SPRABERRY FARM FROM MULTIPLE BIDDERS, FOR A TOTAL COST OF $134,156.40 (GENERAL SERVICES)

7. 2020-182 – RESOLUTION AWARDING A CONTRACT FOR THE FISCAL YEAR 2021 MILL AND INLAY PROJECT TO JONES BROS. DIRT & PAVING CONTRACTORS, INC. OF ODESSA, TEXAS, AT A TOTAL COST NOT TO EXCEED $3,917,110.60; AND AUTHORIZING PAYMENT (GENERAL SERVICES)

8. 2020-183 – RESOLUTION AWARDING A CONTRACT FOR THE THOMASON DRIVE MILL AND INLAY PAVING PROJECT TO JONES BROS. DIRT & PAVING CONTRACTORS, INC. OF ODESSA, TEXAS, AT A TOTAL COST NOT TO EXCEED $4,966,334.08; APPROPRIATING FUNDS; AND AUTHORIZING PAYMENT (GENERAL SERVICES)

9. 2020-184 – RESOLUTION APPROVING THE PURCHASE OF A DYNAPAC CP2700 PNEUMATIC TIRE ROLLER FROM BEE EQUIPMENT SALES, LTD AT A TOTAL COST OF $172,092.11 THROUGH BUYBOARD (GENERAL SERVICES)

10. 2020-185 – RESOLUTION APPROVING THE PURCHASE OF A 2021 AUTOCAR ACX64 WITH A HEIL 28-YARD DURAPACK PYTHON AUTOMATED SIDE-LOAD REFUSE BODY FROM CHASTANG ENTERPRISES, INC., THROUGH BUYBOARD AT A TOTAL COST OF $317,222.00 (GENERAL SERVICES)

11. 2020-186 – RESOLUTION AWARDING A CONTRACT TO DEE SKY SERVICES FOR MOWING SERVICES AT THE LANDFILL FOR A NOT TO EXCEED AMOUNT OF $200,000.00 PER YEAR (GENERAL SERVICES)

12. 2020-187 – RESOLUTION AWARDING A CONTRACT FOR THE PURCHASE AND INSTALLATION OF IRRIGATION PIVOTS AT SPRABERRY FARM FOR THE UTILITIES DEPARTMENT TO THE SOLE BIDDER, LAMESA IRRIGATION COMPANY FOR A TOTAL COST NOT TO EXCEED $189,698.81 (GENERAL SERVICES)

13. 2020-188 – RESOLUTION AUTHORIZING THE PURCHASE OF THE FALL AND SPRING SEED FOR SPRABERRY FARM FROM MULTIPLE BIDDERS, FOR A TOTAL COST OF $144,772.00 (GENERAL SERVICES)

14. 2020-189 – RESOLUTION APPROVING THE PURCHASE OF A JOHN DEERE 310L BACKHOE LOADER FROM YELLOWHOUSE MACHINERY CO. AT A TOTAL COST OF $110,173.01 THROUGH BUYBOARD (GENERAL SERVICES)

18. 2020-192 – RESOLUTION APPROVING THE ISSUANCE OF PERMITS TO DIAMONDBACK E&P LLC (“OPERATOR”) TO DRILL FOUR OIL AND GAS WELLS LOCATED IN SECTION 8, BLOCK 39, T-1-S, T&P RR CO. SURVEY, CITY OF MIDLAND, MIDLAND COUNTY, TEXAS (GENERALLY LOCATED BETWEEN 409 FEET NORTH OF THE GREEN TREE BOULEVARD EXTENSION AND BETWEEN 2,062 FEET AND 2,122 FEET WEST OF THE NORTH MIDKIFF ROAD EXTENSION); AND WAIVING THE REQUIREMENT OF A ROAD REPAIR AGREEMENT (DEVELOPMENT SERVICES)

DRAFT

The following items were pulled from consent agenda and considered individually.

4. 2020-179 – RESOLUTION DECLARING EXPECTATION TO REIMBURSE EXPENDITURES WITH PROCEEDS OF FUTURE DEBT (FINANCE)

Council Member Blong asked for a report.

Finance Director Mark Mason reported that the original Certificate of Obligation is for the northeast utilities project and a number of parks including artificial turf, vehicles and equipment. They are looking to maintain current cash flows to continue operations and looking at the future financing of equipment and vehicles. This will allow us to reimburse ourselves back for anything that we spend on these items prior to the issuance of debt. We will come back in March for the actual issuance of debt. The amount is not to exceed $60 million but it could be much less.

Lori Blong moved to approve Resolution No. 2020-179; seconded by Spencer Robnett.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

6. 2020-181 – RESOLUTION AWARDING A CONTRACT FOR THE FISCAL YEAR 2021 HA5 HIGH DENSITY MINERAL BOND SURFACE SEAL PROJECT TO THE SOLE BIDDER, ANDALE CONSTRUCTION, INC. OF WICHITA, KANSAS, AT A TOTAL COST NOT TO EXCEED $1,818,817.00; AND AUTHORIZING PAYMENT (GENERAL SERVICES)

Council Member Blong noted this is a sole bidder and asked if there is a reason more people chose not to bid. Transportation Manager Gabe McClelland reported historically there has only been one bidder as most local contractors don't offer this service. The notice inviting bids was sent out to many vendors including the local companies. The unit price came in the same as in the past. He answered questions about the different types of road materials and when they are used to extend the life of roads. Interim City Manager Robert Patrick concluded that there are many different types of tools, and this is just one of the tools that we use.

Lori Blong moved to approve Resolution No. 2020-181; seconded by Spencer Robnett.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

15. 2020-190 – RESOLUTION APPROVING THE PURCHASE OF ONE HUNDRED THIRTY (130) 2021 YAMAHA ELECTRIC GOLF CARTS FROM METRO GOLF CARS, INC.,

DRAFT

THROUGH BUYBOARD AT A TOTAL COST OF $373,750.00; AND AUTHORIZING THE TRADE-IN OF ONE HUNDRED THIRTY (130) CITY-OWNED YAMAHA DRIVE 2 GOLF CARTS (GENERAL SERVICES)

Council Member Ladd asked if the golf course is making money and if this is the best use of funds. Council Member Dufford noted that over the years typically the General Fund subsidizes the golf course anywhere from $100,000 to $250,000. Interim City Manager Robert Patrick added that for this size golf course, Midland is subsidizing much less than what is typical for other public golf courses. He added that we also subsidize all parks in town.

Council Member Ladd asked if fees could be raised to make more money. Golf Pro Gregg Sikes noted they ran studies to see what others are charging and historically they try to be less than others. They typically stay about $1 lower on golf carts and the fees are about the same. Council Member Robnett noted that the golf course provides a huge benefit to the non-profit community for fundraising noting the amount of money raised there by local non-profits is staggering.

Jack Ladd moved to approve Resolution No. 2020-190; seconded by Spencer Robnett.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

16. 139-2020 – MOTION AUTHORIZING THE INTERIM CITY MANAGER OR THE INTERIM CITY MANAGER'S DESIGNEE TO ADVERTISE A REQUEST FOR PROPOSALS FOR THE WATER AND SEWER SYSTEM IMPROVEMENTS - BRIARWOOD AVENUE UTILITY IMPROVEMENTS PROJECT FOR THE UTILITIES DEPARTMENT (GENERAL SERVICES)

Council Member Blong asked for the purpose and timeline of this project. Utilities Director Carl Craigo reported the first phase is to provide service to the fire station and gave a brief overview. Council Member Blong asked if developments on that path could gain access to the utilities. Mr. Craigo reported they could bring in lateral lines to connect into the service.

Lori Blong moved to approve Motion No. 139-2020; seconded by Spencer Robnett.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

17. 2020-191 – RESOLUTION AUTHORIZING THE CITY OF MIDLAND BUSINESS MICRO-GRANT ASSISTANCE PROGRAM; AUTHORIZING THE APPROPRIATION OF FUNDS IN THE AMOUNT OF $500,000.00 FROM THE CARES GRANT; AND AUTHORIZING THE EXECUTION A CONTRACT WITH MIDLAND COLLEGE TO PROVIDE PROGRAM

DRAFT

ADMINISTRATIVE SERVICES AT A COST NOT TO EXCEED $25,000.00 (DEVELOPMENT SERVICES)

Council Member Robnett inquiring on agenda items 17, 19, 20, 21, 22 noted there is about $6 million plus of unappropriated CARES Act money available. CDBG Manager Isaac Garnett reported all of the requests came from the community as a result of a notice they put out asking for applications. Council Member Robnett continued that he does not have a concrete plan with how the money should be spent but there is a sense of urgency on the part of the hospital and that might be the better place to expend those funds. He suggested that the items be moved to Monday's meeting rather than denied.

When asked about the micro-grant program Mr. Garnett clarified that this is modeled after the City of Odessa's program and is for people who did not receive the federal small business grant. Each qualifying business can receive up to $10,000. When asked about the MDC program Council Member Blong reported in her opinion it did not go very well. Many of the applicants were those who had already received federal money or did not qualify. It was a well-intentioned programed, but it was terminated.

Spencer Robnett moved to approve Resolution No. 2020-191; seconded by Lori Blong.

The motion failed by the following vote:
AYE: None
NAY: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
ABSTAIN: None
ABSENT: None

19. 2020-193 – RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS FOR THE FACILITY IMPROVEMENT PROGRAM IN THE AMOUNT OF $244,303.00 (DEVELOPMENT SERVICES)

Spencer Robnett moved to defer Resolution No. 2020-193 to November 23, 2020; seconded by Michael Trost.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

20. 2020-194 – RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH ST. VINCENT DE PAUL SOCIETY FOR THE SOCIAL SERVICES RENTAL AND UTILITY ASSISTANCE PROGRAM IN THE AMOUNT OF $99,000.00 (DEVELOPMENT SERVICES)

Spencer Robnett moved to defer Resolution No. 2020-194 to November 23, 2020; seconded by Michael Trost.

The motion passed by the following vote:

DRAFT

AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

21. 2020-195 – RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH SAINT ANN'S CHURCH FOR THE SOCIAL SERVICES RENTAL AND UTILITY ASSISTANCE PROGRAM IN THE AMOUNT OF $100,000.00 (DEVELOPMENT SERVICES)

Spencer Robnett moved to defer Resolution No. 2020-195 to November 23, 2020; seconded by Michael Trost.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

22. 2020-196 – RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH CASA DE AMIGOS OF MIDLAND, TEXAS, INC., FOR THE SOCIAL SERVICES GRAB-N-GO FOOD ASSISTANCE PROGRAM IN THE AMOUNT OF $89,628.00 (DEVELOPMENT SERVICES)

Council Member Trost noted he thinks this is an essential service that will help a lot of people and will go a long way. Council Member Robnett asked if this could be deferred until Monday's meeting. Council Member Trost noted it could not.

Michael Trost moved to approve Resolution No. 2020-196; seconded by John Norman.

The motion passed by the following vote:
AYE: Payton, Trost, Dufford, Norman, Ladd, Blong
NAY: Robnett
ABSTAIN: None
ABSENT: None

23. 138-2020 – MOTION AUTHORIZING THE EXECUTION OF A SECOND AMENDMENT AND RESTATEMENT OF PRODUCED WATER DISPOSAL SITE LEASE AGREEMENT WITH FELIX WATER, LLC, FOR THE PURPOSE OF ALLOWING CERTAIN COMMERCIAL SALTWATER DISPOSAL ACTIVITIES AT T-BAR RANCH LOCATED IN WINKLER AND LOVING COUNTIES, TEXAS (DEFERRED FROM NOVEMBER 09, 2020)

Council Member Blong pulled this for an individual vote noting that we need long term usage for infrastructure that needs to be evaluated as a comprehensive plan and not parsed out quickly.

Council Member Dufford reported he has studied the operational aspects of this, and feels there are no issues from a standpoint of moving forward. He understands the geology of

DRAFT

the area and thinks there is very little risk with this part of the proposal.

Spencer Robnett moved to approve Motion No. 138-2020; seconded by Scott Dufford.

The motion failed by the following vote:
AYE: Robnett, Dufford
NAY: Payton, Trost, Norman, Ladd, Blong
ABSTAIN: None
ABSENT: None

Mayor Payton recessed the meeting at 12:42 p.m. The meeting reconvened at 12:47 p.m. with all Council Members present.

SECOND READINGS

24. 10123 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO GRANT A SPECIFIC USE DESIGNATION WITH TERM FOR A 4,800-SQUARE FOOT PORTION OF BLOCK 1, LESS THE 250-FOOT BY 150-FOOT NORTHWEST CORNER AND LESS THE 224-FOOT BY 150-FOOT SOUTHWEST CORNER, REPLAT OF BLOCKS 1 AND 2, IMPERIAL HEIGHTS ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE SOUTH SIDE OF WEST WADLEY AVENUE, APPROXIMATELY 277 FEET EAST OF NORTH MIDKIFF ROAD), WHICH IS PRESENTLY ZONED RR, REGIONAL RETAIL DISTRICT, ALLOWING SAID PROPERTY TO BE USED FOR THE SALE OF ALL ALCOHOLIC BEVERAGES IN A RESTAURANT FOR ON-PREMISES CONSUMPTION; MAKING SAID DESIGNATION SUBJECT TO CERTAIN CONDITIONS AND RESTRICTIONS CONTAINED HEREIN; CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 03, 2020)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10123.

Michael Trost moved to approve the second and final reading of Ordinance No. 10123; seconded by Jack Ladd.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Norman, Ladd, Blong
NAY: None
ABSTAIN: Dufford
ABSENT: None

25. 10124 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 1, BLOCK 4, "A" STREET COMMUNITY CENTER, SECTION 4, CITY AND COUNTY OF MIDLAND, TEXAS, FROM PD, PLANNED DEVELOPMENT DISTRICT FOR AN OFFICE CENTER TO AN AMENDED PD, PLANNED DEVELOPMENT DISTRICT FOR AN OFFICE CENTER (GENERALLY LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF NORTH "A" STREET AND VENTURA DRIVE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS

DRAFT

AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 03, 2020)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10124.

Spencer Robnett moved to approve the second and final reading of Ordinance No. 10124; seconded by Jack Ladd.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Norman, Ladd
NAY: None
ABSTAIN: Blong
ABSENT: Dufford

26. 10125 – AN ORDINANCE VACATING AND ABANDONING A 0.075-ACRE PORTION OF ALLEY RIGHT-OF-WAY LOCATED ADJACENT TO BLOCK 1, SHILOH SUBDIVISION, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED BETWEEN WEST SCHARBAUER DRIVE AND NORTH C STREET, APPROXIMATELY 220 FEET NORTH OF SHELL AVENUE); ADOPTING THE APPRAISAL BY THE CITY MANAGER OF $8,167.50; AND ORDERING RECORDATION BY THE CITY SECRETARY (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 03, 2020)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10125.

Spencer Robnett moved to approve the second and final reading of Ordinance No. 10125; seconded by Jack Ladd.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: Dufford

27. 10126 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO GRANT A SPECIFIC USE DESIGNATION WITH TERM FOR THE WEST 0.45 ACRES OF LOT 27, BLOCK 10, PERMIAN ESTATES, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE NORTH SIDE OF WEST WALL STREET, APPROXIMATELY 303 FEET WEST OF SOUTH MIDKIFF ROAD), WHICH IS PRESENTLY ZONED RR, REGIONAL RETAIL DISTRICT, ALLOWING SAID PROPERTY TO BE USED FOR THE SALE OF ALL ALCOHOLIC BEVERAGES IN A LOUNGE FOR ON-PREMISES CONSUMPTION; MAKING SAID DESIGNATION SUBJECT TO CERTAIN CONDITIONS AND RESTRICTIONS CONTAINED HEREIN; CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES) (FIRST READING HELD NOVEMBER 03, 2020)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10126.

DRAFT

Spencer Robnett moved to approve the second and final reading of Ordinance No.10126; seconded by Lori Blong.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

28. 10127 – AN ORDINANCE MAKING CERTAIN AMENDMENTS TO THE 2019-2020 FISCAL YEAR BUDGET SO AS TO INCREASE AMOUNTS APPROPRIATED TO CERTAIN FUNDS (FINANCE) (FIRST READING HELD NOVEMBER 03, 2020)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10127.

John Norman moved to approve the second and final reading of Ordinance No. 10127; seconded by Jack Ladd.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

PUBLIC HEARINGS

The City Council will hold public hearings on the following items:

29. 10129 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO GRANT A SPECIFIC USE DESIGNATION WITHOUT TERM FOR LOT 22 AND THE WEST 97.3 FEET OF LOT 23, BLOCK 81, PERMIAN ESTATES ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE NORTH SIDE OF WEST WALL STREET, APPROXIMATELY 383 FEET WEST OF THOMASON DRIVE), WHICH IS PRESENTLY ZONED RR, REGIONAL RETAIL DISTRICT, ALLOWING SAID PROPERTY TO BE USED FOR A MOBILE FOOD VENDOR PARK; MAKING SAID DESIGNATION SUBJECT TO CERTAIN CONDITIONS AND RESTRICTIONS CONTAINED HEREIN; CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10129.

Mayor Payton opened the public hearing at 1:15 p.m. There being no one present wishing to speak, the public hearing was immediately closed.

Spencer Robnett moved to approve the first of two readings of Ordinance No. 10129; seconded by Scott Dufford.

The motion passed by the following vote:

DRAFT

AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

30. 10130 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE A 19.70-ACRE TRACT OF LAND OUT OF SECTION 30, BLOCK 39, T-1-S, T&P RR CO. SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS, FROM MF-16, MULTIPLE-FAMILY DWELLING DISTRICT TO PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT (GENERALLY LOCATED ON THE SOUTH SIDE OF PRINCETON AVENUE, APPROXIMATELY 824 FEET WEST OF NORTH MIDLAND DRIVE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10130.

Development Services Director Chuck Harrington reported this is a request by MCDC to change from multi-family that was previously brought to City Council. The amended plan calls for a true mixed-residential use including single family homes and townhouses. The density in SF1 is 4.8 units per acre and the overall density is much lower than allowed. This was approved by Planning & Zoning and meets the comprehensive plan. Staff recommends approval subject to conditions A-H included in the ordinance. As of today, ten letters of objection have been received.

Mayor Payton opened the public hearing at 12:52 p.m.

David Diaz, MCDC, reported they are requesting a zone change. Nobody knew we would be in a position of an abundance of apartments which is why they are changing their request. They are receptive to what the community needs and they feel this is the most appropriate.

Sharon Humphreys, 4504 Princeton, reported she will be able to see this development from her front door. She had concern for this being developed in phases, how trash will be handled, traffic, and light shining onto her property. She reported that lately there has been drag racing on her street. When asked if she has called the drag racing into the police, she reported she had not, but confirmed she would next time it happens. She is in favor of these not being apartments and expressed concern that where a road was put in from the Bobby Cox apartments it is still labeled as single family. Finally she wanted employee Whitney Craig to be recognized for recently completing her PHD from Capella University.

Cristina Cockrell, 4609 Cuthbert, asked if construction will take place over specific hours. David Diaz reported crews normally work 8 to 6 and can go later during summer hours and about 20% of the crew will work on weekends.

There being no one else wishing to speak, the public hearing was closed at 1:07 p.m.

Spencer Robnett moved to approve the first of two readings of Ordinance No. 10130; seconded by Jack Ladd.

DRAFT

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

31. 10131 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 9, BLOCK 4, REPLAT OF WINDWOOD PARK, CITY AND COUNTY OF MIDLAND, TEXAS, FROM LR, LOCAL RETAIL DISTRICT TO 2F, TWO-FAMILY DWELLING (DUPLEX) DISTRICT (GENERALLY LOCATED ON THE EAST SIDE OF NORTH MAIN STREET, APPROXIMATELY 91 FEET NORTH OF ELM AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10131.

Mayor Payton opened the public hearing at 1:16 p.m. There being no one present wishing to speak, the public hearing was immediately closed.

Spencer Robnett moved to approve the first of two readings of Ordinance No. 10131; seconded by Jack Ladd.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

32. 10132 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO GRANT A SPECIFIC USE DESIGNATION WITH TERM FOR A 3,588-SQUARE FOOT PORTION OF LOT 2, BLOCK 1, WALLACE HEIGHTS, SECTION 2, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE EAST SIDE OF NORTH LOOP 250 WEST, APPROXIMATELY 377 FEET SOUTH OF SINCLAIR AVENUE), WHICH IS PRESENTLY ZONED RR, REGIONAL RETAIL DISTRICT, ALLOWING SAID PROPERTY TO BE USED FOR THE SALE OF ALL ALCOHOLIC BEVERAGES IN A RESTAURANT FOR ON-PREMISES CONSUMPTION; MAKING SAID DESIGNATION SUBJECT TO CERTAIN CONDITIONS AND RESTRICTIONS CONTAINED HEREIN; CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10132.

Mayor Payton opened the public hearing at 1:17 p.m.

Catherine Chamblee, Austin, representing the applicant, reported they wish to proceed with

DRAFT

getting a mixed beverage permit. They are primarily a breakfast and lunch spot and are not open past 2:00 p.m. any day. They understand the TABC regulations in terms of alcoholic service hours on Sundays. They would only serve alcohol with food. The main purpose in applying for the permit is to keep up with their competition noting that many of their competitors have a MB permit which allows a person to serve mimosas for breakfast and they would like the same option.

There being no one else present wishing to speak, the public hearing was closed at 1:19 p.m.

Michael Trost moved to approve the first of two readings of Ordinance No. 10132; seconded by Lori Blong.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

33. 10133 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOTS 1, 2, AND 3, BLOCK 1, JADEN KATE ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS, FROM AE, AGRICULTURAL ESTATE DISTRICT, IN PART, AND PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT, IN PART, TO PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT (GENERALLY LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF NORTH ELKINS ROAD AND ARAPAHOE ROAD); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10133.

Mayor Payton opened the public hearing at 1:09 p.m. There being no one present wishing to speak, the public hearing was immediately closed.

Spencer Robnett moved to approve the first of two readings of Ordinance No. 10133; seconded by Lori Blong.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

34. 10134 – AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 3, BLOCK 22, GREENWOOD ADDITION, THIRD, FOURTH, AND FIFTH SECTIONS, CITY AND COUNTY OF MIDLAND, TEXAS, FROM MF-22, MULTIPLE-FAMILY DWELLING DISTRICT TO SF-3, SINGLE-FAMILY DWELLING DISTRICT (GENERALLY LOCATED ON THE WEST SIDE OF SOUTH CLAY STREET, APPROXIMATELY 110 FEET SOUTH OF EAST WASHINGTON AVENUE); CONTAINING

DRAFT

A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10134.

Mayor Payton opened the public hearing at 1:22 p.m. There being no one present wishing to speak, the public hearing was immediately closed.

Spencer Robnett moved to approve the first of two readings of Ordinance No. 10134; seconded by Lori Blong.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

MISCELLANEOUS

35. 10135 – AN ORDINANCE ADOPTING A FEE SCHEDULE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING AN APPEAL PROCESS; AND ORDERING PUBLICATION (FINANCE)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10135.

Lori Blong moved to approve the first of two readings of Ordinance No. 10135; seconded by Scott Dufford.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

36. 2020-197 – RESOLUTION APPROVING AMENDMENTS TO THE PERMITS ISSUED TO ENDEAVOR ENERGY RESOURCES, L.P. (“OPERATOR”) TO DRILL TWO OIL AND GAS WELLS LOCATED IN SECTION 31, BLOCK 38, T-1-S, T&P RR CO. SURVEY, CITY OF MIDLAND, MIDLAND COUNTY, TEXAS (GENERALLY LOCATED BETWEEN 339 FEET AND 340 FEET SOUTH OF THE EAST CYNTHIA DRIVE EXTENSION, AND BETWEEN 2,226 FEET AND 2,291 FEET WEST OF TODD DRIVE); EACH SAID AMENDMENT AUTHORIZING THE USE OF AN ONSITE ELECTRIC COMPRESSOR (DEVELOPMENT SERVICES)

Spencer Robnett moved to approve Resolution No. 2020-197; seconded by Lori Blong.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None

DRAFT

ABSTAIN: None
ABSENT: None

37. 2020-198 – RESOLUTION APPROVING AMENDMENTS TO THE PERMITS ISSUED TO ENDEAVOR ENERGY RESOURCES, L.P. ("OPERATOR") TO DRILL TWO OIL AND GAS WELLS LOCATED IN SECTION 31, BLOCK 38, T-1-S, T&P RR CO. SURVEY, CITY OF MIDLAND, MIDLAND COUNTY, TEXAS (GENERALLY LOCATED APPROXIMATELY 1,082 FEET SOUTH OF THE EAST CYNTHIA DRIVE EXTENSION, AND BETWEEN 2,284 FEET AND 2,309 FEET WEST OF TODD DRIVE); EACH SAID AMENDMENT AUTHORIZING THE USE OF AN ONSITE ELECTRIC COMPRESSOR (DEVELOPMENT SERVICES)

John Norman moved to approve Resolution No. 2020-198; seconded by Spencer Robnett.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

38. 10136 – AN ORDINANCE DIRECTING OWNERS AND OPERATORS OF COMMERCIAL ENTITIES, BUILDINGS, AND OTHER ENCLOSED SPACES THAT ARE OPEN TO THE PUBLIC TO REQUIRE INDIVIDUALS TO WEAR FACE COVERINGS; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF FIVE HUNDRED DOLLARS ($500.00); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; AND ORDERING PUBLICATION (CITY MANAGER'S OFFICE)

Deputy City Secretary Jan Hamilton read the caption of Ordinance No. 10136.

Russel Meyers, CEO of Midland Health, reported there have been about 115 COVID deaths in the community noting they just lost a second hospital employee who was 50 years old. As for hospital employees they have 111 in quarantine, 68 who have tested positive and another 43 with suspicious symptoms. About 10% of their workforce has been exposed. They have capacity for 281 patients and are currently at 241 with 93 being COVID patients. The state has provided 38 ventilators and half are in use on COVID patients. They have expanded their testing hours and are currently getting a 30% positive test rate which is how they forecast future hospitalizations. COVID patients tend to have 14-15 days hospital stay where an average patient would be 3-5 days. They are currently using the Emergency Department to house COVID patients and are bringing in climate controlled tents to place in the parking lot to use as an emergency room. They will soon be at the point that they will have to transfer patients out to other hospitals.

Mayor Payton asked if we should fine businesses and/or individual for not wearing a mask. Mr. Meyers responded we should do the best we can to enforce individuals and companies, noting it is a difficult problem to enforce but it is time for the community to make a statement about the public health crisis. We must get our arms around it. Businesses need to set the expectation to wear a mask. Mayor Payton asked if he thought the community would not heed to wearing a mask without a fine. Mr. Meyers noted he believed that it is apparent because we are worse off than in the past. Please wear a mask even if it is uncomfortable.

DRAFT

Council Member Robnett asked him to provide specific ways the City can support the hospital including public service announcements that could be placed on billboards.

Jenny Cudd, 3400 Humble, noted we needed to guard against the overreaching hand of big government taking away freedoms. She asked the Council not to penalize business owners and force them to do an impossible task of policing the people in their business.

Cathy Broadrick, 5114 Ashdown Place, thanked Stuart Doreen for being diligent in his job encouraging mask wearing but felt this item is the perfect way to pit people on either side of the mask debate against each other and did not think that should be done to businesses. She agreed with Council Member Dufford's statement in the paper and asked a friend in San Antonio how it was working. They said it has been working for a long time and helped them turn the spike around. They did it using this ordinance but businesses have to enforce it. It is unfortunate but effective. We need to get people's attention and get them to wear a mask, have curfews and a stay at home ordinance. The spread of the virus is climbing at an alarming rate. Statisticians and historians will rate how we did and we will try to learn from our mistakes. We are doing poorly because of lack of leadership in implementing measures to save lives.

Eliel Rosa, 3603 Humble, reported he has been working in public policy arena on behalf of students. It is important to protect our inalienable rights and health care is not a right. He felt we should be protecting Pastor Fu and that is where our priorities should be. Midland will never become one of the best cities to live in if we go on with this unconstitutional ideal. Please stay with the constitution and the laws of the land.

Kelly Stout, 2300 Boyd, spoke in favor of the mask mandate noting she would not bully anybody who doesn't want to wear a mask. She wondered where their rights end and another persons begins especially when it comes to public health. She believes in no shoes, no shirt, no mask, no service.

Nicole Lawrence, 5207 Oak Valley, felt it wasn't good to inhale fibers from a mask and that wearing a mask has psychological impact on human emotions. She is a small business owner and is doing her best to make it a success. It has been hard competing with big box chain stores. People have been driven away from local stores by fears of the virus. She loves Midland and feels that a mask mandate would make it hard on all businesses and taking money out of their own pockets goes against everything she believes in. A medical mask was never intended for the general population.

Jerry Morales reported his family started their restaurant in 1977 and now 42 years later they are running two restaurants. He is a part of the local and state restaurant association and they are fighting to keep restaurants open. Midland Memorial Hospital is in desperate need of reducing the spread of the virus and nobody knows that more than the restaurants. They are already out of pocket more money with personal protective equipment and extra sanitizing and paper products and their operations have dropped 50-75%. Putting the burden on businesses to enforce a mask mandate will cause them to lose more business. He thinks instead the City should ensure every business has a sign on the front door encouraging customers to wear masks.

Council Member Norman noted he has gotten a lot of calls, emails and texts. This is an

DRAFT

important issue for him. What we are doing right now is not working. He believes we should be enforcing the mask mandate that is already in place by the governor and it should be the responsibility of individuals, not businesses. Several ideas were discussed. Mayor Payton asked if Council would put their ideas together in the form of an actionable item for Council to consider at the next meeting.

Following discussion, it was noted that this ordinance deserves a vote up or down.

Mayor Payton read a statement about COVID noting it has impacted every area of life. In March an emergency declaration was adopted that was far reaching and he allowed it to lapse as soon as possible. The last nine months has been a great health challenge. Not all of Texas has been affected the same and should not be treated the same. He has not wavered from his message which has culminated in this discussion today. He has heard many voices urging him to issue a mask mandate but none have asked the Council to issue it. Some have asked for the enforcement of the Governor's mask mandate, but the City would still need to deal with the issue of enforcement. He is not comfortable with making decisions that should be decided by the body which is why this is on the agenda. One of the things made clear to him is that the foundation of representative government has been eclipsed by the unhealthy nature of unilateral mandates by one elected official that the entire nation is dealing with. He put this on the agenda because your elected representatives wanted to hear from you and wanted to debate, discuss and vote on the issue rather than a unilateral mandate. If we chose to enforce the Governors mask order we could have Midlander's calling 911 and pitting one person against another. He had a physician ask him to set up a mask patrol unit in hopes that it strikes fear in all of you and have the mask unit being called out on those who are violating the order. The Mayor believes Midland will respond to this message of crisis and will react. We need to be united not divided by impossible mandates. This is real and we must fight. We must honor and serve each other safely. He called on the community to practice social distancing and to be careful with family events. He cannot be more proud of all things we have faced and is ready to debate and compromise to get better answers.

Spencer Robnett moved to approve the first of two readings of Ordinance No. 10136; seconded by Michael Trost.

The motion failed by the following vote:
AYE: Trost
NAY: Payton, Robnett, Dufford, Norman, Ladd, Blong
ABSTAIN: None
ABSENT: None

Mayor Payton called for a brief recess at 10:41 a.m. The meeting reconvened at 11:49 a.m. with all Council Members present.

39. 2020-199 – RESOLUTION ADDING ONE (1) REGULAR CITY COUNCIL MEETING ON NOVEMBER 23, 2020, TO THE CITY COUNCIL MEETINGS SCHEDULED FOR THE 2020 CALENDAR YEAR (CITY MANAGER'S OFFICE)

Spencer Robnett moved to approve Resolution No. 2020-199; seconded by Lori Blong.

DRAFT

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

40. MOTION MAKING APPOINTMENTS TO VARIOUS BOARDS AND COMMISSIONS (CITY SECRETARY'S OFFICE)

Michael Trost moved to defer the item to November 23, 2020; seconded by Spencer Robnett.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

EXECUTIVE SESSION

Mayor Payton recessed the meeting to go to Executive Session at 1:26 p.m.

41. Pursuant to Texas Government Code § 551.101, the City Council will hold an Executive Session, which is closed to the public, to discuss the following matters as permitted under the following sections of the Texas Government Code:

a. Section 551.071, Consultation with the City Attorney

a.1. Discuss matters in which the duty of the attorney(s) to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with Chapter 551 of the Texas Government Code

All the business at hand having been completed, the meeting adjourned at 2:19 p.m.

PASSED AND APPROVED December 15, 2020.

Patrick Payton, Mayor

ATTEST:

Amy M. Turner, City Secretary

DRAFT

MIDLAND CITY COUNCIL
MINUTES
November 23, 2020

The City Council convened in regular session in the Council Chamber, City Hall, Midland, Texas, at 9:00 a.m., November 23, 2020.

Council Members present:	Patrick Payton, Spencer Robnett, Michael Trost, Scott Dufford, John Norman, Jack Ladd, Lori Blong
Council Members absent:	None
Staff members present:	City Attorney John Ohnemiller, Interim City Manager Robert Patrick, Assistant City Manager Morris WIlliams

The meeting was called to order at 9:10 a.m.

OPENING ITEMS

1. Invocation – Senior Pastor Darin Wood, First Baptist Church

2. Pledge of Allegiance

SECOND READINGS

3. 10135 – AN ORDINANCE ADOPTING A FEE SCHEDULE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING AN APPEAL PROCESS; AND ORDERING PUBLICATION (FINANCE) (FIRST READING HELD NOVEMBER 17, 2020)

   Spencer Robnett moved to approve the second and final reading of Ordinance No. 10135; seconded by Michael Trost.

   The motion passed by the following vote:
   AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
   NAY: None
   ABSTAIN: None
   ABSENT: None

MISCELLANEOUS

4. 2020-200 – RESOLUTION APPROVING A GRANT OF FUNDS TO THE MIDLAND

DRAFT

COUNTY HOSPITAL DISTRICT IN THE AMOUNT OF $1,376,572.00 FOR THE PURPOSE OF FUNDING PROJECTS RELATED TO THE HOSPITAL DISTRICT'S RESPONSE TO THE COVID-19 PANDEMIC; AUTHORIZING THE MAYOR AND INTERIM CITY MANAGER TO EXECUTE ALL RELATED DOCUMENTS NECESSARY AND APPROPRIATE TO EFFECTUATE THE ADMINISTRATION OF SAID FUNDS; AND AUTHORIZING PAYMENT OF SAID FUNDS

Dr. Larry Wilson did not have any comments except to say he appreciated the City's consideration of this item.

Council Member Robnett reviewed the items covered by the grant.

Spencer Robnett moved to approve Resolution No. 2020-200; seconded by Jack Ladd.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

5. 2020-193 – RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS FOR THE FACILITY IMPROVEMENT PROGRAM IN THE AMOUNT OF $244,303.00 (DEVELOPMENT SERVICES) (DEFERRED FROM NOVEMBER 17,2020)

Discussion ensued about how this grant money will be used noting it is for facility upgrades for childcare. When asked what it was specifically for, staff was not certain. Council Member Blong added that the YMCA ramped up in the spring covering the needs and taking care of kids when they could not be in school and she is very supportive of this program. It was determined that more detail was needed to properly consider this item.

Russel Myers (speaking to the previous item) thanked Council for the money noting they would be opening an additional 12 beds on the 9th floor maximizing their capacity. He noted that today is the 7th day in region J where they have been over 15% of their beds devoted to COVID patients which triggers the Governors orders to reduce capacity to 50% across the community.

Scott Dufford moved to defer Resolution No. 2020-193; seconded by Lori Blong.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

6. 2020-194 – RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH ST. VINCENT DE PAUL SOCIETY FOR THE SOCIAL SERVICES RENTAL AND UTILITY ASSISTANCE PROGRAM IN THE AMOUNT OF $99,000.00 (DEVELOPMENT SERVICES) (DEFERRED FROM NOVEMBER 17, 2020)

DRAFT

John Norman moved to approve Resolution No. 2020-194; seconded by Jack Ladd.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

7. 2020-195 – RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH SAINT ANN'S CHURCH FOR THE SOCIAL SERVICES RENTAL AND UTILITY ASSISTANCE PROGRAM IN THE AMOUNT OF $100,000.00 (DEVELOPMENT SERVICES) (DEFERRED FROM NOVEMBER 17, 2020)

Spencer Robnett moved to approve Resolution No. 2020-195; seconded by Lori Blong.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

Mayor Payton noted Executive Session would be heard next.

8. 2020-201 – RESOLUTION AUTHORIZING THE MIDLAND POLICE DEPARTMENT TO ENFORCE GOVERNOR GREG ABBOTT'S EXECUTIVE ORDER NO. GA-29

John Norman moved to approve Resolution No. 2020-201; seconded by .

The motion by the following vote:
AYE: None
NAY: None
ABSTAIN: None
ABSENT: None

The motion died for lack of a second.

9. 10137 – AN ORDINANCE DIRECTING OWNERS AND OPERATORS OF COMMERCIAL ENTITIES, BUILDINGS, AND OTHER ENCLOSED SPACES THAT ARE OPEN TO THE PUBLIC (1) TO POST NOTICES THAT FACE COVERINGS MUST BE WORN AND (2) TO REQUIRE INDIVIDUALS TO WEAR FACE COVERINGS; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF FIVE HUNDRED DOLLARS ($500.00) FOR A VIOLATION OF THE NOTICE POSTING REQUIREMENT; CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; AND ORDERING PUBLICATION

Council Member Ladd reported he is willing to amend this item to have it enforced by Code Enforcement rather than the police.

Regan Hignojos, 5108 Ric Drive, reported we will soon find out the true mortality of COVID. He heard some say that a mask is not effective but encourage hand washing and social

DRAFT

distancing. Mask opponents say they are a breeding ground for bacteria and virus. Most people wear clean clothes every day and we should do the same for our masks. We are becoming complacent. The virus is a marathon not a sprint and leaders need to encourage the people to finish the race. We should be handing out masks and pumping hand sanitizer and encouraging social distancing. You are not nannies, but leaders, please lead us to victory.

Heather Bredimus, 3106 Auburn, for eight months we have been fighting the Corona Virus with no actionable plan to help slow the spread. The Governor issued an Executive Order requiring masks to allow business to operate safely. She felt the Mayor's speech on September 17th is impacting the attitude of many in the community and wondered why he has not proposed an actionable plan he could support. The City has enough resources to require signs in all businesses. She is in favor of this proposal and encourages all business owners to require employees to wear masks where they cannot social distance.

Jenny Cudd, 2603 N. Midland, spoke against this item noting the ordinance imposes a $500 penalty every day if they do not post a sign, and can be charged with a misdemeanor. She asked where her due process was. She reported there are only three businesses in town that don't have a mask required sign on the door and did not feel anyone had the right to tell her what to post on the door of her business.

Jazmin Sanchez spoke in favor of the proposal noting that health care workers are beyond stressed with this matter. They already sacrifice by distancing themselves from their families and the least we can do is show support for them and put on a mask to care for one another and protect each other as neighbors. By doing so, it ensures that anyone who is in an accident can access the health care they need. We are Midlanders and should be proud of that.

Eliel Rosa, 3603 Humble, stated that the Council is elected not to make us feel safer, but to follow the constitution, which has never been suspended.

Larry Brautigam, 3603 W. Ohio, felt the ordinance as written is not effective. He suggested making the mask requirement by square footage of the business and leaving the smaller businesses alone. The store is allowed to refuse service and can ask any customer put on a mask or leave if they choose. The constitutional argument just heard is lunacy and would mean we could ignore school zones or traffic laws because they are not in the constitution. The ordinance is a good start but thinks enforcement and punishment is wrong. Let small businesses do what they want but make them sign a waiver that they will not accept medical care from the hospital if they get sick. That is their choice.

Shandi Williams, 2513 Fannin, showed a mask made of cheese cloth noting it is deemed appropriate but it is not good at stopping anything. She spoke about medical exemptions noting if someone doesn't wear a mask all they have to do is say they have a medical exemption and there is nothing anyone can do about it. No one can ask a question about why you have a medical exemption. Businesses are losing revenue and the responsibiility for enforcing this should not be placed on them. Her kids are still playing sports. A mask is not going to make the virus go away. We need to speak about immunity, not masks.

Dr. Larry Wilson, Chief Medical Officer at MMH, reported that 25% of people who are

DRAFT

tested are testing positive, which is a significant surge. The previous speaker who spoke about her kids still participating in sports supports the fact of this surge and it will continue until people stop getting together. The hospital is bursting at the seams. They received the tents today which will create more beds. The hospital never turns away any patient in need. We are a long way from herd immunity and action needs to be taken to get the positivity rate down. Masking and preventative behaviors slows down the spread. Masking not only helps you from not getting the virus, but it helps others from not breathing your breath. There is a lot of uncertainty around these issues, but we have to take a stance that supports controlling the disease.

Kristin Trout, 6711 Colony Road, spoke about choices she makes in life that all have risks related to them but noted that now she is having her choices taken away in the interest of safety. This illness will not go away and we can't shut down and lose our livelihoods. Don't take away her freedom.

Wendy Holland, 2604 Sentinel, asked if when Council has to make a decision will they fall on the side of citizens or business owners. She will not comply and will not wear a mask. If customers choose to wear masks in her store that is their choice.

Tom Soper, 4008 ECR 140, has three adult children that have all had Corona Virus and none of them wear a mask. He is 70 and will not wear a mask. He didn't get the disease when all the others in his family had it and neither did any of the grandchildren. He doesn't believe in political correctness. Any decision that Council makes will be a point of contention with somebody. He doesn't want to be told he has to police or attack other people if they choose not to wear a mask. He went into a business where he was told he had to wear a mask and he just turned around and left. He will socially distance himself and will not get in other people's faces and breathe on them and expects everybody in the country to do the same.

Police Chief Seth Herman when asked about enforcement spoke of dealing with people who are resistant. It creates problems between citizens and law enforcement and it can be dangerous for both groups. It would increase call volumes meaning real emergencies may not get through. His force is already stretched thin and this will only exacerbate the issue.

Jack Ladd moved to approve first of two readings of Ordinance No. 10137 with the amendment to change enforcement to code enforcement rather than police department enforcement; seconded by John Norman.

The motion failed by the following vote:
AYE: Trost, Norman, Ladd
NAY: Payton, Robnett, Dufford, Blong
ABSTAIN: None
ABSENT: None

10. 139-2020 – MOTION APPROVING A COVID-19 SEVEN-POINT MITIGATION PLAN (THE "MITIGATION PLAN"); AND AUTHORIZING THE INTERIM CITY MANAGER OR HIS DESIGNEE TO TAKE ALL ACTION NECESSARY AND APPROPRIATE TO IMPLEMENT THE MITIGATION PLAN

DRAFT

Council Member Trost reviewed the amendments to be made. The sections that would remain are 1, 5b, 5d, 6 and 7.

Jasmine Sanchez was called but not present.

Heather Bredimus, 3106 Auburn, thanked Council for coming to the hospital and supporting the workers. She read the proposal and appreciated the plan noting it would be helpful to create a task force and implementing empirical data to know when the City is in dire straights. They have created a Facebook group which promotes businesses who encourage the wearing of masks.

Jenny Cudd, 2603 N. Midland, noted she felt this plan might have had legs 6 months ago. She feels it is using taxpayer money to create a bureaucracy that is cruel to business owners. Of all the proposed items today this is the most tyrannical. She reviewed how the mask mandate would impact her business specifically with fines out of pocket. This would cause irrevocable damage and a decline to local businesses.

Wendy Holland, 2604 Sentinel, noted that there might be an overlap in duties taken on by the hospital in conjunction with small business owners in the community if we have a mitigation committee. The committee should be well represented from a cross section of the people.

Michael Trost moved to approve Motion No. 139-2020 with the amendment to remove Section 2 mask ordinance, Section 3 testing, Section 4 metrics, and Section 5A and 5C advertising agencies; seconded by John Norman.

The motion failed by the following vote:
AYE: Trost, Norman
NAY: Payton, Robnett, Dufford, Ladd, Blong
ABSTAIN: None
ABSENT: None

11. 2020-202 – RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS, IN SUPPORT OF MIDLAND RESIDENTS PRACTICING EFFECTIVE HEALTH PROTOCOLS IN ORDER TO REDUCE THE SPREAD OF COVID-19; IN SUPPORT OF THE EXCEPTIONAL WORK OF MIDLAND HEALTH CARE PROFESSIONALS, INCLUDING EMPLOYEES OF MIDLAND MEMORIAL HOSPITAL AND THE CITY OF MIDLAND HEALTH DEPARTMENT; IN SUPPORT OF THE GOVERNOR' S ORDER REQUIRING INDIVIDUALS TO WEAR A FACE COVERING; AND IN SUPPORT OF BUSINESS OWNERS AND OPERATORS POSTING SIGNAGE THAT WEARING A FACE COVERING IS REQUIRED WHEN INSIDE THE BUSINESS

Council Member Dufford noted he already stated his opinion in the newspaper. If we pass this resolution we already have GA29 which is Governor Abbott's executive order mandating masks should be worn in the community because it makes people feel safe. He doesn't think we should put the onus on business owners. He is in favor of the resolution as written.

Council Member Norman agreed adding that we should be enforcing the Governor's mask mandate. He thinks everyone should think about their neighbors instead of their own selfish

DRAFT

ways.

It was noted that Dr. Wilson had to leave but he was in favor of this item.

Heather Bredimus read a statement from Kimberly Crisp noting that Midland Memorial Health has made it clear that they want people to wear masks and socially distance. Council should lead by example in wearing their masks properly. Kimberly added that Council should not vote in favor of the item because it does nothing.

Scott Dufford moved to approve Resolution No. 2020-202; seconded by Spencer Robnett.

The motion passed by the following vote:
AYE: Payton, Robnett, Dufford, Norman, Ladd, Blong
NAY: Trost
ABSTAIN: None
ABSENT: None

12. 2020-203 – RESOLUTION ADDING ONE (1) REGULAR CITY COUNCIL MEETING ON DECEMBER 1, 2020, TO THE CITY COUNCIL MEETINGS SCHEDULED FOR THE 2020 CALENDAR YEAR

No action was taken on this item.

13. MOTION MAKING APPOINTMENTS TO VARIOUS BOARDS AND COMMISSIONS (CITY SECRETARY'S OFFICE)

Scott Dufford moved to defer this item to the December 15 meeting; seconded by Spencer Robnett.

The motion passed by the following vote:
AYE: Payton, Robnett, Trost, Dufford, Norman, Ladd, Blong
NAY: None
ABSTAIN: None
ABSENT: None

EXECUTIVE SESSION

Mayton Payton recessed the meeting to go to Executive Session at 9:33 a.m.

14. Pursuant to Texas Government Code § 551.101, the City Council will hold an Executive Session, which is closed to the public, to discuss the following matters as permitted under the following sections of the Texas Government Code:

a. Section 551.071, Consultation with the City Attorney

a.1. Discuss matters in which the duty of the attorney(s) to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with Chapter 551 of the Texas Government Code. (CITY SECRETARY'S OFFICE)

DRAFT

Mayor Payton reconvened the meeting in regular session at 10:15 a.m.

All the business at hand having been completed, the meeting adjourned at 11:37 a.m.

PASSED AND APPROVED December 15, 2020.

Patrick Payton, Mayor

ATTEST:

Amy M. Turner, City Secretary

DRAFT

City Council Meeting

Item Number: 5

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION AWARDING A CONTRACT TO FIBER PLATFORM, LLC DBA UNITE PRIVATE NETWORKS, L.L.C., FOR THE CITY-WIDE FIBER PROJECT FOR A COST OF $3,714,000.00; APPROVING CONTINGENCIES IN THE AMOUNT OF $315,000.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS (GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the execution of a contract for the City-Wide Fiber Project for the Communications and Information Services Department.

Recommended City Council Action:

Approve

Fiscal Impact:

Funding is available in Project 900208-777 and re-appropriating funds through closing certain projects as well as appropriating reserve funds from various funds into the Fiber Optic Project using project number 900208-777 as follows:

Project:			
Fiber Optics Project	Available	$	70,085
Radio System Upgrade Project	Re-appropriate	$	9,670
Parks Reservation System Program	Re-appropriate	$	11,275
Public Safety Software	Re-appropriate	$	956,324
Parks Wi Fi Projects	Re-appropriate	$	102,646
Citywide Radio System Project- Engineering	Re-appropriate	$	104,101
Funds:			
Utilities	Appropriate	$	495,000
Solid Waste	Appropriate	$	495,000
General Fund	Appropriate	$	170,899
		$	2,415,000

Discussion:

The City Manager approved the issuance of a request for proposals for the City-Wide Fiber Project. Thirty-five (35) request for proposals were issued and we received six (6) proposals. Staff recommends awarding the contract to Fiber Platform LLC dba Unite Private Networks LLC. Please see the attached memo from Jennifer Frescaz, Chief Information Officer, for additional information.

Therefore, please consider a resolution awarding a contract for the City-Wide Fiber Project to Fiber Platform LLC dba Unite Private Networks LLC of Lubbock, Texas for a cost of $2,100,000 for option 3 plus $315,000.00 in contingencies and $1,614,000.00 for maintenance for sixty (60) months for a total project cost of $4,029,000.00.

Morris Williams Jr.

City Manager's Office

DATE: November 25, 2020

TO: Regina Stephenson, General Services Director

FROM: Jennifer Frescaz, Chief Information Officer

SUBJECT: Request to enter into an agreement with Unite Private Networks for a citywide fiber optics installation

---

This month we released a bid for installation for a citywide fiber network installation for all City sites serving employees and utilities. This project has been a City initiative for several years to improve communications and network reliability for City operations.

We currently have fiber to eight sites and six of the connections were as a result of the initiative. The sites connected via fiber last year saw a minimum of 200% and up to a 900% increase in bandwidth. Unfortunately, some City services are halted or slowed when connectivity fails. The landfill cannot process credit card payments resulting in a loss of tens of thousands in revenue. The Fire Department must place a fire station out of order when personnel take mandatory training at the Central Station because video training is not available at current network speeds. The Police Training Center does not have enough bandwidth to utilize the phones reliably. As a result, we provided equipment to boost the cellular signal so employees can use their cell phones to make phone calls.

The fiber network will allow for improved security. Connecting the Utilities sites by fiber rather than wireless connectivity is significantly more secure. Finally, a fiber network allows for future initiatives. Fiber connectivity provides a fundamental basis for enabling smart city connectivity and other automated services

We received six proposals for this project. The companies and corresponding pricing is indicated on the attached bid tab. Unite Private Networks (UPN) was the lowest priced proposal at a total of $3,714,000, and Motive Energy Telecommunications Inc. dba AWS Communications the next lowest bid at $5,893,374.

We request to enter into an agreement with Unite Private Networks (UPN) for installation and maintenance services for a City-owned fiber optic cabling to the remaining City Sites. UPN provided the best pricing, quality references and has extensive experience installing fiber in Midland. They installed fiber to five sites for the

City of Midland last year and completed an organization wide fiber installation for the Midland Independent School District this year.

Staff recommends the five-year maintenance term over a longer period because at the end of the term we would like the option to re-bid the maintenance. Maintenance is necessary in the event of a fiber cut.

Funding is available in Project 900208-777 and re-appropriating funds through closing certain projects as well as appropriating reserve funds from various funds into the Fiber Optic Project using project number 900208-777 as follows:

Project:			
Fiber Optics Project	Available	$	70,085
Radio System Upgrade Project	Re-appropriate	$	9,670
Parks Reservation System Program	Re-appropriate	$	11,275
Public Safety Software	Re-appropriate	$	956,324
Parks Wi Fi Projects	Re-appropriate	$	102,646
Citywide Radio System Project- Engineering	Re-appropriate	$	104,101
Funds:			
Utilities	Appropriate	$	495,000
Solid Waste	Appropriate	$	495,000
General Fund	Appropriate	$	170,899
		$	2,415,000

The installation of $2,100,000 will be funded from Project 900208-777. A fifteen percent contingency of $315,000 will also be funded from Project 900208-777. The annual maintenance cost of $322,800 is budgeted in the general fund (001032).

Attachments:

RESOLUTION NO. _____

RESOLUTION AWARDING A CONTRACT TO FIBER PLATFORM, LLC DBA UNITE PRIVATE NETWORKS, L.L.C., FOR THE CITY-WIDE FIBER PROJECT FOR A COST OF $3,714,000.00; APPROVING CONTINGENCIES IN THE AMOUNT OF $315,000.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS

WHEREAS, the Interim City Manager authorized the advertisement for bids for the City-Wide Fiber Project; and

WHEREAS, two bids were opened on November 24, 2020, with the lowest and most responsible bid being submitted by Fiber Platform, LLC dba Unite Private Networks, L.L.C., as shown on the bid documents attached hereto as Exhibit A and incorporated herein for all purposes; and

WHEREAS, the City Council finds the amount proposed by Fiber Platform, LLC dba Unite Private Networks, L.L.C., to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to award a contract to Fiber Platform, LLC dba Unite Private Networks, L.L.C., for the City-Wide Fiber Project;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, a contract with Fiber Platform, LLC dba Unite Private Network, L.L.C., for the City-Wide Fiber Project for a cost of $3,714,000.00. Said contract to be kept on file in the office of the City Secretary, referenced by the date and number of this Resolution.

SECTION TWO. That the sum of $315,000.00 for contingencies is hereby approved for said contract.

SECTION THREE. Funding is available in Project 900208-777 and re-appropriating funds through closing certain projects as well as appropriating reserve funds from various funds into the Fiber Optic Project using project number 900208-777 as follows:

Project:			
Fiber Optics Project	Available	$	70,085
Radio System Upgrade Project	Re-appropriate	$	9,670
Parks Reservation System Program	Re-appropriate	$	11,275
Public Safety Software	Re-appropriate	$	956,324
Parks Wi Fi Projects	Re-appropriate	$	102,646
Citywide Radio System Project- Engineering	Re-appropriate	$	104,101
Funds:			
Utilities	Appropriate	$	495,000
Solid Waste	Appropriate	$	495,000
General Fund	Appropriate	$	170,899
		$	2,415,000

SECTION FOUR. That the City Comptroller is hereby authorized and directed to pay Fiber Platform, LLC dba Unite Private Network, L.L.C., pursuant to the terms of said contract from available project funds upon receipt of proper invoices or statements approved by the City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

City of Midland - Bid Tabulation

BID # 21001104
City Wide Fiber
OPENED November 24, 2020
Est. Cost:

ITEM	QTY	DESCRIPTION	United Private Networks 4701 S. Loop 289 Lubbock, TX kathy.roquemore@upnfiber.com (806) 549-9653		AWS Communications 8708 South Congress Suite A 120 Austin, TX bmack@awscom.net 512-233-4638		CSI Lubbock 2317 114th St, Lubbock, TX joel@csi-lubbock.com 806-794-6304		TDC2 634 N Ballard Ave Wylie, TX smackinaw@tdc2.com (469) 999-7411		Future Infastructure 1800 Bruton Rd Balch Springs, TX tim.jones@futuretelco.com (972) 329-6400		MTC Engineering 8600 Park Meadow Drive Ste 800 Lone Tree, CO kjm@mtc-llc.com (303)596-8949	
			COST EA.	TOTAL	COST EA.	TOTAL	COST EA.	TOTAL	COST EA.	TOTAL	COST EA.	TOTAL	COST EA.	TOTAL
		Option 1												
	1	Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation)	$2,100,000.00	$2,100,000.00	$5,673,954.00	$5,673,954.00	$5,803,306.00	$5,803,306.00	$8,341,155.71	$8,341,155.71	$9,082,975.00	$9,082,975.00	$15,956,285.20	$15,956,285.20
	ea		3 pair (6 fiber strands)											
			60 month term											
	60	Maintenance/Service Cost per Month for 60 Months	$23,750.00	$1,425,000.00	$3,657.00	$219,420.00	$25,208.34	$1,512,500.40	$8,750.00	$525,000.00	$25,000.00	$1,500,000.00	$10,089.00	$605,340.00
	mths													
		TOTAL:		**$3,525,000.00**		**$5,893,374.00**		**$7,315,806.40**		**$8,866,155.71**		**$10,582,975.00**		**$16,561,625.20**
		Option 2												
	1	Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation)	$1,770,000.00	$1,770,000.00										
	ea		3 pair (6 fiber strands)											
			120 month term											
	120	Maintenance/Service Cost per Month for 60 Months	$20,250.00	$2,430,000.00										
	mths													
		TOTAL:		**$4,200,000.00**										
		Option 3												
	1	Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation)	$2,100,000.00	$2,100,000.00										
	ea		3 pair (12 fiber strands)											
			60 month term											
	60	Maintenance/Service Cost per Month for 60 Months	$26,900.00	$1,614,000.00										
	mths													
		TOTAL:		**$3,714,000.00**										
		Option 4												
	1	Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation)	$1,770,000.00	$1,770,000.00										
	ea		3 pair (12 fiber strands)											
			120 month term											
	120	Maintenance/Service Cost per Month for 60 Months	$22,750.00	$2,730,000.00										
	mths													
		TOTAL:		**$4,500,000.00**										

Bidding Summary:

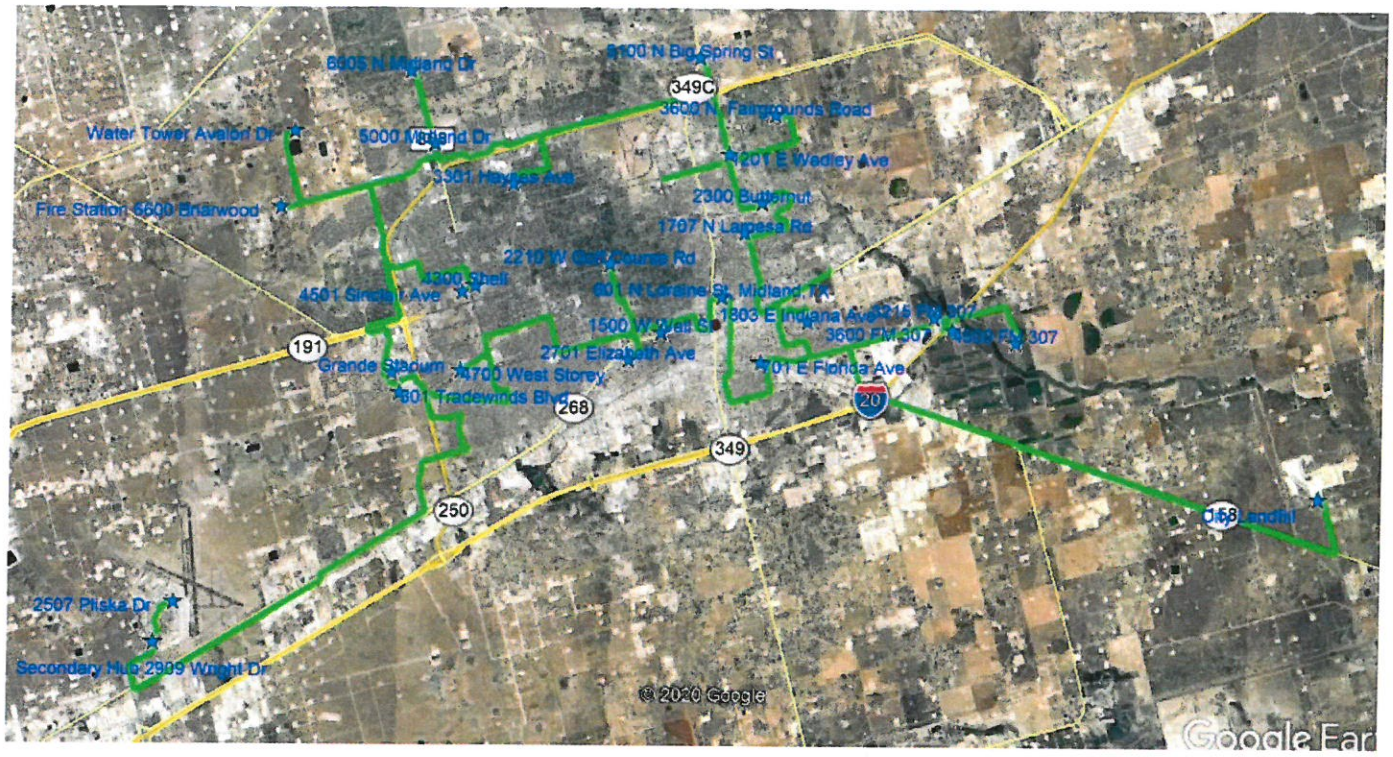
35 **Bid requests were issued.**

6 **Bids listed above**

3 **NO BIDS were received.**

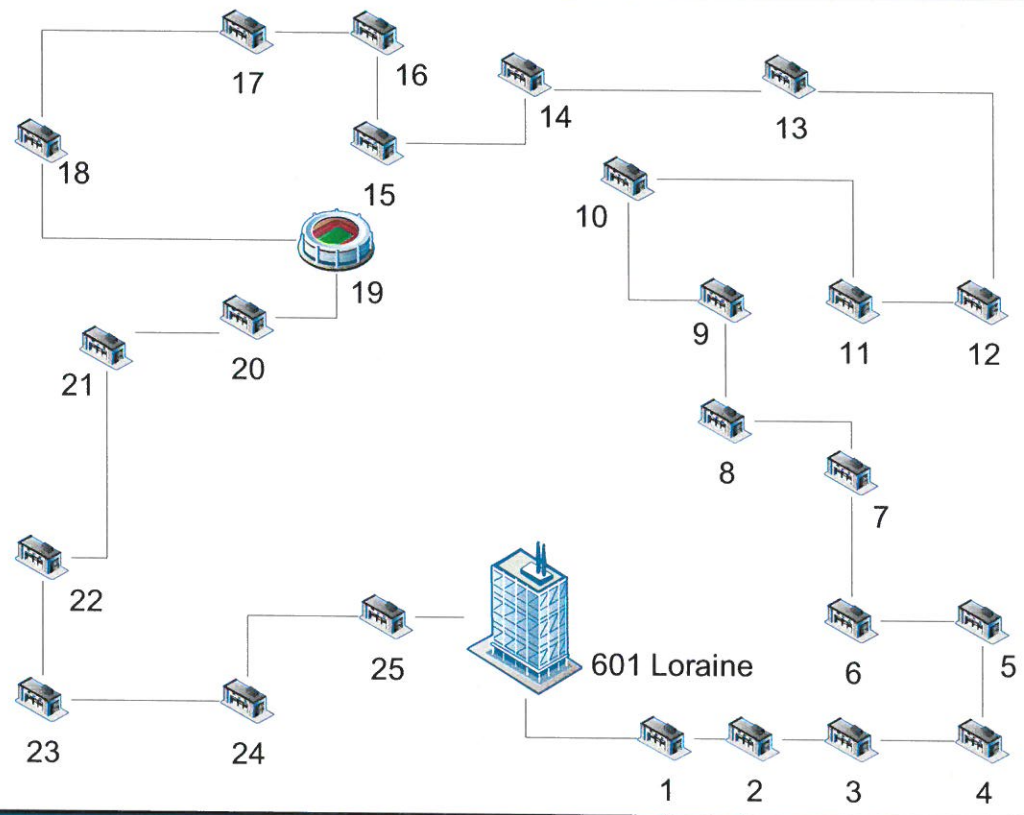
26 **Bidders did not respond.**

Proposed Fiber Route



Dark Fiber Service – Ring Topology

1. 701 E Florida
2. Landfill
3. 3600 FM 307
4. 4500 FM 307
5. 3215 FM 307
6. 1803 Indiana
7. 1707 Lamesa
8. 2300 Butternut
9. 1201 E Wadley
10. 3600 N Fairgrounds
11. 5100 N Big Spring
12. 3301 Haynes
13. 5000 N Midland Dr
14. 6005 N Midland Dr
15. 5500 North CR 1240 (Peggy Sue)
16. 6600 Briarwood
17. 4300 Shell
18. 4501 Sinclair
19. Grande Stadium
20. 301 Tradewinds
21. 9506 La Force Blvd (airport)
22. 2507 Pliska (airport fire station)
23. 4700 W Storey
24. 2701 Elizabeth
25. 2210 W Golf Course



Unite Private Networks Owns & Maintains The Last Mile, Enabling UPN To Have Full End-To-End Operational Control of The Network

UPN Equipment Guide



Fiber Distribution Panel

- 100% FIBER INFRASTRUCTURE
- CUSTOM DESIGNED NETWORK
- DEDICATED PROJECT MANAGER
- ULTRA SCALABLE BANDWIDTH

Configuration Represented

UPN Providing: Dark Fiber – Ring Service

- **Entry:** Single Building Entrance Lateral
- **CPE:** UPN Provided Fiber Distribution Panel (No Electronics Provided)
- **Fiber Count:** Options provided for either 6 or 12 fiber strand ring
- **Demarc:** Minimum Point Of Entry
- **LOA/CFA:** UPN Provides At The UPN Demarc
- **Hand Off:** Single Interface - Single Mode Fiber/ LC Connectors

Notes: Customer requested changes differing from above configuration could result in additional charges. Customer responsible for cross connections when applicable.

MIDLAND
Feel the Energy!

Logical Design:
27878-3
Cary Collins
11/18/2020

Unite PRIVATE NETWORKS

This document is strictly confidential and should not be shared without the written consent of Unite Private Networks

City of Midland - Bid Tabulation

BID # 21001104
City Wide Fiber
OPENED November 24, 2020
Est. Cost:

ITEM	QTY	DESCRIPTION	United Private Networks 4701 S. Loop 289 Lubbock, TX kathy.roquemore@upnfiber.com (806) 549-9653		AWS Communications 8708 South Congress Suite A 120 Austin, TX bmack@awscom.net 512-233-4638		CSI Lubbock 2317 114th St, Lubbock, TX joel@csi-lubbock.com 806-794-6304		TDC2 634 N Ballard Ave Wylie, TX smackinaw@tdc2.com (469) 999-7411		Future Infastructure 1800 Bruton Rd Balch Springs, TX tim.jones@futuretelco.com (972) 329-6400		MTC Engineering 8600 Park Meadow Drive Ste 800 Lone Tree, CO kjm@mtc-llc.com (303)596-8949	
			COST EA.	TOTAL	COST EA.	TOTAL	COST EA.	TOTAL	COST EA.	TOTAL	COST EA.	TOTAL	COST EA.	TOTAL
		Option 1												
	1	Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation)	$2,100,000.00	$2,100,000.00	$5,673,954.00	$5,673,954.00	$5,803,306.00	$5,803,306.00	$8,341,155.71	$8,341,155.71	$9,082,975.00	$9,082,975.00	$15,956,285.20	$15,956,285.20
	ea		3 pair (6 fiber strands)											
			60 month term											
	60	Maintenance/Service Cost per Month for 60 Months	$23,750.00	$1,425,000.00	$3,657.00	$219,420.00	$25,208.34	$1,512,500.40	$8,750.00	$525,000.00	$25,000.00	$1,500,000.00	$10,089.00	$605,340.00
	mths													
		TOTAL:		**$3,525,000.00**		**$5,893,374.00**		**$7,315,806.40**		**$8,866,155.71**		**$10,582,975.00**		**$16,561,625.20**
		Option 2												
	1	Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation)	$1,770,000.00	$1,770,000.00										
	ea		3 pair (6 fiber strands)											
			120 month term											
	120	Maintenance/Service Cost per Month for 60 Months	$20,250.00	$2,430,000.00										
	mths													
		TOTAL:		**$4,200,000.00**										
		Option 3												
	1	Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation)	$2,100,000.00	$2,100,000.00										
	ea		3 pair (12 fiber strands)											
			60 month term											
	60	Maintenance/Service Cost per Month for 60 Months	$26,900.00	$1,614,000.00										
	mths													
		TOTAL:		**$3,714,000.00**										
		Option 4												
	1	Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation)	$1,770,000.00	$1,770,000.00										
	ea		3 pair (12 fiber strands)											
			120 month term											
	120	Maintenance/Service Cost per Month for 60 Months	$22,750.00	$2,730,000.00										
	mths													
		TOTAL:		**$4,500,000.00**										

Bidding Summary:

35 **Bid requests were issued.**

6 **Bids listed above**

3 **NO BIDS were received.**

26 **Bidders did not respond.**

THE CITY OF MIDLAND

CONTRACT

21001104

THIS CONTRACT, effective the 16th day of December 2020, by and between the City of Midland, hereinafter referred to as "City", and Fiber Platform, LLC dba Unite Private Networks L.L.C., hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 3,714,000.00 DOLLARS

Upon completion of construction, Company will invoice City a non-recurring charge of $2,100,000. City shall remit payment to Company within thirty (30) days after receipt of such invoice. City will be invoiced $26,900 each month ("Maintenance Fee") for sixty (60) months in accordance with Exhibit A attached hereto.

2. **Scope of Work:** Company shall perform all work described for installation of City-Wide Fiber Optic Network of this Contract ("City Fibers") in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C.....Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D.....Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Jennifer Frescaz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such

representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel, transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials. City shall assist Company with obtaining all permits and licenses necessary to complete the project. Company shall not be considered in breach of this contract if delays are caused by Company's inability to obtain required permits and licenses.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with

federal, state or municipal laws or regulations.

8. INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after the execution of this document or other written release to proceed and shall complete such work no later than 210 calendar

days after release to proceed, completion of engineering, and the acquisition of all permits, licenses, rights-of-way necessary to complete the implementation.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise unavailable in any fiscal period for contract payments due under the contract, then this contract shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever. By executing this contract, City warrants that it has funds appropriated and available to pay all amounts due through the end of City’s current fiscal period. If sufficient appropriations and authorizations are not made by the City, the specific goods or services for which funds were not appropriated may be terminated at the end of City’s then-current fiscal year. City must provide no less than thirty (30) days’ written notice of its intent to terminate. If City terminates for

failure to appropriate funds, City agrees to pay all amounts due through the date of termination and reimburse all unrecovered non-recurring charges, including actual construction to be verified by Company through the submittal of invoices to City.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. Insurance:

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

The Parties agree that the insurance provisions contained herein may be met through a combination

of Self-Insured Retention and Commercial General Liability Insurance policies.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: EXCEPT ANY CLAIMS, DAMAGES, OR CAUSES OF ACTION ARISING OUT OF CITY'S GROSS NEGLIGENCE, WILLFUL MISCONDUCT, OR BREACH OF CONTRACT, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE AGAINST CITY, CITY'S EMPLOYEES, AND OFFICERS.**

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of

Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be terminated

before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective. If City terminates this Agreement or any portion of this contract pursuant to this Section 27, City will reimburse Company for its actual costs expended in relation to the contract up to and through the date of termination.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS:

_____

Robert Patrick, Interim City Manager

ATTEST:

_____

Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM:

_____

John Ohnemiller, City Attorney

FIBER PLATFORM, LLC DBA
UNITE PRIVATE NETWORKS, L.L.C.:

By:_____

Name:_____

Title: _____

STATE OF_____§

§

COUNTY OF_____§

BEFORE ME, the undersigned authority, on this day of_____, 20 personally appeared, _____, an officer of Fiber Platform, LLC dba Unite Private Networks, L.L.C., known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the day of_____, 20 .

_____

Notary Public, State of Texas

Exhibit A

Operation & Maintenance (Company ID: 27878)

Contact Information			
Unite Private Networks, LLC ("Company")		**City of Midland, TX ("City")**	
COMPANY CONTACT:	Kathy Roquemore	**COMPANY CONTACT:**	Jennifer Frescaz
PHONE:	(806) 549-9653	**PHONE:**	(432) 685-7100
EMAIL:	kathy.roquemore@upnfiber.com	**EMAIL:**	jfrescaz@midlandtexas.gov
PAYMENT ADDRESS:	Unite Private Networks, LLC 7200 NW 86th Street, Suite M Kansas City, MO 64153	**BILLING ADDRESS:**	City of Midland, Texas 300 N Loraine Midland, TX 79701

Billing Information and Service Commitment Period	
Order Type:	New
Company ID:	27878
Product & Service:	Dark Fiber (DF) Operation & Maintenance
Initial Service Term Length (beginning on date of installation):	60 months
O&M Monthly Recurring Charge:	$26,900.00
Installation Non-Recurring Charge:	$2,100,000.00

Circuit 1 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	City of Midland Data Center	Site Name	Fire Station 2
Address	601 N Loraine St	Address	701 E Florida Ave
	Midland, TX 79701		Midland, TX 79701
Point of Demarcation	Existing UPN Demarc	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 2 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 2	Site Name	Midland Landfill
Address	701 E Florida Ave	Address	7901 E HWY 158
	Midland, TX 79701		Midland, TX 79706
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 3 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Midland Landfill	Site Name	Water Pollution Control
Address	7901 E HWY 158	Address	3600 FM 307
	Midland, TX 79706		Midland, TX 79706
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 4 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Water Pollution Control	Site Name	Police Shooting Range
Address	3600 FM 307	Address	4500 FM 307
	Midland, TX 79706		Midland, TX 79706
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 5 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Police Shooting Range	Site Name	Fire Training
Address	4500 FM 307	Address	3215 FM 307
	Midland, TX 79706		Midland, TX 79706
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 6 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Training	Site Name	Washington Park
Address	3215 FM 307	Address	1803 E Indiana Ave

Exhibit A

Operation & Maintenance (Company ID: 27878)

	Midland, TX 79706		Midland, TX 79701
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 7 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Washington Park	Site Name	Fire Station 3
Address	1803 E Indiana Ave	Address	1707 N Lamesa Rd
	Midland, TX 79701		Midland, TX 79701
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 8 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 3	Site Name	Martin Luther King Jr. Community Center
Address	1707 N Lamesa Rd	Address	2300 Butternut Ln
	Midland, TX 79701		Midland, TX 79705
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 9 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Martin Luther King Jr. Community Center	Site Name	Hogan Park
Address	2300 Butternut Ln	Address	1201 E Wadley Avenue
	Midland, TX 79705		Midland, TX 79705
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 10 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Hogan Park	Site Name	Hogan Park GC
Address	1201 E Wadley Avenue	Address	3600 N Fairgrounds Rd
	Midland, TX 79705		Midland, TX 79705
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 11 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Hogan Park GC	Site Name	Fire Station 4
Address	3600 N Fairgrounds Rd	Address	5100 N Big Spring St
	Midland, TX 79705		Midland, TX 79705
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 12 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 4	Site Name	Fire Station 8
Address	5100 N Big Spring St	Address	3301 Haynes Ave
	Midland, TX 79705		Midland, TX 79707
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 13 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 8	Site Name	Water Purification Plant
Address	3301 Haynes Ave	Address	5000 N Midland Dr
	Midland, TX 79707		Midland, TX 79707

Exhibit A

Operation & Maintenance (Company ID: 27878)

Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 14 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Water Purification Plant	Site Name	Fire Station 9
Address	5000 N Midland Dr	Address	6005 N Midland Dr
	Midland, TX 79707		Midland, TX 79707
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 15 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 9	Site Name	Peggy Sue-Water Tower
Address	6005 N Midland Dr	Address	5500 N CR 1240
	Midland, TX 79707		Midland, TX 79705
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 16 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Peggy Sue-Water Tower	Site Name	Fire Station 11
Address	5500 N CR 1240	Address	6511 Briarwood
	Midland, TX 79705		Midland, TX 79705
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 17 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 11	Site Name	Shell Tower
Address	6511 Briarwood	Address	4300 Shell Ave
	Midland, TX 79705		Midland, TX 79707
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 18 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Shell Tower	Site Name	Fire Station 10
Address	4300 Shell Ave	Address	4501 Sinclair Ave
	Midland, TX 79707		Midland, TX 79707
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 19 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 10	Site Name	Grande Stadium
Address	4501 Sinclair Ave	Address	801 N Loop 250 W
	Midland, TX 79707		Midland, TX 79703
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 20 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Grande Stadium	Site Name	Fire Station 6
Address	801 N Loop 250 W	Address	301 Tradewinds Blvd
	Midland, TX 79703		Midland, TX 79706

Exhibit A

Operation & Maintenance (Company ID: 27878)

Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 21 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 6	Site Name	Midland International Airport
Address	301 Tradewinds Blvd	Address	9506 La Force Blvd
	Midland, TX 79706		Midland, TX 79706
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 22 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Midland International Airport	Site Name	Fire Station 7
Address	9506 La Force Blvd	Address	2507 Pliska Drive (inside AOA)
	Midland, TX 79706		Midland, TX 79706
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 23 - 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 7	Site Name	Edgewood Elevated
Address	2507 Pliska Drive (inside AOA)	Address	4700 West Storey
	Midland, TX 79706		Midland, TX 79703
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 24 - 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Edgewood Elevated	Site Name	Midland Parks & Recreation
Address	4700 West Storey	Address	2701 Elizabeth Ave
	Midland, TX 79703		Midland, TX 79701
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 25 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Midland Parks & Recreation	Site Name	Fire Station 5
Address	2701 Elizabeth Ave	Address	2210 W Golf Course Rd
	Midland, TX 79701		Midland, TX 79701
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Circuit 26 – 12 Dark Fibers			
Location A		**Location Z**	
Site Name	Fire Station 5	Site Name	City of Midland Data Center
Address	2210 W Golf Course Rd	Address	601 N Loraine St
	Midland, TX 79701		Midland, TX 79701
Point of Demarcation	Min Point of Entry (MPOE)	Point of Demarcation	Min Point of Entry (MPOE)

Exhibit A

Operation & Maintenance (Company ID: 27878)

Comments: On the Installation Date, Company will provide a Service Commencement Letter ("**SCL**") to the City indicating that the City Fibers are ready for City's use. Upon Company's receipt of the entire non-recurring charge listed above, ownership of the City Fibers will transfer to City. City shall be responsible for all obligations, including but not limited to property taxes and cross connects, associated with the City Fibers, excepting the anything to the contrary memorialized in the Additional Terms and Conditions below. City acknowledges that the City Fibers will reside within Company conduit. Unless otherwise agreed to by the parties in writing, City will only have access to the City Fibers at the Location A and Location Z Points of Demarcation listed above.

Maintenance Term: Company will operate and perform all maintenance on the City Fibers, as detailed in the Maintenance Terms and Conditions attached hereto, for an initial term of sixty (60) months, commencing on the Installation Date noted below ("**Initial Maintenance Term**"). Thereafter, the parties' maintenance obligations shall automatically renew for successive one (1) month periods (each such period, an "**Additional Maintenance Term**" and, together with the Initial Maintenance Term, the "**Maintenance Term**") unless terminated by either party upon thirty (30) days' written notice to the other party prior to the end of the Initial Service Order Term or Additional Service Order Term, as applicable. City acknowledges that the City Fibers reside within UPN conduit and City shall not have access to the City Fibers at any time except as otherwise stated herein.

Minimum Point of Entry and Additional Charges: City will meet Company at the Minimum Point of Entry ("**MPOE**") unless otherwise noted above. The MPOE is the closest practical point to where the cable enters the building. In the event City desires the installation to occur somewhere other than the MPOE, City understands that there will be additional costs.

Installation Date: Anticipated installation date shall occur approximately 210 days after the acquisition of all necessary permits, licenses, pole attachment agreements, and rights of way to complete the project.

ADDITIONAL TERMS AND CONDITIONS

1. **Access to City Fibers**. The City Fibers shall reside within conduit owned by Company. Except as noted herein, City shall not have access to the City Fibers unless otherwise agreed to by the Parties. Company, or a third party acting under Company's direction, shall operate and maintain the City Fibers. City shall only have access to the City Fibers at the Location A and Location Z Points of Demarcation listed above for the duration of the Contract. In the event of termination of the operations and maintenance arrangement, both Parties agree that City shall not access any City Fibers that reside in Company conduits without first providing ninety (90) days' written notice to Company's Network Operations Center (the "**UPN NOC**") at noc@upnfiber.com for Company to make good faith efforts to arrange to be physically present. In the event that Company fails to make said arrangements, City shall be allowed to access City Fibers that reside in Company conduits without Company being physically present.

2. **Routine Maintenance**. Routine maintenance and repair of the City Fibers ("**Scheduled Maintenance**") shall be performed by or under the direction of Company at Company's reasonable discretion or at City's request. Scheduled Maintenance will be scheduled between 10:00 p.m. and 6:00 a.m. local time.

3. **Unscheduled Maintenance**. Non-routine maintenance and repair of the City Fibers outside the scope of Scheduled Maintenance ("**Unscheduled Maintenance**") shall be performed by or under the direction of the Company. Unscheduled Maintenance shall consist of Company's response to an alarm identification by Company's Network Operations Center ("**NOC**"), notification by City or notification by any third-party of any failure, interruption, or impairment in the operation of the City Fibers or any event that could potentially cause failure, interruption, or impairment in the operation of the City Fibers. City shall immediately report the need for Unscheduled Maintenance to Company in accordance with procedures issued by Company.

4. **Network Operations Center**. Company shall operate and maintain its NOC twenty-four (24) hours per day, seven (7) days per week by trained and qualified personnel. Company shall dispatch personnel to a location requiring Unscheduled Maintenance within two (2) hours after the time either party becomes aware of an event requiring Unscheduled Maintenance, unless delayed by circumstances beyond the reasonable control of the Company. Company's NOC telephone number is (866) 963-4237.

5. **Cooperation and Coordination**. Company shall notify City least ten (10) business days prior to any Scheduled Maintenance and notify City as soon as possible after becoming aware of the need for Unscheduled Maintenance. A City representative shall have the right to be present during the performance of any Scheduled Maintenance or Unscheduled Maintenance so long as this requirement does not interfere with the Company's ability to perform its obligations under this Agreement. In the event that Scheduled Maintenance is canceled or delayed for whatever reason as previously notified, Company shall notify the City at Company's earliest opportunity.

6. **Access and Splicing.** City shall only have access to the City Fibers at the Location A and Location Z Points of Demarcation listed above. If City desires future expansion at splice points other than at the Location A and Z Points of Demarcation listed in a Service Order, City must request such future expansion from Company. Company shall perform all splicing and related work on the City Fibers at City's cost. City acknowledges that any additional work related to the City Fibers must be performed by Company, may carry additional charges, and shall be memorialized in a service order or other similar documentation signed by both parties.

7. **Restoration and Repair**. Company shall respond to any interruption of service or a failure of the City Fibers to operate in accordance with the specifications and procedures memorialized herein as quickly as possible and in conformance with industry standards, subject to delays caused by circumstances beyond the reasonable control of Company. Any restoration or repair of the City Fibers necessitated by the City's action or inaction shall be completed by Company at City's cost.

City Owned Fiber Optic Network Services

for

Original

In Response To:

Bid Number: RFP 21001104	Contact: City Secretary-City of Midland
Service: City-Owned Fiber Optic Network Installation	Bid Due Date: November 24, 2020
Date Issued: November 4, 2020	Bid Due Time: 2:00 p.m. Central Standard Time

Presented by Kathy Roquemore

Table of Contents

Section		Page
	Cover Letter	3
I.	Request for Proposal	4
	Proposal	
	Appendix A	22
	Appendix B	24
II.	Cost Summary or Proposal Form	26
	Sample Certificate of Insurance	38
	Contract	41
	Bid Bond	53
III.	Requested Attachments	
	References	55
	Resumes	56
	Business Plan	
	Executive Summary	64
	Company Overview	65
	Executive Biographies	70
	Scope of Work	71
	Proposed Fiber Network	72
	Proposed Logical Diagram	73
	Project Management	74
	Network Operations	77
	Contacts	80
IV.	Financial Information	81
V.	Signed Execution of Offer	82
	Conflict of Interest Questionnaire	83
	Certificate of Interested Parties (Form 1295)	94
VI.	Exceptions	95
	Addendums	96

November 24, 2020
Ms. Regina Stephenson – Purchasing Manager
Ms. Jennifer Frescaz – Chief Information Officer
City of Midland
300 N. Loraine, Midland, TX 79701

Kathy Roquemore
Account Director
4701 S Loop 289
Lubbock, TX
806-549-9653
kathy.roquemore@upnfiber.com

City of Midland – Fiber Optic Services - Evaluation Team,

Unite Private Networks, LLC (UPN) is very pleased to provide Midland with this comprehensive Dark Fiber, City-Owned Fiber Optic= Network Services proposal in response to your RFP # 21001104.

Our 20 years of experience providing Fiber Infrastructure networks has revealed many challenges that our customer's face daily. Challenges such as an increasing amounts and types of devices, digital applications, online usage, and enhanced security requirements all have resulted in higher bandwidth demands. The increasing dependence on the network for almost all functions has made bandwidth the third utility behind power and water! As a result, limited funding has forced cities to do more with less by making more cost-effective purchasing decisions.

In summary, how do cities improve functionality in their network for the long term in a cost-effective manner during a challenging funding environment?

Imagine being able to secure a virtually unlimited supply of something vital to the operation of your city for a fixed cost. Our solution gives you the ability to have as much bandwidth as technology can provide. The city can utilize dark fiber for a predictable expense and higher speeds with simple equipment upgrades.

Our response to the RFP provides for a custom dark fiber solution which includes 3 pair (6 fiber strands) or 6 pair (12 fiber strands) in a ring configuration between the Data Center to 25 City sites, on a 5 or 10-year term. Our solution includes O&M services to maintain the fiber optic system.

Our Executive Summary section outlines many other benefits we provide. We believe that once the city understands our application response in full, you will agree that Unite Private Networks is the best vendor partner for your Dark Fiber Optic Network application!

Please contact me at Kathy.roquemore@upnfiber.com or 806.549.9653 if I can answer any questions or be of further assistance.

Best regards,

Kathy Roquemore-Account Director

Kathy Roquemore

Private Networks responses throughout this document are provided in Blue and Bold as in this example

Request for Proposals

RFP 21001104

For

City-Owned Fiber Optic Network Installation

Proposals for this requirement will be accepted until 2:00 P.M. on November 24, 2020

Proposals May be Mailed or Delivered to:

City Secretary
City of Midland Suite
340
P.O. BOX 1152
Midland, Texas 79702-1153
(300 N. Loraine, Suite 340 Midland, TX 79701)

No Late Proposals Will Be Accepted

NOTICE TO PROPOSERS:

1. THE ATTACHED CONTRACT AND INSURANCE REQUIREMENTS ARE **NON-NEGOTIABLE**. MODIFICATIONS BY PROPOSER/CONTRACTOR OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE PROPOSAL. NON-RESPONSIVE PROPOSALS WILL BE REJECTED. PROPOSER/CONTRACTOR MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.
2. IF THE SELECTED PROPOSER/CONTRACTOR CANNOT MEET THE REQUIREMENTS OF PARAGRAPH 1, THEN THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER PROPOSER.
3. **IMPORTANT NOTICE** – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, PROPOSER/CONTRACTOR MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK

See Section 1.9 for Pre-proposal Meeting Information

TABLE OF CONTENTS

Page

SCHEDULE OF EVENTS 2
Special Terms and Conditions 3
1. General Information 4
2. Proposal Waivers: 9
3. Scope Of Project 11
4. Requirements 11
5. Narrative 11
6. Vendor Qualifications 11
7. Evaluation Process 12
8. Proposal Contents.....13
EXECUTION OF OFFER 15

SCHEDULE OF EVENTS

RFP 21001104

For

Fiber Optic Network

Event	Date*
RFP Released	November 9, 2020
Pre-proposal Conference	November 16,2020
Cutoff Date for inquiries and clarification	November 18,2020
Proposal Due Date	November 24, 2020
Notification of Vendor Interviews / Product Demonstrations	NONE
Present Recommendation to Council for Consideration (if BFO is NOT required)	December 15,2020
Call for Best and Final Offers (if required)	November 30, 2020
Final Offer Due Date (if required)	December 3, 2020
Present Recommendation to Council for Consideration (if BFO is required)	January 12, 2021
Intended Date for Contract Award	December 15,2020

*These dates are our intended schedule; however, they may be changed as necessary without further notice.

NOTE:

From the issuance date of this RFP until a Contractor(s) is selected and the selection is announced, offerors should not communicate with any City staff or officials regarding this procurement, other than during interviews and demonstrations, and site visits, except at the direction of Regina Stephenson, the designated representative of the City Purchasing Office.

SPECIAL TERMS AND CONDITIONS

Proposal Requirements /Terms

1. Unless otherwise called for, the number of copies specified in the RFP, shall be submitted typewritten or printed in ink. Many Requests for Proposals are in a word format that can be completed on your computer and will be noted on the cover page if available.
2. Each proposal should be placed in a separate envelope completely and properly identified with the RFP number, due time and date. Proposal must be time stamped at the appointed receipt location before the hour and date specified for the proposal receipt. Responsibility for having the proposal properly marked and to the opening location by the specified date and time is solely the offeror's. All copies of the proposal may be delivered in the same box/package.
3. Any Proposal may be withdrawn in writing prior to the date and time set for receipt of proposals. Any proposals not so withdrawn shall constitute an irrevocable offer, for a minimum period as stated in the RFP following the final acceptance date, to provide the commodity or service set forth in the attached specifications, or until a selection has been made by the City.
4. Late proposals will not be accepted under any circumstances.
5. Proposal should give full firm name and address of Offeror. Failure to manually sign the proposal will disqualify it. The person signing the proposal should show title or authority to bind his/her firm in contract. Insert your Federal Employer's Identification Number ____35-2566703_____ or Sole owner should enter SSN _____-____-_____.
6. Purchases made for City use are exempt from State Sales Tax and Federal Excise Tax. Do not include tax in your proposal. Tax exemption certificates will be furnished by the City upon request.
7. Telephone proposals are not acceptable when in response to an RFP.

Unite Private Networks response: Understands and will comply with all of the items in the section above.

Conditions

The City of Midland is requesting proposals with the intent of awarding a contract for the requirement contained in this RFP. However, the City is not obligated to award a contract on this solicitation and reserves the right to reject any and all proposals and award the proposal to best serve the interests of the City.

1. Offerors electing to respond to this RFP are responsible for all costs of proposal preparation. The City is not liable for any costs incurred by a offeror in response to this RFP.
2. No public disclosures or news releases pertaining to this RFP shall be made without prior written approval from purchasing.
3. In case of a tie between two or more offerors, the award will be made in accordance with preferences as outlined by statute.
4. The Offeror agrees to protect the City from claims involving infringement of patents or copyrights.
5. The Offeror hereby assigns to Purchaser, any and all claims for overcharges associated with any contract resulting from this RFP which arise under the antitrust laws of the United States 15 U.S.C.A. Section 1, et seq. 1973 and which arise under the antitrust laws of the State of Texas, Texas Business and Commercial Code Ann. Sec. 15.01, et seq. (1967).
6. No substitutions or cancellation permitted without the written approval of the City Purchasing Agent. Deliveries made pursuant to a resulting contract shall be made during normal working hours only, unless approval for late delivery has been obtained.
7. Contractor shall submit two copies of an itemized invoice to Accounts Payable, The City of Midland, Texas, P.O. Box 1152, Midland Texas 79702. Each copy of the invoice shall reference the P.O. and the RFP numbers.

8. In the event of a conflict between the standard proposal requirements and conditions and the attached detail specification, the detail specifications shall govern.
9. Governing Law & Venue: This agreement shall be governed by and construed in accordance with the laws of the State of Texas. Venue for any disputes or lawsuits arising from the performance of this contract shall be exclusively in Midland County, Texas. The parties agree that all performance under this contract shall take place in Midland, County, Texas. The Contractor and City agree that all payments made under this contract shall take place in Midland County, Texas.
10. This obligation and undertakings of each of the parties to this contract shall be deemed to have been performed in Midland County, Texas.

Unite Private Networks response: Understands and will comply with all of the items in the section above.

1. GENERAL INFORMATION

1.1. INTRODUCTION

The City of Midland (COMMUNICATIONS AND INFORMATION SYSTEMS, CISD) (hereinafter referred to as "the City") is pleased to invite you to submit a proposal for a **City-Owned Fiber Optic Network** as specified herein. Proposals submitted in response to the specifications contained herein shall comply with the following instructions and procedures.

Request for Proposal Standard Information

This Request for Proposal (RFP) is issued in accordance with City of Midland Policy, the RFP Manual and the statutes of the State of Texas. The RFP process is a procurement option allowing the award to be evaluated based on stated criteria. The RFP states the relative importance of all criteria. No other criteria, other than as outlined in the Request for Proposal, will be used.

Unite Private Networks response: UPN understands and will comply.

1.2. INITIAL EVALUATION

Upon receipt, the proposal information will be disclosed only to persons participating in the evaluation or contracting process until the proposal has been reviewed and all marked trade secrets have been removed (see "Trade Secrets and Other Withheld Information" statement below). After this review, all remaining proposal materials will be available under the open records act. The proposals will be initially evaluated by the committee as being "responsive" or "non-responsive".

Unite Private Networks response: UPN understands and will comply.

1.3. DISCUSSION/NEGOTIATION

Although proposals may be accepted, and a contract awarded without discussion, the City may initiate discussions should clarification or negotiation be necessary. Offerors should be prepared to send qualified personnel to Midland, Texas to discuss technical and contractual aspects of the proposal.

Unite Private Networks response: UPN understands and will comply.

1.4. BEST AND FINAL OFFER

The "Best and Final Offer" is an option available to the City under the RFP process allowing one or more offerors to submit a best and final offer. Offerors may be contacted, asking that they submit their best and final offer, which must include the discussed and/or negotiated changes.

Unite Private Networks response: UPN understands and will comply.

1.5. AWARD

1.5.1. The City may award a contract or purchase order to the lowest responsible bidder or to the bidder who provides goods or services at the best value for the City.

1.5.2. The City will be solely responsible for the determination of what constitutes best value in accordance with the applicable Section 252.043 of the Local Government Code.

Unite Private Networks response: UPN understands and will comply.

1.6. TRADE SECRETS

1.6.1. All information received in response to this RFP will be available to the public except for:

1.6.1.1. trade secrets meeting the requirements of Texas Government Code Title 5, Chapter 552, Subchapter C, § 552.110; and

1.6.1.2. matters involving individual safety as determined by the department.

1.6.2. For an offeror to claim trade secret material, the following conditions must be met. Information to be withheld must be clearly marked and separated from the rest of the proposal.

Unite Private Networks response: UPN has included our Financial statements in a sealed envelope marked: "Highly Confidential and Proprietary".

1.6.2.1. The proposal may not contain trade secret matter in the cost or price.

1.6.2.2. An affidavit from the offeror's legal counsel attesting to and explaining the validity of the trade secret claim must be attached to each proposal containing trade secrets. In addition, offerors submitting a proposal containing trade secrets must be prepared to pay all legal costs and fees associated with defending the claim for trade secret protection in the event of an open records request from another party.

1.6.3. Documents not meeting all of the requirements of (1) and (2) will be available for public inspection, including copyrighted materials.

Unite Private Networks response: UPN understands and will comply with all items in section 1.6 above unless noted separately.

1.7. LATE PROPOSALS

Proposals received after the time specified for receipt of proposals will be destroyed or returned at the offeror's expense after consultation with the offeror. There are no exceptions to this deadline.

Unite Private Networks response: UPN understands and will comply.

1.8. PREPARING A RESPONSE

This RFP contains the instructions governing the proposals to be submitted and a description of the mandatory requirements. To be eligible for consideration, an offeror must meet the intent of all mandatory requirements. Compliance with the intent of a mandatory requirement will be determined by the Purchasing Office. When imperative language (shall, will, must) appears in any section of the RFP, it is considered to be mandatory.

Unite Private Networks response: UPN understands and will comply.

1.8.1. Offerors shall promptly notify the City of any ambiguity, inconsistency or error, which they may discover upon examination of this RFP.

Unite Private Networks response: UPN understands and will comply.

1.9. PRE-PROPOSAL CONFERENCE:

A Pre-Proposal Conference will be conducted **via phone by calling 866-528-2256 (passcode 4450719) on November 16, 2020 at 10am CST.** Offerors may use this opportunity to notify the City of any ambiguity, inconsistency, or error, which they may discover upon examination of this RFP. All responses to questions at the Pre-Proposal Conference will be oral and in no way binding on the City.

Unite Private Networks response: UPN understands and will comply.

1.10. CLARIFICATION/ INTERPRETATION

Offerors requiring clarification or interpretation of any section or sections contained in this RFP shall make a written request to the City Purchasing Agent by the deadline described in the Schedule of Events. All written correspondence must be addressed to:

The City Of Midland
Office of the Purchasing Agent
P.O. Box 115
Midland, TX 79702

OR

FAX: (432) 685-0523

e-mail: purchasing@midlandtexas.gov

Unite Private Networks response: UPN understands and will comply.

1.11. FORMAT FOR INQUIRIES:

Each offeror submitting written questions must clearly address each question by reference to a specific section, page and item of this RFP. An official written answer will be provided to all questions received. Verbal responses shall not be considered binding.

Unite Private Networks response: UPN understands and will comply.

1.12. INTERPRETATION:

Any interpretation, correction or change of this RFP will be made by written Addendum. Interpretations, corrections or changes of this RFP made in any other manner will not be binding and offerors shall not rely upon such interpretations, corrections or changes.

The City of Midland Purchasing Office will issue any necessary Addenda.

A point-by-point response to all numbered sections, subsections, paragraphs, subparagraphs and appendices must be submitted by each offeror in order to be considered for selection.

Unite Private Networks response: UPN understands and will comply.

1.13. PROPOSAL ORGANIZATION AND SUBMISSION

Offerors must organize proposals into sections following the format of this RFP, with tabs separating each section. If no exception, explanation, or clarification is required in the offeror's response to a specific subsection, the offeror shall indicate so in the point-by point response with the following:

"(Offeror's Name)", understands and will comply.

Unite Private Networks response: UPN understands and will comply.

1.14. OFFER PRICING

Offerors must respond to this RFP by utilizing the RFP Cost Summary. The cost summary will be used as the primary representation of each offeror's cost, and will be used extensively during proposal evaluations. Additional information should be included as necessary to explain in detail the offeror's cost.

Proposals should be complete to the degree that all of the information sought by this RFP is supplied in the order requested.

Unite Private Networks response: UPN understands and will comply.

1.15. ALTERNATE PROPOSALS

Offerors may submit, at their option, multiple proposals, in which case each proposal shall be evaluated as a separate document.

Unite Private Networks response: UPN understands and will comply.

1.16. SUBMITTING A SEALED PROPOSAL

1.16.1. Number of copies and Location:

1.16.1.1. Offerors must submit one original, 2 hard copies and one (1) soft copy (PDF or Word) to the City Secretary. Sealed Proposals must be received by the date before the time stated on the face of the Request for Proposal Cover Page, local time. Sealed Proposals received after this time will not be accepted for consideration. Facsimile copies are not acceptable.

1.16.1.2. A mailing label is included in the RFP. Please be sure to use it on the outermost package of the RFP whether it is an envelope, box or overnight package, so that it is visible when received by the City.

1.16.2. Each Offeror who submits a proposal represents that:

1.16.2.1. The proposal is based upon an understanding of the specifications and requirements described in this RFP.

1.16.2.2. Costs for developing and delivering responses to this RFP and any subsequent presentations of the proposal as requested by the City are entirely the responsibility of the offeror. The City is not liable for any expense incurred by the offerors in the preparation and presentation of their proposals.

1.16.2.3. All materials submitted in response to this RFP become the property of the City and are to be appended to any formal documentation, which would further define or expand any contractual relationship between the City and offeror resulting from this RFP process.

1.16.3. The proposals must be signed in ink by an individual authorized to legally bind the business submitting the proposal.

1.16.4. A proposal may not be modified, withdrawn or canceled by the offeror for a 120-day period following the deadline for proposal submission, or receipt of best and final offer, if required, as defined in the Schedule of Events, and offeror so agrees in submitting the proposal.

Unite Private Networks response: UPN understands and will comply with all of the items in the section above.

1.17. RIGHTS RESERVED

While the City has every intention to award a contract as a result of this RFP, issuance of the RFP in no way constitutes a commitment by the City of Midland to award a contract. Upon a determination, such actions would be in its best interests, the City in its sole discretion reserves the right to:

A) waive any formality;
b) cancel or terminate this RFP;
c) reject any or all proposals received in response to this document;
d) waive any undesirable, inconsequential, or inconsistent provisions of this document, which would not have significant impact on any proposal; not award, or if awarded, terminate any contract if the City determines adequate City funds are not available.

Unite Private Networks response: UPN understands and will comply.

1.18. BONDING REQUIREMENTS

See Exhibit C

UPN has included a Bid Bond.

1.19. OFFEROR INTERVIEW / PRODUCT DEMONSTRATION

See Exhibit C

After receipt of all proposals and before the determination of the award, respondents may be required to make an oral presentation and product demonstration in Midland, Texas to clarify their response or to further define their offer. Oral presentations and product demonstrations, if requested, shall be at the offeror's expense.

Unite Private Networks response: UPN understands and will comply.

1.20. SUBCONTRACTING

1.20.1. The successful offeror will be the Prime Contractor and shall be responsible, in total, for all work of subcontractors. All subcontractors must be listed in the proposal. The City reserves the right to approve all subcontractors.

1.20.2. The contractor shall be responsible to the City for the acts and omissions of all subcontractors or agents and of persons directly or indirectly employed by such subcontractors, and for the acts and omissions of persons employed directly by the contractor. Further, nothing contained within this document or any contract documents created as a result of any contract awards derived from this RFP shall create any contractual relationships between any subcontractor and the City.

Unite Private Networks response: UPN plans to utilize FiberTex LLC and Black Gap LLC as subcontractors for this project.

1.21. INSURANCE REQUIREMENTS

See Exhibit B

Unite Private Networks response: UPN understands and will comply.

1.22. CONTRACTOR'S RESPONSIBILITIES

The successful offeror shall keep informed of, and shall comply with all applicable laws, ordinances, rules, regulations and orders of the City, County, State, Federal or public bodies having jurisdiction affecting any work to be done to provide the services required. The offeror shall provide all necessary safeguards for safety and protection, as set forth by the United States Department of Labor, Occupational Safety and Health Administration.

Unite Private Networks response: UPN understands and will comply.

1.23. OFFEROR COMPETITION

The City encourages free and open competition among offerors. Whenever possible, specifications, proposal requests and conditions are designed to accomplish this objective, consistent with the necessity to satisfy the City's need to procure technically sound, cost-effective services.

The offeror's signature on a proposal in response to this RFP guarantees that the prices quoted have been established without collusion of other eligible offerors and without effort to preclude the City of Midland from obtaining the best possible price.

Unite Private Networks response: UPN understands and will comply.

1.24. CONTRACT PROVISIONS AND TERMS

1.24.1. Contract Execution

1.24.1.1. The City will execute a contract with the successful offeror(s). The City requires that the RFP and the terms and conditions attached to it, the offeror's response, the best and final offer (if required), and any formal addenda to the RFP be included as part of any contract documents.

Unite Private Networks response: UPN understands and will comply.

1.24.2. Terms and Conditions

1.24.2.1. Contract Type

The resulting contract from this procurement shall be a not-to-exceed based contract. The initial contract price will be based upon prices submitted by the selected vendor, subject to contract negotiations with the City, and shall be firm for the total number of years of the contract.

1.24.2.2. Contract Term

The Agreement shall be effective upon the date the Agreement is signed by both the City and the Contractor and expire upon completion of the services covered by the Agreement. This Agreement may be terminated by the City or the Contractor upon thirty (30) days written notice of such termination. In the event of termination of the Agreement, there shall be no further obligation on the part of the City to the Contractor save and except for payment of sums due and owing for City-approved expenses and work incurred by the Contractor prior to the date of termination.

1.24.2.3. Payment and Retainage Expectations

The City understands that there will be potentially three types of costs associated with the addition of a fiber optics network: materials, installation and maintenance. The City expects all payment and retainage to be a topic during contract negotiations with the Preferred Vendor. In the following subsections, each type of cost is defined and the City's expectations for payments and retainage associated with these costs are described.

To the extent possible, the proposer shall show any applicable discounts separately from the prices for products and services. The City requests that the proposer provide separate prices for each functional area/module in the proposed solution.

Costs for the proposed solution should be submitted on a Cost Summary. It is important to note the following:

- The City will not consider time and materials pricing. Proposers shall provide firm and fixed pricing based on the functionality described. For each item, indicate if the cost is one-time, annual, or other;
- The proposer shall provide price information for each separate component of the proposed solution, as well as the costs of any modifications; In the event the product or service is provided at no additional cost, the item should be noted as "no charge;"

- In the event the product or service is not being included in the proposal, the item should be noted as "No Bid;" and,
- Proposer shall make clear the basis of calculation for all fees.
- Please include cost for freight and shipping charges. These charges will not be paid if not included in the original proposal.

All travel expense costs must be included in the proposer's Cost Summary. The City will not make a separate payment for reimbursable expenses. The City shall not be liable for additional travel costs incurred due for any reason outside the City's control.

3. Annual Maintenance Cost

Annual maintenance costs include the annual maintenance, support fees, upgrades for the application environment. The City does not expect to pay maintenance fees on functional areas until City sign-off has been provided. In addition, the City does not desire to pay maintenance fees operation for one year after accepted go live.

Vendors shall provide their typical payment schedule for annual maintenance costs including their willingness to meet the City's expectations.

Unite Private Networks response: UPN understands and will comply with all of the items in the section above.

1.24.2.4. Contract Terms

The following contract terms, or similar, are expected to be included in any eventual contract. These terms are not considered negotiable:

The Contractor (separately and collectively the "Indemnitee") shall indemnify, hold harmless, and defend the City, its officers, agents, and employees from and against any and all claims, losses, damages, causes of action, suits, and liability of every kind, including all expenses of litigation, court costs, and attorney's fees, for injury to or death of any person or for damage to any property arising out of or in connection with the work done by the Contractor under this Contract. Such indemnity shall apply regardless of whether the claims, losses, damages, causes of action, suits, or liability arise in whole or in part from the negligence of the City, any other party indemnified hereunder, the Contractor, or any third party.

The Contractor assumes full responsibility for the work to be performed hereunder and hereby releases, relinquishes, and discharges the City, its officers, agents, and employees from all claims, demands, and causes of action of every kind and character, including the cost of defense thereof, for any injury to or death of any person and any loss of or damage to any property that is caused by, alleged to be caused by, arising out of, or in connection with the Contractor's work to be performed hereunder. This release shall apply regardless of whether said claims, demands, and causes of action are covered in whole or in part by insurance and regardless of whether such injury, death, loss, or damage was caused in whole or in part by the negligence of the City, any other party released hereunder, the Contractor, or any third party.

1.24.3. Exceptions to Contract Terms & Conditions

Offerors should notify the City of any terms within the sample contract that either precludes them from responding to the RFP or add unnecessary cost.

Unite Private Networks response: UPN understands and will comply.

2. PROPOSAL WAIVERS:

2.1. WAIVER OF ATTORNEY FEES:

BY SUBMITTING A PROPOSAL, EACH OFFEROR AGREES TO WAIVE AND DOES HEREBY WAIVE ANY CLAIM THE OFFEROR HAS OR MAY HAVE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S RESPECTIVE EMPLOYEES AND REPRESENTATIVES FOR THE AWARD OF

ATTORNEY'S FEES, ARISING OUT OF OR IN CONNECTION WITH THE ADMINISTRATION, EVALUATION, OR RECOMMENDATION OF ANY PROPOSAL; WAIVER OF ANY REQUIREMENTS UNDER THE PROPOSAL DOCUMENTS; OR THE CONTRACT DOCUMENTS; ACCEPTANCE OR REJECTION OF ANY PROPOSALS; AND AWARD OF THE CONTRACT. BY SUBMITTING A PROPOSAL, THE OFFEROR SPECIFICALLY WAIVE ANY RIGHT TO RECOVER OR BE PAID ATTORNEY'S FEES FROM THE CITY OF MIDLAND, TEXAS, OR ANY OF THE CITY'S EMPLOYEES AND REPRESENTATIVE'S UNDER ANY PROVISIONS OF THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGEMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE, SECTION 37.001 ET. SEQ., AS AMENDED).

The offeror agrees that this is the intentional relinquishment of a presently existing known right.

By Execution and submission of this proposal, the offeror hereby represents and warrants to the City of Midland that the offeror has read and understands the Proposal Documents and the Contract Documents and this proposal is made in accordance with the Proposal Documents.

Offeror acknowledges that it understands all terms within the proposal Documents that include the waiver provisions, and that it had the right to consult with counsel regarding all of the above documents.

2.2. WAIVER:

BY SUBMITTING A PROPOSAL, EACH OFFEROR AGREES TO AND DOES HEREBY WAIVE ANY CLAIM THE OFFEROR HAS OR MAY HAVE AGAINST THE CITY OF MIDLAND, TEXAS AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1.THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY PROPOSAL;

2.WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE PROPOSAL DOCUMENTS OR THE CONTRACT DOCUMENTS;

3. ACCEPTANCE OR REJECTION OF ANY PROPOSALS; AND

4. AWARD OF THE CONTRACT.

By submitting the proposal, the offeror acknowledges that the offeror understands all of the terms of the proposal documents and consents to the proposal process and the possibility of a negative assessment.

By submitting a proposal, the offeror acknowledges and agrees that there was and is no disparity of bargaining power between the offeror and the City of Midland, Texas. The offeror agrees that this is the intentional relinquishment of the above listed rights.

BY SIGNING THE EXECUTION OF OFFER, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S). IF THIS FORM IS NOT SIGNED AND INCLUDED WITH YOUR PROPOSAL DOCUMENTS YOUR PROPOSAL WILL BE CONSIDERED NON-RESPONSIVE AND WILL BE REJECTED.

3. SCOPE OF PROJECT

The City of Midland, seeks to enter into an agreement with a qualified Individual, Firm or Corporation, to provide (1) installation and (2) maintenance services for a City Owned fiber optic cable system, herein after "System" which the City intends to own.

Services shall be turn-key and include but not be limited to the design, trenching, installation, testing, troubleshooting, documentation, and on-going maintenance and restoration of System. Respondents shall describe in their proposal their approach and firm, fixed-price bid for constructing the fiber optic networks as described in this RFP and its associated attachments and appendices. And separately describe the maintenance services to maintain the fiber optic cable system.

Background:

The City of Midland seeks improved functionality in its network bandwidth to multiple City facilities. With this interest, the City seeks a qualified Individual, Firm or Corporation to purchase and install fiber optic cabling between municipal building locations at minimum capacity of 10 gigabit. The goal is to provide for a robust networking solution and to ensure a resilient network that is readily expandable if required in the long-term. It is the City's goal to ensure that the contractor will incorporate smart design techniques for future uses.

Respondents are responsible for taking measurements of required cable and conduit to submit proposal.

Unite Private Networks response: UPN understands and will comply.

REQUIREMENTS: PLEASE SEE APPENDIX A FOR REQUIREMENTS

NOTE: WHERE THE TERM "REQUIRED FIELD" APPEARS IN THE REQUIREMENTS, THE INTENT IS THAT THE USER MAY NOT LEAVE THAT

FIELD BLANK AND LEAVE THE CURRENT RECORD. THE BLANK REQUIRED FIELDS SHALL BE FLAGGED FOR EASY IDENTIFICATION OF THE FIELDS LEFT BLANK.

*INCLUDED MEANS THAT IF THE FEATURE OR REQUIREMENT IS NOT NORMALLY INCLUDED, BUT WILL BE AT NO EXTRA CHARGE

**WILL BE AT AN ADDITIONAL COST. THESE ADDED COSTS SHALL BE LISTED ON THE COST SUMMARY/PRICE SHEET PROPOSAL PAGE Vendor Qualifications

Unite Private Networks response: UPN has completed the Appendix A Table per the instructions included above.

3.1. INFORMATION VERIFICATION

The City may make such investigations as deemed necessary to determine the ability of the offeror to supply the products and perform the services specified.

3.2. RIGHT TO REJECT

The City reserves the right to reject any proposal if the evidence submitted by, or investigation of, the offeror fails to satisfy the City that offeror is properly qualified to carry out the obligations of the contract.

3.3. VENDOR CAPABILITIES

In determining the capabilities of an offeror to perform the services specified herein, the following informational requirements must be met by the offeror and will be weighed by the City. (Note: Each item must be thoroughly addressed. Taking exception to any requirements listed in this Section may disqualify the proposal):

3.3.1. References

3.3.1.1. Offeror shall provide a minimum of **5** references that are using services of the type proposed in this RFP. The references should fall within the categories identified below. At a minimum, the offeror shall provide the company name, the location where the services were provided, contact person(s), customer telephone number, a complete description of the service type, and dates the services were provided. The City reserves the right to use any information or additional references deemed necessary to establish the ability of the offerors to perform the conditions of the contract. Negative references may be grounds for proposal disqualification.

3.3.1.2. These references should include City government and universities where the offeror, preferably within the last 7 years, has successfully provided fiber optic installation and materials.

3.3.1.3. These references should include municipalities, colleges and universities or state-funded organizations.

City of Allen (Allen, Texas)
Eric Matthews 214-509-4851
Dark Fiber solution connecting City Facilities
August 2017 – Current

City of Kansas City (Kansas City, Missouri)
Chris Lockey 816-513-8661
Dark Fiber solution connecting City Facilities
April 2016 – Current

Unified Government Kansas City and Wyandotte County (Kansas City, Kansas)
Alan Howze 913-573-8951
Dark Fiber solution connecting municipal facilities
October 2017 – Current

Lubbock ISD (Lubbock, Texas)
Bill Lovelace 806-219-0150
10.0 Gbps Lit Fiber solution connecting all facilities
May 2016 – Current

Lewisville ISD (Lewisville, Texas)
Bryon Kolbeck 972-350-1801
10.0 Gbps Lit Fiber solution connecting all facilities
March 2013 – Current

3.3.2. Vendor Stability

3.3.2.1. Offerors shall demonstrate their financial stability to supply, install and support the services specified.

Unite Private Networks response: UPN has provided responses to specific items in this request for proposal, as well as our capabilities within our Company Overview, Scope of Work, and Network Operations sections of our response.

3.3.2.2. Provide financial statements, preferably audited, for the **2** consecutive years immediately preceding the issuance of this RFP.

Unite Private Networks response: This information is provided in a separate sealed envelope labeled "Highly Confidential and Proprietary".

3.3.2.3. Offerors shall specify how long the company submitting the proposal has been in business **providing applications for Fiber optic installation and materials**.

Unite Private Networks response: UPN has been providing fiber optic design, installation and maintenance since 1998.

4. EVALUATION PROCESS

4.1. EVALUATION PROCEDURE

4.1.1. Committee Actions

4.1.1.1. The evaluation committee will separate proposals into "responsive" and "nonresponsive" proposals. Non-responsive proposals will be eliminated from further consideration.

4.1.1.2. The evaluation committee will evaluate the remaining proposals and determine whether to award the contract to the best proposal or to seek a best and final offer before awarding a contract. Selection and award will be based on the offeror's proposal and other items outlined in this RFP.

4.1.1.3. Responses must be complete and address all the criteria listed. Information or materials presented by offerors outside the formal response or subsequent "best and final offer," if requested, will not be considered and will have no bearing on any award.

4.2. EVALUATION CRITERIA

The evaluation committee will review and evaluate the offers according to the following criteria:

4.2.1. Functionality – Ability of the proposed fiber optic network to meet the functional and technical requirements: 30%

4.2.2. Technical - Ability of the proposed fiber optic network to align with the City's preferred technical specifications: 20%

4.2.3. Implementation Approach – This criterion considers the proposer's understanding of the scope of work and the quality and clarity of the proposer's written methodology and description of the proposed approach to accomplish the work: 15%

4.2.4. Vendor Experience – This criterion considers the proposer's past performance on any City contracts, the results of reference checks, and the proposer's experience in providing the services solicited by this RFP as set forth in the proposer's response: 15%

4.2.5. Pricing 20%

If any proposal earns less than 70% of any single evaluation criteria, the proposal will be disqualified. The City reserves the right to award a contract by total cost or by item.

The City may award a contract or purchase order to the lowest responsible bidder or to the bidder who provides goods or services at the best value for the City. The City will be solely responsible for the determination of what constitutes best value in accordance with the applicable Section 252.043 of the Local Government Code.

Unite Private Networks response: UPN understands and will comply.

5. PROPOSAL CONTENTS

This needs to be structured to coincide with the requirements set forth in the RFP

The following items constitute the RFP submittal in response to the request herein:

5.1. THE RFP

5.2. THE COST SUMMARY OR PROPOSAL FORM

5.3. REQUESTED ATTACHMENTS

5.3.1. References

5.3.2. Resumes

5.3.3. Business Plan

5.3.4. Financial Information

5.3.5. Signed Execution of Offer

6. TEXAS PUBLIC INFORMATION ACT

Notwithstanding any other provisions, this request for proposals, along with any associated contract, is subject to the Texas Public Information Act.

Appendix A: Requirements

Response Indicators: When providing responses to the requirements in Appendix A, proposers shall use the following response indicators:

S: Feature/Function is included **N**: Feature/Function cannot be provided.

Fiber Communications Installation				
Req #	**Description of Requirement**	**Priority**	**Response**	**Comments**
	Materials			
M.1	The fiber should be a minimum 10GB capacity.	**High**	S	
M.2	The awarded respondent shall have sufficient resources to complete the Project within the allotted time frame.	**High**	S	
M.3	All fibers will consist of an FC/PC termination including termination boxes at each location;	**High**	S	
M.4	Network or "Backbone" fiber and lateral fiber shall be:	**High**	S	
M.4.1	Loose tube cable design	**High**	S	
M.4.2	Dielectric central strength member	**High**	S	
M.4.3	SMF 28 single mode or better	**High**	S	
M.4.5	A minimum of 12 fibers per buffer tube	**High**	S	
M.4.6	Maximum Attenuation: 0.4 dB/km / 0.4dB/km / 0.3 dB/km; 4.3.6. Wavelengths: 1310 nm / 1383 nm / 1550 nm.	**High**	S	
	Installation			
I.1	The awarded respondent shall provide project management or coordination throughout the project.	**High**	S	
I.2	The installation should meet or exceed the Telecommunications Industry Association (TIA) and Electronic Industries Alliance (EIA) specifications and International Telecommunication Union (ITU) requirements;	**High**	S	
I.3	Installation shall be coordinated with and approved by the City of Midland's Technology representative. Any required traffic control during installation shall be the responsibility of successful respondent.	**High**	S	
I.4	Furnish, install, and terminate all fiber strands at each location according to the Product and Services Specifications.	**High**	S	
I.5	Install all fiber optic cable in accordance with the Product and Services Specifications and/or manufacturer's recommendations and best industry practices.	**High**	S	
I.6	Develop and submit for approval a labeling system for the cable installation. At a minimum, the labeling system shall clearly identify all components of the system. Sample labels must be approved by the City.	**High**	S	
I.7	The awarded respondent shall:	**High**	S	
I.7.1	Pull any and all permits if needed.	**High**	S	
I.7.2	Comply with all local and state building codes.	**High**	S	
I.7.3	Abide by, and be responsible adhering to, for all electrical and fire code regulations.	**High**	S	
I.7.4	Plan fiber path which must be approved by the City.	**High**	S	
I.7.5	Provide as-built diagram showing all jack numbers, pull boxes, cable paths, etc.	**High**	S	
I.8	The vendor shall penetrate each building and include a conduit or innerduct system from the building entrance point to network rooms where the incoming fiber is to land.	**High**	S	

PACKET 5.77 December 15, 2020

I.9	The respondent shall furnish all labor, supervision, tooling, and miscellaneous mounting hardware and consumables for the fiber optic cabling system installed at all City Facilities.	**High**	S	
Testing				
T.1	Once installed, successful respondent shall test System and provide report to City.	**High**	S	
T.2	City shall have thirty (30) days to test System and shall notify successful respondent of non-working area.	**High**	S	
T.3	Test (100%) all cables and termination hardware for defects in installation and to verify cable performance under installed conditions. Testing procedures should be included in proposal documentation.	**High**	S	
T.4	Documentation of testing and footage of each cabling run in proposal documentation.	**High**	S	
T.5	Successful respondent shall provide as-built drawings of System as part of the delivery of final project upon City acceptance of System.	**High**	S	
Maintenance Services				
S.1	During the term of the resulting agreement, successful respondent shall provide all maintenance and support services to ensure the operation of the fiber system, including, without limitation, routine and ordinary maintenance and support services, emergency restoration services and all other maintenance services.	**High**	S	
S.2	The City seeks restorative services of fiber system within eight (8) hours of outage notification from City.	**High**	S	

Appendix B
Required Locations

Origination Point:

City of Midland Data Center
601 N. Loraine RM 101

Remote Site Locations:

Fire Station 2
701 E Florida Ave.

Fire Station 3
1707 N. Lamesa Road

Fire Station 4
1707 N. Lamesa Road

Fire Station 5
2210 W Golf Course Road

Fire Station 6
301 Tradewinds

Fire Station 7
2507 Pliska Dr.

Fire Station 8
3301 Haynes

Fire Station 9
6005 N Midland Drive

Fire Station 10
4501 Sinclair

Fire Station 11
301 Tradewinds

Landfill
7901 E Hwy 158

Water Pollution Control
3600 FM 307

PD Range-Academy
3600 FM 307

Fire Training
3215 FM 307

MLK Jr. Community Center
2300 Butternut

Washington Park
1803 E Indiana Ave

Hogan Park Pro Shop
3600 N Fairgrounds

Midland Park & Recreation
2701 Elizabeth

Water Purification Plant
5000 N Midland Drive

Shell Tower
4300 Shell

Edgewood Tower
4700 W Storey

Airport
2709 Wright Drive

Peggy Sue
Avalon Lane

Grande Stadium
801 N Loop 250 W

Wadley Tower
1201 W Wadley

Unite Private Networks, LLC

Contractor's Name

PROPOSAL
21001104

To: Purchasing Manager
City of Midland
Midland, Texas

Option: 3 pair (6 fiber strands)
60 month term

Gentlemen: The undersigned bidder, having examined the plans, specifications and contract documents, the location of the proposed work and being fully advised as to the extent and character of the work proposes to furnish all materials, equipment and to perform all labor and work necessary for the complete work described by and in accordance with the attached plans, specifications and contract for the sum of:

Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation) **$2,100,000** DOLLARS

Maintenance/Service Cost per month for 60 months $ **$950** X 60 = **$1,425,000** DOLLARS

Total Cost for Turnkey Project and Maintenance/Service Costs: **$3,525,000** DOLLARS

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered by the above bid and he further agrees to commence work within ten (10) days after the date of written notice to do so and to substantially complete same within ___ calendar days.

VENDOR CONTACT:
All potential vendors shall direct ALL questions, areas for bid clarification and specification verification to the Purchasing Agent IN WRITING, via mail or fax as follows:

The City Of Midland Office of the Purchasing Manager P.O. Box 1152 Midland, TX 79702 OR FAX: (432) 685-0523 E-mail: purchasing@midlandtexas.gov

All vendors on the bid list will then be notified of the questions and presented an answer. Verbal responses shall not be considered binding.

AWARD
If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code.

BID WAIVERS:

A. <u>WAIVER OF ATTORNEY FEES</u>: BY SIGNING THIS PROPOSAL, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT,
THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT,

INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND THE CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

B. WAIVER: BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**
2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS; 3. ACCEPTANCE OR REJECTION OF ANY BIDS; OR**
4. **AWARD OF THE CONTRACT.**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

C. Notice of Alleged Breach; Statutory Prerequisites: As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Bidder or his legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the

apparent extent thereof, the amount of damages sustained, the amount for which the Bidder will settle, the physical and mailing addresses of Bidder at the time and date the claim was presented and the physical and mailing addresses of Bidder for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Bidder relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Bidder that Bidder's notice is insufficient. The City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Bidder's failure to comply with the requirements herein shall perpetually bar Bidder's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if the City has actual or constructive notice or knowledge of said claim or alleged damages. Bidder agrees that the requirements of this entire Contract are reasonable.

By Signing below, your company agrees to the above waiver(s). If this form is not signed and included with your bid documents your bid will be considered non-responsive and will be rejected.

SOVEREIGN IMMUNITY: By Executing this contract the City is not waiving its right of Sovereign immunity. the City is retaining its IMMUNITY from suit. the City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

Unite Private Networks, LLC	Kathy Roquemore	**(806) 549-9653**
Bidder	Authorized Signature	Telephone
4701 S Loop 289 Lubbock, TX 79424	**Kathy Roquemore**	**(816) 903-9401**
Address, City and State	Please Print above Name	Fax

Bidder's Enclosure Check List: (Bidder - Please review the following list and check to ensure that you have included the documents with your bid.)

[X] PROOF OF AUTOMOBILE, WORKER'S COMPENSATION AND GENERAL LIABILITY INSURANCE COVERAGE AS REQUIRED BY THE TERMS OF THE CONTRACT. (**Upon award and prior to execution of the contract The City of Midland will have to be added to the policy as an additional insured and a certificate issued reflecting that provision) including a waiver of subrogation as stated in the contract)**

[X] 5% BID BOND FOR CONTRACTS IN AMOUNTS OF $50,000 OR MORE. (ONLY WHEN EXHIBIT "C" IS INCLUDED IN THE CONTRACT).* **THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO PROVIDE A PAYMENT BOND AND PERFORMANCE**

Unite Private Networks, LLC

Contractor's Name

PROPOSAL

21001104

To: Purchasing Manager
City of Midland
Midland, Texas

Option: 3 pair (6 fiber strands)

120 month term

Gentlemen: The undersigned bidder, having examined the plans, specifications and contract documents, the location of the proposed work and being fully advised as to the extent and character of the work proposes to furnish all materials, equipment and to perform all labor and work necessary for the complete work described by and in accordance with the attached plans, specifications and contract for the sum of:

Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation) **$1,770,000** DOLLARS

Maintenance/Service Cost per month for 120 months $ **$810** X 120 = **$2,430,000** DOLLARS

Total Cost for Turnkey Project and Maintenance/Service Costs: **$4,200,000** DOLLARS

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered by the above bid and he further agrees to commence work within ten (10) days after the date of written notice to do so and to substantially complete same within ___ calendar days.

VENDOR CONTACT:
All potential vendors shall direct ALL questions, areas for bid clarification and specification verification to the Purchasing Agent IN WRITING, via mail or fax as follows:

The City Of Midland Office of the Purchasing Manager P.O. Box 1152 Midland, TX 79702 OR FAX: (432) 685-0523 E-mail: purchasing@midlandtexas.gov

All vendors on the bid list will then be notified of the questions and presented an answer. Verbal responses shall not be considered binding.

AWARD
If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code.

BID WAIVERS:

A. <u>WAIVER OF ATTORNEY FEES</u>: BY SIGNING THIS PROPOSAL, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT,
THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT,

INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND THE CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

B. WAIVER: BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**
2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS; 3. ACCEPTANCE OR REJECTION OF ANY BIDS; OR**
4. **AWARD OF THE CONTRACT.**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

C. Notice of Alleged Breach; Statutory Prerequisites: As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Bidder or his legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the

apparent extent thereof, the amount of damages sustained, the amount for which the Bidder will settle, the physical and mailing addresses of Bidder at the time and date the claim was presented and the physical and mailing addresses of Bidder for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Bidder relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Bidder that Bidder's notice is insufficient. The City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Bidder's failure to comply with the requirements herein shall perpetually bar Bidder's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if the City has actual or constructive notice or knowledge of said claim or alleged damages. Bidder agrees that the requirements of this entire Contract are reasonable.

By Signing below, your company agrees to the above waiver(s). If this form is not signed and included with your bid documents your bid will be considered non-responsive and will be rejected.

SOVEREIGN IMMUNITY: By Executing this contract the City is not waiving its right of Sovereign immunity. the City is retaining its IMMUNITY from suit. the City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

Unite Private Networks, LLC	Kathy Roquemore	**(806) 549-9653**
Bidder	Authorized Signature	Telephone
4701 S Loop 289 Lubbock, TX 79424	**Kathy Roquemore**	**(816) 903-9401**
Address, City and State	Please Print above Name	Fax

Bidder's Enclosure Check List: (Bidder - Please review the following list and check to ensure that you have included the documents with your bid.)

[X] PROOF OF AUTOMOBILE, WORKER'S COMPENSATION AND GENERAL LIABILITY INSURANCE COVERAGE AS REQUIRED BY THE TERMS OF THE CONTRACT. (**Upon award and prior to execution of the contract The City of Midland will have to be added to the policy as an additional insured and a certificate issued reflecting that provision) including a waiver of subrogation as stated in the contract)**

[X] 5% BID BOND FOR CONTRACTS IN AMOUNTS OF $50,000 OR MORE. (ONLY WHEN EXHIBIT "C" IS INCLUDED IN THE CONTRACT).* **THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO PROVIDE A PAYMENT BOND AND PERFORMANCE**

Unite Private Networks, LLC

Contractor's Name

PROPOSAL
21001104 Pricing

To: Purchasing Manager
City of Midland
Midland, Texas

Option 6 pair (12 strands)
60 month term

Gentlemen: The undersigned bidder, having examined the plans, specifications and contract documents, the location of the proposed work and being fully advised as to the extent and character of the work proposes to furnish all materials, equipment and to perform all labor and work necessary for the complete work described by and in accordance with the attached plans, specifications and contract for the sum of:

Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation) **$2,100,000** DOLLARS

Maintenance/Service Cost per month for 60 months $ **1076** X 60 **$1,614,000** DOLLARS

Total Cost for Turnkey Project and Maintenance/Service Costs: **$3,714,000** DOLLARS

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered by the above bid and he further agrees to commence work within ten (10) days after the date of written notice to do so and to substantially complete same within ___ calendar days.

VENDOR CONTACT:
All potential vendors shall direct ALL questions, areas for bid clarification and specification verification to the Purchasing Agent IN WRITING, via mail or fax as follows:

The City Of Midland Office of the Purchasing Manager P.O. Box 1152 Midland, TX 79702 OR FAX: (432) 685-0523 E-mail: purchasing@midlandtexas.gov

All vendors on the bid list will then be notified of the questions and presented an answer. Verbal responses shall not be considered binding.

AWARD
If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code.

BID WAIVERS:

A. <u>WAIVER OF ATTORNEY FEES</u>: BY SIGNING THIS PROPOSAL, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT,
THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT,

INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND THE CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

B. WAIVER: BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**
2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS; 3. ACCEPTANCE OR REJECTION OF ANY BIDS; OR**
4. **AWARD OF THE CONTRACT.**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

C. Notice of Alleged Breach; Statutory Prerequisites: As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Bidder or his legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the

apparent extent thereof, the amount of damages sustained, the amount for which the Bidder will settle, the physical and mailing addresses of Bidder at the time and date the claim was presented and the physical and mailing addresses of Bidder for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Bidder relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Bidder that Bidder's notice is insufficient. The City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Bidder's failure to comply with the requirements herein shall perpetually bar Bidder's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if the City has actual or constructive notice or knowledge of said claim or alleged damages. Bidder agrees that the requirements of this entire Contract are reasonable.

By Signing below, your company agrees to the above waiver(s). If this form is not signed and included with your bid documents your bid will be considered non-responsive and will be rejected.

SOVEREIGN IMMUNITY: By Executing this contract the City is not waiving its right of Sovereign immunity. the City is retaining its IMMUNITY from suit. the City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

Unite Private Networks, LLC	Kathy Roquemore	**(806) 549-9653**
Bidder	Authorized Signature	Telephone
4701 S Loop 289 Lubbock, TX 79424	**Kathy Roquemore**	**(816) 903-9401**
Address, City and State	Please Print above Name	Fax

Bidder's Enclosure Check List: (Bidder - Please review the following list and check to ensure that you have included the documents with your bid.)

[X] PROOF OF AUTOMOBILE, WORKER'S COMPENSATION AND GENERAL LIABILITY INSURANCE COVERAGE AS REQUIRED BY THE TERMS OF THE CONTRACT. (**Upon award and prior to execution of the contract The City of Midland will have to be added to the policy as an additional insured and a certificate issued reflecting that provision) including a waiver of subrogation as stated in the contract)**

[X] 5% BID BOND FOR CONTRACTS IN AMOUNTS OF $50,000 OR MORE. (ONLY WHEN EXHIBIT "C" IS INCLUDED IN THE CONTRACT).* **THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO PROVIDE A PAYMENT BOND AND PERFORMANCE**

Unite Private Networks, LLC

Contractor's Name

PROPOSAL

21001104

To: Purchasing Manager
City of Midland
Midland, Texas

Option 6 pair (12 strands)

120 month term

Gentlemen: The undersigned bidder, having examined the plans, specifications and contract documents, the location of the proposed work and being fully advised as to the extent and character of the work proposes to furnish all materials, equipment and to perform all labor and work necessary for the complete work described by and in accordance with the attached plans, specifications and contract for the sum of:

Turnkey Project Cost (Labor, Materials, Equipment, Supervision & Installation) **$1,770,000** DOLLARS

Maintenance/Service Cost per month for 120 months **$910** X 120 **$2,730,000** DOLLARS

Total Cost for Turnkey Project and Maintenance/Service Costs: **$4,500,000** DOLLARS

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered by the above bid and he further agrees to commence work within ten (10) days after the date of written notice to do so and to substantially complete same within ___ calendar days.

VENDOR CONTACT:
All potential vendors shall direct ALL questions, areas for bid clarification and specification verification to the Purchasing Agent IN WRITING, via mail or fax as follows:

The City Of Midland Office of the Purchasing Manager P.O. Box 1152 Midland, TX 79702 OR FAX: (432) 685-0523 E-mail: purchasing@midlandtexas.gov

All vendors on the bid list will then be notified of the questions and presented an answer. Verbal responses shall not be considered binding.

AWARD
If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code.

BID WAIVERS:

A. <u>WAIVER OF ATTORNEY FEES</u>: BY SIGNING THIS PROPOSAL, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT,
THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT,

INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND THE CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

B. WAIVER: BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**
2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS; 3. ACCEPTANCE OR REJECTION OF ANY BIDS; OR**
4. **AWARD OF THE CONTRACT.**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

C. Notice of Alleged Breach; Statutory Prerequisites: As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Bidder or his legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the

apparent extent thereof, the amount of damages sustained, the amount for which the Bidder will settle, the physical and mailing addresses of Bidder at the time and date the claim was presented and the physical and mailing addresses of Bidder for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Bidder relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Bidder that Bidder's notice is insufficient. The City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Bidder's failure to comply with the requirements herein shall perpetually bar Bidder's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if the City has actual or constructive notice or knowledge of said claim or alleged damages. Bidder agrees that the requirements of this entire Contract are reasonable.

By Signing below, your company agrees to the above waiver(s). If this form is not signed and included with your bid documents your bid will be considered non-responsive and will be rejected.

SOVEREIGN IMMUNITY: By Executing this contract the City is not waiving its right of Sovereign immunity. the City is retaining its IMMUNITY from suit. the City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

Unite Private Networks, LLC	Kathy Roquemore	**(806) 549-9653**
Bidder	Authorized Signature	Telephone
4701 S Loop 289 Lubbock, TX 79424	**Kathy Roquemore**	**(816) 903-9401**
Address, City and State	Please Print above Name	Fax

Bidder's Enclosure Check List: (Bidder - Please review the following list and check to ensure that you have included the documents with your bid.)

[X] PROOF OF AUTOMOBILE, WORKER'S COMPENSATION AND GENERAL LIABILITY INSURANCE COVERAGE AS REQUIRED BY THE TERMS OF THE CONTRACT. (**Upon award and prior to execution of the contract The City of Midland will have to be added to the policy as an additional insured and a certificate issued reflecting that provision) including a waiver of subrogation as stated in the contract)**

[X] 5% BID BOND FOR CONTRACTS IN AMOUNTS OF $50,000 OR MORE. (ONLY WHEN EXHIBIT "C" IS INCLUDED IN THE CONTRACT).* **THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO PROVIDE A PAYMENT BOND AND PERFORMANCE**

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 1/16/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Linda Smith	
Arthur J. Gallagher Risk Management Services, Inc. 1050 Crown Pointe Pkwy, Suite 600 Atlanta GA 30338	PHONE (A/C, No, Ext): 678-393-5228	FAX (A/C, No): 678-393-5240
	E-MAIL ADDRESS: linda_smith@ajg.com	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Cox Communications, Inc. Unite Private Networks, LLC PO Box 105357 Atlanta GA 30348	INSURER A : National Union Fire Insurance Company of Pittsburg	19445
	INSURER B : New Hampshire Insurance Company	23841
	INSURER C : American Home Assurance Company	19380
	INSURER D : Illinois National Insurance Company	23817
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** 2069732208 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY**			GL6862525	1/1/2020	1/1/2021	EACH OCCURRENCE	$ 4,500,000
	☐ CLAIMS-MADE ☒ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 4,500,000
	X XS of $500,000						MED EXP (Any one person)	$ Excluded
	X SELF INSURED RET						PERSONAL & ADV INJURY	$ 4,500,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 30,000,000
	X POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$ 6,000,000
	☐ OTHER:							$
A A	**AUTOMOBILE LIABILITY**			CA6631131 CA6631132	1/1/2020 1/1/2020	1/1/2021 1/1/2021	COMBINED SINGLE LIMIT (Ea accident)	$ 10,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
B C D	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N			WC020608738 WC020608739 WC020608740	1/1/2020 1/1/2020 1/1/2020	1/1/2021 1/1/2021 1/1/2021	X PER STATUTE ☐ OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N	N / A					E.L. EACH ACCIDENT	$ 1,000,000
	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
B B	WORK COMP/EMPLOYERS LIAB WORK COMP/EMPLOYERS LIAB			WC020608741 WC020608742	1/1/2020 1/1/2020	1/1/2021 1/1/2021	SEE ABOVE AMT SEE ABOVE AMT	OF INSURANCE OF INSURANCE

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

For Information Only

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



PACKET 5.93 December 15, 2020

© 1988-2015 ACORD CORPORATION. All rights reserved.

ENDORSEMENT

This endorsement, effective 12:01 A.M. 01/01/2020 forms a part of

policy No. GL6862525 issued to COX ENTERPRISES, INC.

By NATIONAL UNION FIRE INSURANCE COMPANY OF PITTSBURGH, PA

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE FORM,
BUSINESS AUTO COVERAGE FORM
BUSINESS AUTO PHYSICAL DAMAGE COVERAGE FORM
GARAGE COVERAGE FORM
LIQUOR LIABILITY COVERAGE FORM
MOTOR CARRIER COVERAGE FORM
OWNERS AND CONTRACTORS PROTECTIVE LIABILITY COVERAGE FORM
PRODUCTS-COMPLETED OPERATIONS LIABILITY COVERAGE FORM
RAILROAD PROTECTIVE LIABILITY COVERAGE FORM
TRUCKERS COVERAGE FORM

EXTENSION SCHEDULE OF NAMED INSUREDS

This policy provides coverage for the first Named Insured shown on the declarations page and the following Named Insureds:

COX COMMUNICATIONS, INC.

106936 (10/10) Includes copyrighted material of Insurance Services Office, Inc. with its permission.

ENDORSEMENT

This endorsement, effective 12:01 A.M. 01/01/2020

forms a part of policy No. CA6631131

issued to COX ENTERPRISES, INC.

by NATIONAL UNION FIRE INSURANCE COMPANY OF PITTSBURGH, PA

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE FORM,
BUSINESS AUTO COVERAGE FORM
BUSINESS AUTO PHYSICAL DAMAGE COVERAGE FORM
GARAGE COVERAGE FORM
LIQUOR LIABILITY COVERAGE FORM
MOTOR CARRIER COVERAGE FORM
OWNERS AND CONTRACTORS PROTECTIVE LIABILITY COVERAGE FORM
PRODUCTS-COMPLETED OPERATIONS LIABILITY COVERAGE FORM
RAILROAD PROTECTIVE LIABILITY COVERAGE FORM
TRUCKERS COVERAGE FORM

EXTENSION SCHEDULE OF NAMED INSUREDS

This policy provides coverage for the first Named Insured shown on the declarations page and the following Named Insureds:

COX COMMUNICATIONS, INC.

106936 (10/10) Includes copyrighted material of Insurance Services Office, Inc. with it permission.

THE CITY OF MIDLAND

CONTRACT

21001104

THIS CONTRACT, effective the _____ day of _____, 20__, by and between the City of Midland, hereinafter referred to as "City", and _____, hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ _____ DOLLARS

2. **Scope of Work:** Company shall perform all work described for installation of City-Wide Fiber Optic Network of this Contract in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A ..... Specifications, Proposal or Cost Summary
EXHIBIT B ..... Intentionally Omitted
EXHIBIT C ..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D ..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Jennifer Frescaz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel, transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER,**

INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR**

CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise unavailable in any fiscal period for contract payments due under the contract, then this contract shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN**

THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury: $1,000,000.00 per person

$1,000,000.00 per occurrence

-Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract. Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a

"Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to

the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §
§
COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, , an officer of _____, known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

Notary Public, State of Texas

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

BID BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

SURETY NO. 87463-HAR-2019-016

KNOW ALL MEN BY THESE PRESENTS, THAT Unite Private Networks, LLC

(hereinafter called the Principal), as Principal, and Hartford Fire Insurance Company

(hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of Five Percent of Amount Bid DOLLARS (S 5% of Amount Bid), for the payment whereof the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid or Proposal to enter into a certain written Contract with the obligee to RFP No. 21001104 - City-Owned Fiber Optic Network Installation.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully enter into such written Contract, then this obligation shall be void; otherwise to remain in full force and effect.

IT IS EXPRESSLY UNDERSTOOD AND AGREED that if said Principal should withdraw its Bid anytime after such Bid is opened and before official rejection to such Bid or, if successful in securing the award thereof, said Principal should fail to enter into the Contract and furnish satisfactory Performance Bond and Payment Bond, the Obligee, in either such events, shall be entitled and is hereby given the right to collect the full amount of this Bid Bond as liquidated damages.

PROVIDED, further that if any legal action be filed upon this Bond venue shall lie in Midland County, Texas

IN WITNESS THEREOF, THE SAID PRINCIPAL AND SURETY do sign and seal this instrument, this 17th day of November, 20 20.

Unite Private Networks, LLC
Principal
By Charlene A. White

Address 7200 NW 86th Street, Suite M
Kansas City, MO 64153

Hartford Fire Insurance Company
Surety
By Camille M. Cruz
Camille M. Cruz, Attorney in Fact

Address One Hartford Plaza
Hartford, CT 06155

APPROVED AS TO FORM:

City Attorney

NOTE: ATTACH POWER OF ATTORNEY

FORM\BIDBOND.FRM

REVISED: March 30, 2011

POWER OF ATTORNEY

Direct Inquiries/Claims to:

THE HARTFORD
BOND, T-12
One Hartford Plaza
Hartford, Connecticut 06155
bond.claims@thehartford.com
call: 888-266-3488 *or fax:* 860-757-5835

KNOW ALL PERSONS BY THESE PRESENTS THAT: **Agency Code: Marsh**

- [X] **Hartford Fire Insurance Company**, a corporation duly organized under the laws of the State of Connecticut
- [X] **Hartford Casualty Insurance Company**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Accident and Indemnity Company**, a corporation duly organized under the laws of the State of Connecticut
- [ ] **Hartford Underwriters Insurance Company**, a corporation duly organized under the laws of the State of Connecticut
- [ ] **Twin City Fire Insurance Company**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Insurance Company of Illinois**, a corporation duly organized under the laws of the State of Illinois
- [ ] **Hartford Insurance Company of the Midwest**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Insurance Company of the Southeast**, a corporation duly organized under the laws of the State of Florida

having their home office in Hartford, Connecticut, (hereinafter collectively referred to as the "Companies") do hereby make, constitute and appoint, ***up to the amount of unlimited:***

Camille M. Cruz
of
Sunrise, Florida

their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign its name as surety(ies) only as delineated above by ☒, and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

In Witness Whereof, and as authorized by a Resolution of the Board of Directors of the Companies on August 1, 2009 the Companies have caused these presents to be signed by its Senior Vice President and its corporate seals to be hereto affixed, duly attested by its Assistant Secretary. Further, pursuant to Resolution of the Board of Directors of the Companies, the Companies hereby unambiguously affirm that they are and will be bound by any mechanically applied signatures applied to this Power of Attorney.

John Gray, Assistant Secretary

M. Ross Fisher, Senior Vice President

STATE OF CONNECTICUT }
COUNTY OF HARTFORD } ss. Hartford

On this 6th day of May, 2015, before me personally came M. Ross Fisher, to me known, who being by me duly sworn, did depose and say: that he resides in the County of Hartford, State of Connecticut; that he is the Senior Vice President of the Companies, the corporations described in and which executed the above instrument; that he knows the seals of the said corporations; that the seals affixed to the said instrument are such corporate seals; that they were so affixed by authority of the Boards of Directors of said corporations and that he signed his name thereto by like authority.

Nora M. Stranko
Notary Public
My Commission Expires March 31, 2023

CERTIFICATE

I, the undersigned, Assistant Vice President of the Companies, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force effective as of November 17, 2020

Signed and sealed at the City of Hartford.

Kevin Heckman, Assistant Vice President

Customer References

City of Allen (Allen, Texas)
Eric Matthews 214-509-4851
Dark Fiber solution connecting City Facilities
August 2017 – Current

City of Kansas City (Kansas City, Missouri)
Chris Lockey 816-513-8661
Dark Fiber solution connecting City Facilities
April 2016 – Current

Unified Government Kansas City and Wyandotte County (Kansas City, Kansas)
Alan Howze 913-573-8951
Dark Fiber solution connecting municipal facilities
October 2017 – Current

Lubbock ISD (Lubbock, Texas)
Bill Lovelace 806-219-0150
10.0 Gbps Lit Fiber solution connecting all facilities
May 2016 – Current

Lewisville ISD (Lewisville, Texas)
Bryon Kolbeck 972-350-1801
10.0 Gbps Lit Fiber solution connecting all facilities
March 2013 – Current

Cary Collins

4701 S Loop 289 Lubbock, TX 79424
806-441-7755
Cary.collins@upnfiber.com

Experience

Senior Solutions Engineer: August 2020 – Present
Unite Private Networks-Lubbock, TX

- Work with a regional Sales team designing custom solutions for government and private enterprise.
- Review of RFPs to determine key requirements and provide compliant solutions.
- Provide estimates and pricing for solutions.
- Directly support customers as the product/technical expert, providing drawings, maps, SOW, product application.
- Coordinate with various departments to implement customer deployments.

Application Sales Consultant: April 2014- March 2020
AT&T-Lubbock, TX

- Worked daily with a regional Sales team to provide assistance in identifying customer pain points and designed custom solutions using a consultative sales approach.
- Reviewed RFPs to determine key requirements and provide compliant solutions.
- Provided estimates and pricing for solutions.
- Regularly attended customer meetings as the product/technical expert, providing drawings, maps, SOW, etc.
- Responsible for establishing and maintaining relationships with customers.
- Interfaced with various departments to coordinate completion of customer deployments.
- Provided ongoing training to Sales and peers on processes/products.

Management: September 1984- March 2013
NTS Communications- Lubbock, TX

- Responsible for all aspects of service delivery technicians in the field.
- Responsible for all phases of inside plant maintenance and projects, including voice switching (VoIP and Legacy) / fiber transport / FTTH platforms / headend.
- Responsible for all outside plant construction and maintenance
- Worked daily with Sales to identify opportunities and take them from conception to completion, regularly attending customer meetings.
- Established/maintained relationships with property owners to gain access for fiber expansion.
- Provided technical assistance as needed to customers and other NTS departments.
- Coordinated with other companies/stakeholders and contractors.
- Responsible for identifying qualified vendors/subcontractors and overseeing all aspects of their work.
- Experienced with CADD/Visio.
- Reviewed schematics/blueprints/plant designs to insure projects were economically viable and completed as designed.
- Interfaced with all levels of management from all NTS groups.
- Consistently met deadlines and completed projects at or frequently below budget.

- Managed/scheduled all installation/repair technicians including QA at job sites.
- Ensured each area complied with company policies and safety standards.
- Assisted in customer service and developing good customer relations.

CAREER HIGHLIGHTS

- Extensive background with fiber networks (local transport/long haul/fiber to the prem).
- Business management experience responsible for $10m budget.
- Effectively communicates solutions/designs.
- Effective Management skills.
- Meet deadlines on projects and assignments.
- Emphasis on customer service, both internal and external.
- Ability to work independently and as part of a team.
- Worked with independent Telco's to establish a four-state private fiber network.

ACHEIVEMENTS

- Designed first Fiber to The Home network in West Texas.
- FTTH design was then used as template for roll out to multiple markets.
- Changed back office processes to cut FTTH installs from 21 business days to 7 calendar days.
- Built Operations staff to support FTTH in 12 new markets in 2 states.
- Completed LD Tandem switch install in 8 weeks vs allotted 12.
- Using my written plan, executed hot switch cut in 1 hour (manufacturer estimated 6 hour minimum).
- Established partnership with Reese Development to provide services to campus tenants.
- Multiple certifications on various voice switching platforms and central office infrastructure.
- First employee of the month and first employee of the year when instituted at NTS.
- Managed fiber roll out to multiple tower sites for various cellular providers.

EDUCATION/TRAINING

Texas Tech College of Business Administration. Lubbock, TX.
Graduate of the Senior Management Program

South Plains College, Lubbock, TX.
Computer Programming

David J. Cromwell

7200 NW 86th St Suite M, Kansas City, MO 64153
816-336-2579
david.cromwell@upnfiber.com

Experience

Senior Vice President of Engineering 2015-Present
Unite Private Networks- Kansas City, MO

- Engineering responsible for Network Design and Architecture, The Network Operations Center and the IT Department
- Provide Strategic Network Planning for market expansion and associated Capital Allocations to achieve strong returns on Investments.
- Developed organizational Structure to achieve workflow and process efficiencies.

Director of Network Engineering 2014-2015
Unite Private Networks- Kansas City, MO

- Managed the Network Design Engineering team responsible for the architecture of lit services offered by Unite Private Networks.
- Develop and implement engineering standards across the organization to ensure consistency in technology, design, processes, products and cost to deliver.
- Provided Capital estimate for new customer opportunities.
- Worked very closely with Solutions Engineers to complete RFPs for potential customers
- Provided Tier 2/3 Support.

Manager of Engineering 2010-2014
Tw TELECOM - Charlotte, North Carolina

- Responsible for setting the strategic direction for the network in the Charlotte Market.
- Facilitates the implementation of corporate engineering and accounting practices / processes.
- Responsibility for managing the Outside Plant and Central Office Engineering Staff for the Charlotte Market. 2010-2014
- Manage the day to day operations including fiber network expansion planning, new product deployment, network advancement from TDM to DWDM and Ethernet, capacity augments, and network grooms.
- Assisted multiple sales teams by providing cost efficient on-net and off-net customer solutions.
- Met with municipalities, utility companies and developers to secure proper agreements to build out fiber optic network.
- Manage contractors and vendors that provide engineering, construction and locating services
- Implemented the use of a workflow management application (SwIFT) and an Outside Plant Records Database (OSPInSight).
- Partnered with Corporate Engineering on implementation of new technologies and products into the local network.

Manager of Access & Transport Engineering & Planning 2008-2010
Frontier Communications-Rochester, NY

- Directed the efforts of 10 engineers/planners that were responsible for developing standards/ guidelines for network design/ architecture, equipment evaluation/selection, strategic initiatives and tier 3 support.
- Set the strategic direction for the following technologies/initiatives: Converged Services, Metro Ethernet, Ethernet over TDM, VoIP, DWDM, SONET, and High Speed Internet.
- Partnered with Product Development, Regional Operations, Procurement and the Senior Leadership Team as the representative for Access and Transport Planning relating to release of new products and services.
- Fulfilled all staffing needs of the group which included hiring, defining yearly objectives, and completing performance appraisals**.**

Senior Network Engineer 2000-2008
Frontier Communications- Rochester, NY

- Provided Data Network Design Solution for infrastructure as well as customer access circuits.
- Performed new technology / equipment testing and validation.
- Responsible for management of multiple vendor accounts including equipment manufacturers and technology solutions.
- Provided individual circuit design solutions for high speed internet, Frame Relay, ATM, VoDSL
- Developed standard engineering documentation to provide capture the testing and validation of new technology and products.

NOC Technician/Field Technician 1993-2000
Rochester Telephone Corp-Rochester, NY

- Installation and Repair of Hi-Cap Services (DS-1, DS-3, OC-3, OC-12) for both enterprise and residential customers.
- Provided remote monitoring and testing to maintain client networks
- Performed trouble ticket management, troubleshooting, fault resolution and dispatch functions.

Education

ROCHESTER INSTITUTE OF TECHNOLOGY

- Telecommunications Engineering Technology Electrical Engineering Technology

THE WHARTON SCHOOL – UNIVERSITY OF PENNSYLVANIA

- Courses in Operational Management 1990-1995 2013

Jimmy Chapman

7200 NW 86th St Suite M, Kansas City, MO 64153
816-656-1281
Jimmy.chapman@upnfiber.com

Experience

Vice President of Operations-South 2016 to Present
Unite Private Networks

- Oversees the Project Management team in scheduling projects, achieving budgets, and meeting deadlines.
- Establishes and enforce project management discipline, policies, processes and tools that enable world-class execution. Strategic planning and execution to enhance profitability, productivity and efficiency throughout the company's operations.
- Interacts regularly with the senior team and individual department heads to ensure the company's operational priorities are aligned with total company direction.
- Provides evaluation of sub-contractor performance.
- Responsible for quality control, quality assurance, EPA and OSHA compliance.
- Reviews all work in process to ensure compliance with plans and specifications, building codes and Company standards.
- Reviews and recommend improvements to both existing and proposed plans; Responsible for ensuring that all needed red-lining of plans is complete.
- Participates in vendor negotiations to ensure product relevance and cost-efficiency.
- Fields responsibility for controlling costs, achieving budgeted margins and improving the bottom line. Manages the organization to maintain process around fiber relocation, cuts, reroutes and general repair of the existing fiber network.
- Building process around Document Standardization for input into GIS system. One Call Database, Locate Ticket Clearing, and Field Locate Dispatch.

Director of Field Operations- 2015-2016
tw telecom- Gulf Coast Division

- Successfully integrated the operation team in the new Gulf Coast division by immediately cross training all team members on systems, policies and procedures
- Demonstrates the ability to build a strong partnership with the sales teams in the Alabama and Louisiana/Mississippi markets.
- Managed a division of 34, span of control is 10:1 across the division.
- Lead a team of OSP Engineers, planners, and field techs across Louisiana, Mississippi, Alabama and panhandle of Florida
- Oversee a network of approximately 3800 route miles of fiber optic cable (long haul & metro), approximately 1000 on net buildings and 24 CO/ILA facilities. These include all Tier 1, Tier 2 and Tier 3 facilities in the region/division.
- Responsible for a $3M P&L budget for the division

Sr. Director Operations 2013 - 2014
tw telecom- Kansas City / Tulsa markets

- Increased on net building count by adding 82 new buildings
- Increased revenue by 19.2% in 2013. So far in 2014 revenue growth is at 8.7% in KC and 7.1% in Tulsa
- Identified $22K MRC that was inappropriately being charged to the Kansas City P&L
- Effective team development – 2 promotions in 2013, added OSPE in the Tulsa market

Sr. Director Operations-2004 – 2013
Tw telecom- Dallas, TX market

- Increased on net building count from 88 to 564
- Increased revenue run rate from 1.2 million to 5.9 million
- Increased Operations staff from 15 to 25
- Effective team development – 10 employees received a total of 18 promotions during this time.
- Managed both the Dallas and Fort Worth markets from 2006 to 2010. Total staff of 29 employees

2001-2004 – Director Operations Portland, OR market
2000-2001 – Manager Operations Greensboro, NC market
1999-2000 – Manager Operations -Austin, TX market
1997 – 1999 – Network Tech III Austin, TX market

Field Engineer II 1995-1997
MCI Telecommunications-Richmond, VA

Certified Field Engineer 1994-1995
Point to Point Communications-Broussard, LA

Field Installation Technician 1989-1992
Butler Communications-Irving, TX

Kelly Ayars

7200 NW 86th St Suite M, Kansas City, MO 64153
303-810-0365
Kelly.ayars@upnfiber.com

Experience

Senior Vice President, Business Integration & Data Management: Dec 2018 – Present
Unite Private Networks – Kansas City, MO

- Leading team in overarching Dashboard & Report development and automation utilizing SQL to provide various organizations a real-time view into the state of the business.
- Leading team in analyzing data on overall revenue performance, sales team/seller performance, and operational performance to make recommendations on corporate strategies, processes and reporting to increase overall productivity and efficiencies resulting in a strong EBITDA.
- Leading special projects and overseeing budget and expense functions associated: E2E Revenue, E2E Process/Tool Auditing, E2E Accountability, Sales and Operations Reporting/Analytic
- Leading team in gap and data analysis to make improvements to end-to-end (E2E) customer implementation and the customer experience to increase overall cycle time, productivity, and efficiencies.
- Directing team in creating roadmaps for project prioritization and process improvements to deliver on-time and on-budget.

Vice President, Customer Implementation: Jul 2016 – Dec 2018
Unite Private Networks – Kansas City, MO

- Leading team in gap and data analysis to make improvements to end-to-end (E2E) customer implementation and the customer experience to increase overall cycle time, productivity, and efficiencies.
- Directing team in creating roadmaps for project prioritization and process improvements to deliver on-time and on-budget.
- Leading team in analyzing data on overall revenue performance, sales team/seller performance, and operational performance to make recommendations on corporate strategies, processes and reporting to increase overall productivity and efficiencies.
- Leading special projects and overseeing budget and expense functions associated: *E2E Revenue, E2E Process/Tool Auditing, E2E Accountability, Sales and Operations Reporting/Analytics*

Director Sales Operations: Business Commercial, Inside Sales, & Enterprise Channels:
Jan 2013 – Jul 2016
CenturyLink – Kansas City, MO

- Directing day to day organizational activities to support a variety of strategic business planning and pre-sales functions: *Lead/Product Qualification, Commercial & Enterprise Pricing/Contract Generation, Rules of Engagement & Booking Guideline Adherence, Quota & Target Setting, Process & Cycle Gap Resolution, Accountability for annual management of $132m Budget, $22m MRR, $23m NRR, and $1.250b revenue.*
- First developed/staffed, Now leading that team of over 70 individuals in the creation, communication, and implementation of strategic sales performance initiatives for three business sales channels.
    - 2013-14 drove 134% YoY sales improvement, which led to the gain of an additional sales channel
    - 2014-15 drove 90% YoY sales improvement, which again led to the gain of an additional sales channel
- Leading team in analyzing data on market performance, sales team/seller performance, program/incentive performance, and product/ARPU performance analyses to make recommendations on competitive strategies, processes and reporting to increase overall productivity and efficiencies.
- Directing team in creating roadmaps for project prioritization and process improvements, while also creating/managing internal reporting and support infrastructure.

- Leading special projects and overseeing budget and expense functions associated.

Sr. Manager, Sales Operations & Performance: Oct 2010 – Jan 2013
CenturyLink – Denver, CO

- Directed team to program manage the corporate merger for the Business Sales & Care organization, which worked with extremely confidential information and resulted in savings of over $9M in synergies.
- Effectively managed 4-teams, totaling 30-employees: (1) Program Mgmt & Communication, (2) Process Improvement, (3) Executive Reporting, and (4) Systems/Tools providing support for over 2500 Business Sales employees.
- Created a database to manage headcount, which improved organizational alignment, Plan of Record Budget management, and headcount movement to shorten hiring intervals.

Manager, Sales Operations & Program/Process Mgmt: Jan 2007 – Sept 2010
Qwest Communications – Denver, CO

- Specifically selected by VP to implement Salesforce.com (CRM) within the Small Business Call Centers to be used by 350 internal/external Telemarketing, Sales, Care, and Account Management Agents.
- Recognized need for and negotiated with VP to launch end-to-end Business Process development/ improvement for Product launches

Program Manager – Consumer Customer Experience: Oct 2005 – Dec 2006
Qwest Communications – Denver, CO

- Specifically selected by VP to determine causes for Consumer churn, create strategic direction, and complete implementation within 6-months
    - Led team of 8 Directors/Managers to identify top reasons for churn and customer dissatisfaction.
- Established associated organizational strategic initiative to reduce 30, 60, and 90-day churn

Advocate / Project Manager – Technical Regulatory: Jan 2000 – Sept 2005
USWEST/Qwest Communications – Littleton, CO

- Acted as the liaison for State Initiative/Mandates negotiation to minimize capital impacts while managing a $50M budget across 14-states and saving $4M in 2003 and $12M in 2004.
- Gathered and investigated pertinent data for Executive Leadership regarding Qwest's State of the Network trend to enable the sale of DEX.

Education

Bachelor of Arts: Political Science – Emphasis in International Policy, 1999

Recommendations

Please access the following link located on LinkedIn:
https://www.linkedin.com/in/kelly-ayars-11b4539

Accolades

Selected to attend CenturyLink 2013 Circle of Excellence for proactively driving significant improvements to the Commercial Acquisition Sales Channel.

Received Recognition in Service Excellence Award for overall successful implementation and cultural change management of Business Process Management companywide.

Executive Summary

Unite Private Networks (UPN) has thoroughly read and understood your requirements. Specifically, the City of Midland desires a City owned, dark fiber network for 25 locations throughout Midland. In addition, a desired solution that will provide redundancy, resiliency, increased uptime, and modernization of the City's network.

Our proposal addresses your goals by providing an all-fiber upgraded, robust, resilient, and yet reliable long-term solution. UPN's proposal offers the City of Midland a dark fiber ring configuration to each location listed in the RFP on Appendix B, Our infrastructure provides the City of Midland the ability to facilitate telecommunications, Wi-Fi, and broadband services necessary for the City of Midland's robust network.

UPN's unique value proposition provides the City of Midland with many advantages and added redundancy relating to your network, but without the hassles and additional costs. These advantages include control of your network, and increased redundancy and resiliency via UPN's dark fiber ring.

Selecting UPN as your provider will give the City of Midland the following advantages:

- **PRIVACY AND SECURITY** - UPN delivers its service over fiber pairs that have been specifically deployed and assigned for use by the City. This assures the City of Midland that each location has unprecedented flexibility in network management.

- **RELIABILITY** – A brand new fiber build allows UPN to configure a simpler network design, increase the reliability of the service by eliminating potential points of failure, and simplifies the management of the network.

- **DEDICATED TEAM** - UPN assigns you a team that is focused on your solution and has extensive knowledge working with Government entities, processes and procedures.

- **A PROVEN TRACK RECORD -** UPN has a proven demonstrable track record of building and providing dark fiber solutions for government, health care and school districts, in 21 states. Several of our past projects have been similar in scope and have been offered as examples under the reference section included in this proposal.

- **PROJECT MANAGEMENT** – The UPN team includes many utility veterans who are knowledgeable of local laws, right of way access and utility permitting. This solution is a full-turn-key solution consisting of engineering, permitting, construction, and maintenance. With our experience and knowledge, we can ensure a smooth implementation and successful project.

- **IMPLEMENTATION** – Unite Private Networks understands the initial term of the contract is for 60 to 120 months. UPN will make every effort to meet the City of Midland's installation expectations and will assign a dedicated UPN project manager to work closely with The City's representatives to identify each step of the installation in an effort to deliver services by a requested delivery date.

- **TERMS -** UPN is pleased to offer 5 and 10- year pricing terms to provide The City of Midland with a pricing assurance for the budgeting of this critical utility. UPN is willing to explore and provide additional options upon request.

Company Overview

Top-of-the-Line Private Fiber Networks Since 1998

Unite Private Networks provides the pinnacle of service in more than 300 communities across 21 states.



UPN currently serves over 300 communities across 21 states with 10,000 metro fiber route miles and over 7,000 on-net buildings.

We have a proven history of successful completion of large and complex fiber-optic construction projects, on time and on budget. Our customer relationships typically include long-term agreements (10-20 years) for fiber-optic connectivity between multiple facility locations. UPN manages all phases of the customer relationship, including RFP response, construction management, network reliability, technical assistance and customer service to facilitate a long-term partnership with our customers. Headquartered in the Kansas City metro area, UPN has been providing customer-focused communications solutions since 1998.

Industries of Focus

Unite Private Networks (UPN) provides high-bandwidth, fiber-based communications networks and related services to:

- Schools
- Governments
- Carriers
- Data Centers
- Hospitals
- Businesses

Our Services

Our offerings include:

- Dark and Lit Fiber
- Private Line
- Optical Ethernet
- Internet Access
- Data Center Services
- Custom Solutions

Company Overview

Private, Secure, Fiber-Based Dedicated Networks

UPN dedicated fiber networks are custom designed for your organization's needs only. With more than 22 years of experience, successful dedicated network solutions are nothing new to us.



Custom Built to Accommodate Your Needs

Your organization's network needs are diverse and unique. UPN custom fiber networks are designed to meet all your needs and built to scale to meet your ever-changing demands.

Longevity in Fiber Networks Is Our Strength

We've spent 20+ years creating a network of more than 7,000 on-net buildings spanning 10,000 fiber route miles. Our 22 years in business is proof of success in serving our customers.





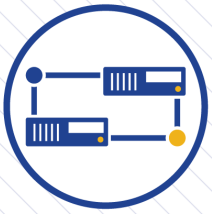
Low Latency for Business at the Speed of Light

Our local 100% fiber-optic infrastructure minimizes delays in data transmission so your organization's data can run at the speed of light.

Company Overview

Private, Secure, Fiber-Based Dedicated Networks

UPN dedicated fiber networks are custom designed for your organization's needs only. With more than 22 years of experience, successful dedicated network solutions are nothing new to us.



A Diverse Network Is Stronger

You'll never have to worry about the reliability, privacy or security of your internet connection with UPN's inherently diverse network infrastructure.

Fiber-Optic Ring

Self-healing fiber-optic ring infrastructure means additional protection for your connectivity, privacy and security. UPN networks can endure outages without interrupting your service or connection to our core network.



UPN is regulated by Public Service Commissions of each state in which UPN operates and also by the Federal Communication Commission, with periodic reporting requirements and service standards. UPN is a certified E-Rate service provider.

Company Overview

Our Partners

UPN's investors include Cox Communications, Ridgemont Equity Partners and the company's management team. The relationship with Cox and Ridgemont provides UPN with access to capital and an ability to leverage strategic insights and capabilities to accelerate long-term growth.

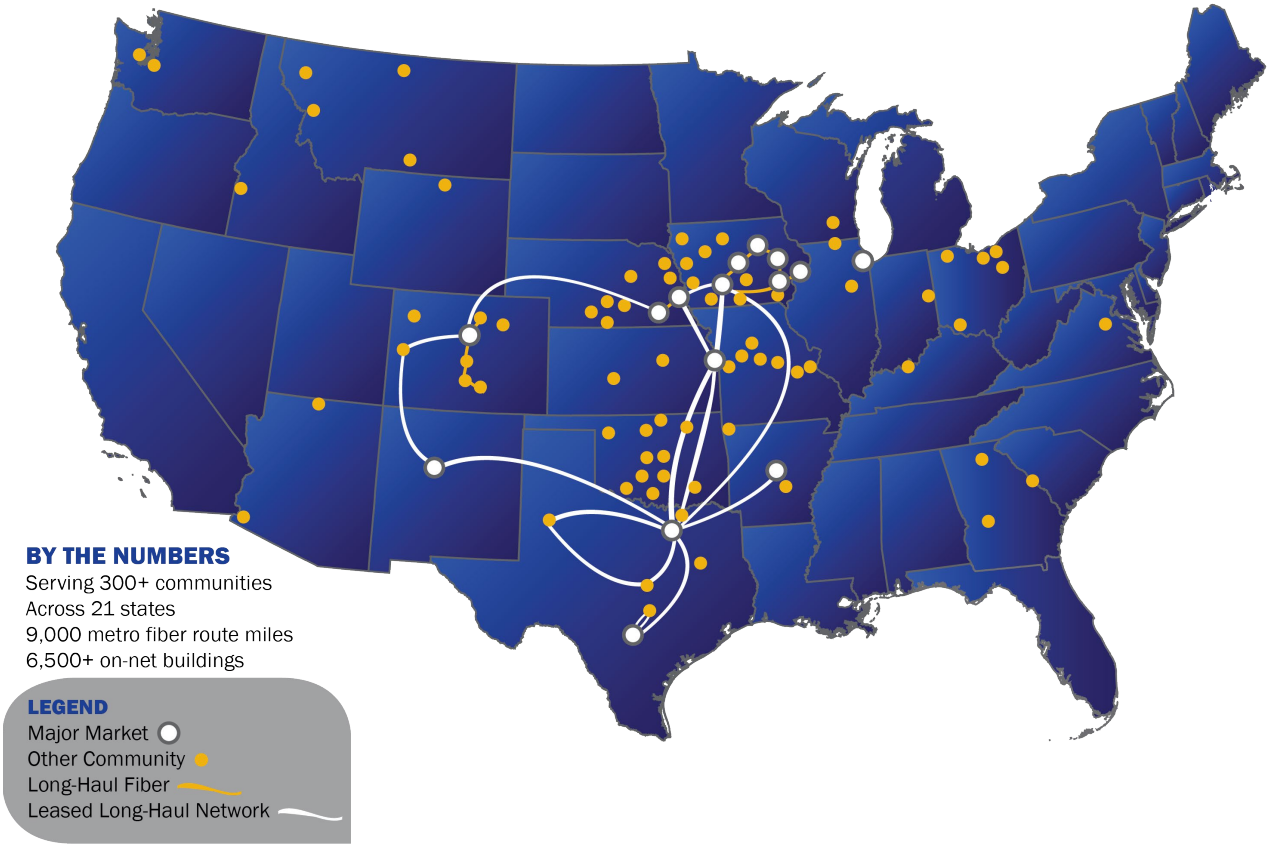
About Cox Communications:

Cox Communications is a broadband communications and entertainment company, providing advanced digital video, Internet, telephone and home security and automation services over its own nationwide IP network. The third-largest U.S. cable company, Cox serves approximately 6 million residences and businesses. Cox Business is a facilities-based provider of voice, video and data solutions for commercial customers, and Cox Media is a full-service provider of national and local cable spot and digital media advertising. Cox is known for its pioneering efforts in broadband, voice and commercial services, industry-leading customer care and its outstanding workplaces. For nine years, Cox has been recognized as the top operator for women by Women in Cable Telecommunications; Cox has ranked among DiversityInc's Top 50 Companies for Diversity 11 times. More information about Cox Communications, a wholly owned subsidiary of Cox Enterprises, is available at **www.cox.com**.

About Ridgemont Equity Partners:

Ridgemont Equity Partners is a Charlotte-based middle market buyout and growth equity investor. Since 1993, the principals of Ridgemont have invested more than $3.5 billion in 129 companies. The firm focuses on investments of $25 million to $100 million in industries in which it has deep expertise, including basic industries and services, energy, healthcare, and telecommunications/media/technology. For more info, visit **www.ridgemontep.com**.

Service Areas



Vendor Diversity Program

Diversity in our supply base is integral to our continued success. A diverse supplier base provides us with a clearer understanding of our customers while providing economic growth in the communities we serve.

We actively seek diverse suppliers through membership in the National Minority Supplier Development Council to develop a supplier base that reflects the makeup of all Unite Private Networks' customers and potential customers. We utilize ConnXus, a cloud-based subscription database, to analyze our existing vendors to ensure their participation is recognized as diversity spend.

We track the success of our supplier diversity program by measuring diversity as a percentage of how much we spend with suppliers, the number of diverse suppliers we work with and the savings that result from doing business with diverse suppliers. In 2019, 14% of our vendor expenditures were with diverse suppliers.

We maintain affiliate membership in several organizations including: Women's Business Enterprise National Council, National Minority Supplier Development Council, National Gay & Lesbian Chamber of Commerce and the Minority Supplier Development Council.

Executive Bios

We're a team that believes in the power of strategic thinking, coupled with hands on execution. Multifaceted in our experience, we bring a variety of skills and methods to every project we take on, and we're flexible in how we apply our methodology to drive the results our clients want to see. We're practical, direct, creative, collaborative, and we love what we do.

Kevin Anderson
Founder, Chairman & Chief Executive Officer

CEO from its inception in 1998, Kevin previously founded and served as CEO for two triple-play providers; Unite Communications and Everest Connections. He has over 25 years of telecommunications and utility industry experience. In the past, Kevin served as a Business Development Executive for UtiliCorp and as an Audit and Business Consultant for Arthur Anderson & Co. He had held board positions with several U.S. and International organizations. Kevin holds a B.A. degree in Accounting (CPA, CIA).

Jason W. Adkins
President
Jason W. Adkins is President of Unite Private Networks. He joined Unite Private Networks from Windstream and has 22 years of telecommunications management experience with companies such as KDL, Level 3, Telcove, Conterra and KMC Telecom. Jason earned a B.A. in Marketing with a minor in Economics from James Madison University and a M.B.A. from Radford University.

Chad Senglaub
Chief Technology Officer & Chief Operations Officer
Chad Senglaub is CTO/COO with Unite Private Networks. He joined Unite Private Networks from Tw telecom and has over 15 years of telecommunications management experience with companies such as Frontier Communications, Giantloop Networks and Tw telecom. Most recently, he spent 10 years at Tw telecom, last serving as Senior Director of Field Operations. In this role, he directed the network engineering, installation and maintenance for Time Warner Telecom's fiber based lit services, including voice, data and Internet. Chad earned a degree in Engineering Technologies from Alfred State College and a B.A in Economics at the University of Rochester.

Scope of Work

Complete Solution

Our solution incorporates 6 or 12 Dark Fibers in a ring configuration from the City of Midland Data Center to the 25 sites designated in Appendix B of the RFP. This solution is custom designed, built and dedicated specifically for the City of Midland.

Building Entries

Construction of building entries will be physically located with other utilities and communications entries to the extent possible. UPN building entries are made with plenum rated cable or with standard fiber in EMT conduit to comply with National Electric Code guidelines. While most work can be conducted during normal business hours,UPN will coordinate to perform work after hours as needed inside the buildings to avoid disruption. UPN will use existing available conduit for building entries and will construct new conduit into the building (where required).

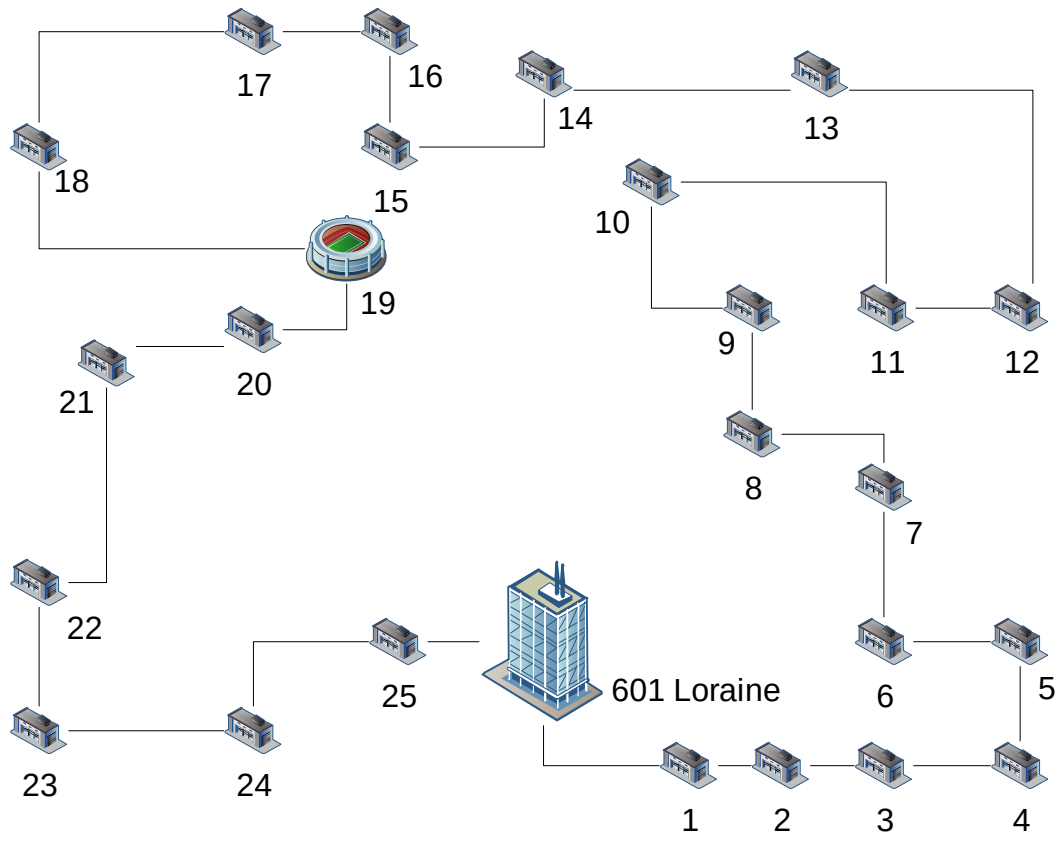
Project Timing

Project timing will be contingent on final contract language, but UPN can meet the City's timeline for completion if all other timelines are met. Please see the Project Management section for additional information.

Proposed Fiber Route

Dark Fiber Service – Ring Topology

1. 701 E Florida
2. Landfill
3. 3600 FM 307
4. 4500 FM 307
5. 3215 FM 307
6. 1803 Indiana
7. 1707 Lamesa
8. 2300 Butternut
9. 1201 E Wadley
10. 3600 N Fairgrounds
11. 5100 N Big Spring
12. 3301 Haynes
13. 5000 N Midland Dr
14. 6005 N Midland Dr
15. 5500 North CR 1240 (Peggy Sue)
16. 6600 Briarwood
17. 4300 Shell
18. 4501 Sinclair
19. Grande Stadium
20. 301 Tradewinds
21. 9506 La Force Blvd (airport)
22. 2507 Pliska (airport fire station)
23. 4700 W Storey
24. 2701 Elizabeth
25. 2210 W Golf Course



Unite Private Networks Owns & Maintains The Last Mile, Enabling UPN To Have Full End-To-End Operational Control of The Network

UPN Equipment Guide



Fiber Distribution Panel

- 100% FIBER INFRASTRUCTURE
- CUSTOM DESIGNED NETWORK
- DEDICATED PROJECT MANAGER
- ULTRA SCALABLE BANDWIDTH

Configuration Represented

UPN Providing: Dark Fiber – Ring Service

- **Entry:** Single Building Entrance Lateral
- **CPE:** UPN Provided Fiber Distribution Panel (No Electronics Provided)
- **Fiber Count:** Options provided for either 6 or 12 fiber strand ring
- **Demarc:** Minimum Point Of Entry
- **LOA/CFA:** UPN Provides At The UPN Demarc
- **Hand Off:** Single Interface - Single Mode Fiber/ LC Connectors

Notes: Customer requested changes differing from above configuration could result in additional charges. Customer responsible for cross connections when applicable.

MIDLAND
Feel the Energy!

Logical Design:
27878-3
Cary Collins
December 15, 2020

Unite PRIVATE NETWORKS

This document is strictly confidential and should not be shared without the written consent of Unite Private Networks

Project Management

UPN has extensive resources to ensure the successful implementation of your Wide area network. With a dedicated Project Manager working with an experienced team, your project will be managed for a thorough and timely completion. Once the contract is awarded, UPN will assign a Project Manager (PM) to oversee the implementation of the project. The PM has the following responsibilities:

- Act as the main point of contact for UPN and customer project teams
- Identify both UPN and customer members of the project team, including roles/responsibilities
- Coordinate the development of the implementation plan
- Hold planning sessions
- Confirm the scope of work
- Guide the execution of the project plan to ensure all tasks are completed in a timely manner
- Provide regular communication on project status via agreed upon methods
- Obtain proactive escalations of issues that impact service delivery
- Conduct project closing reviews

Phase 1: Planning

Early identification of team members is critical to the successful implementation of the project. The UPN PM will lead and coordinate the internal project team that will be responsible for the project implementation. This UPN project team will include members from Sales, Sales Engineering, Customer Operations, Network Planning, Network Engineering, and Billing.

Prior to contract, your scope of work was clearly discussed and documented. Now in the planning phase, documented requirements, including services and equipment, are reviewed; In addition, significant milestones are identified; a detailed timeline is prepared; and a tracking spreadsheet of all locations is developed to monitor progress. Upon completion of the timeline, the UPN PM will arrange a kick-off meeting to begin the project implementation.

The UPN Project Manager will obtain the list of the District's team members, add the UPN team members, and create a complete project team list. Roles and responsibilities will be identified and the list will be distributed to the entire team. Project team members may include employees as well as sources contracted to assist with the implementation.

Project Management

Phase 2: Implementation

The UPN team will work closely with your project team to implement the services and successfully complete the project. In this phase, the PM will host the project kick-off meeting. An agenda will be prepared and distributed prior to the meeting. Members of the project teams will be invited to join a call to discuss the project. During the call, the services and the type of equipment UPN is providing will be confirmed and/or clarified. Activation request dates will be confirmed. We will also review the milestones. Additional information that is required, such as access to facilities and specific internal demark locations will be discussed. The customer communication plan will be established, including the frequency of updates, and the method of communication.

Throughout the project, the implementation plan will be monitored for plan compliance. The PM will schedule regular updates to discuss project status, exceptions, issues, and progress. Progress will be monitored against the established milestones using a project tracking spreadsheet. Identification of exceptions will be escalated as required and corrective action implemented. Early action will help the team ensure timely completion of the project.

The UPN outside plant team will work with the appropriate members of your project team during the construction process to coordinate site visits and discuss the specifics of building entry work and demarcation points. Engineered building entry documentation will be provided to the District for approval prior to construction beginning.

The PM will confirm the timing for final installation of the services. The Network Engineering team will work directly with the District to discuss any special instructions and arrangements with regard to access to the facilities. Installation of equipment will be coordinated with the District. The Network Engineering team will test and confirm the quality of the network.

Project Management

Phase 3: Follow-Up

Upon the successful testing and confirmation of your Wide Area Network, UPN will send a service commencement letter stating the contract number and the date service started. Instructions on repair reporting through UPN's Network Operations Center (NOC), along with an escalation list, will be provided as well.

Billing will commence as stated in the contract. A billing letter will be sent for the District to select one of two billing methods, billing at a discounted monthly rate or full billing, assuming the District will file a BEAR form. Once the District receives its FCDL letter and files the Form 486, UPN can then bill the discounted amount if the District selects that option.

Following completion of the project, UPN will deliver documentation as described in the As-Built Documentation section. The PM will have a follow-up call with the District to ensure all services have been completed successfully. Any open issues will be discussed and logged for review. There will be a post-implementation review of the project action items. At this stage UPN will assign a dedicated customer relationship manager to the District to provide support during the contract term.

UPN has a proven track record in the implementation of large school district Wide Area Networks. The UPN project team will work to ensure the project scope is clear and comprehensive at the project start, that the project plan is defined and communicated to all team members, and that the implementation is completed efficiently with minimal disruption. We look forward to working with you on your project.

Network Operations Center
Customer Benefits

The main benefits you will experience as a customer from our NOC are as follows:



24x7x365 Comprehensive Support

- Constant, high priority, mission critical assistance
- Proactive monitoring of all network devices and LIT customer circuits through NMS alerts



Immediate Trouble Shooting Engagement

- After identifying a potential concern, NOC tech will begin isolating issue in real-time
- Immediate access to live technicians without dial menus or auto attendants



Prompt Technician Dispatch

- When applicable, field engineer or OSP teams are deployed for hands-on assessment



Proactive, Timely and Meaningful Customer Updates

- Relevant details are provided on an hourly basis until resolution is confirmed by customer

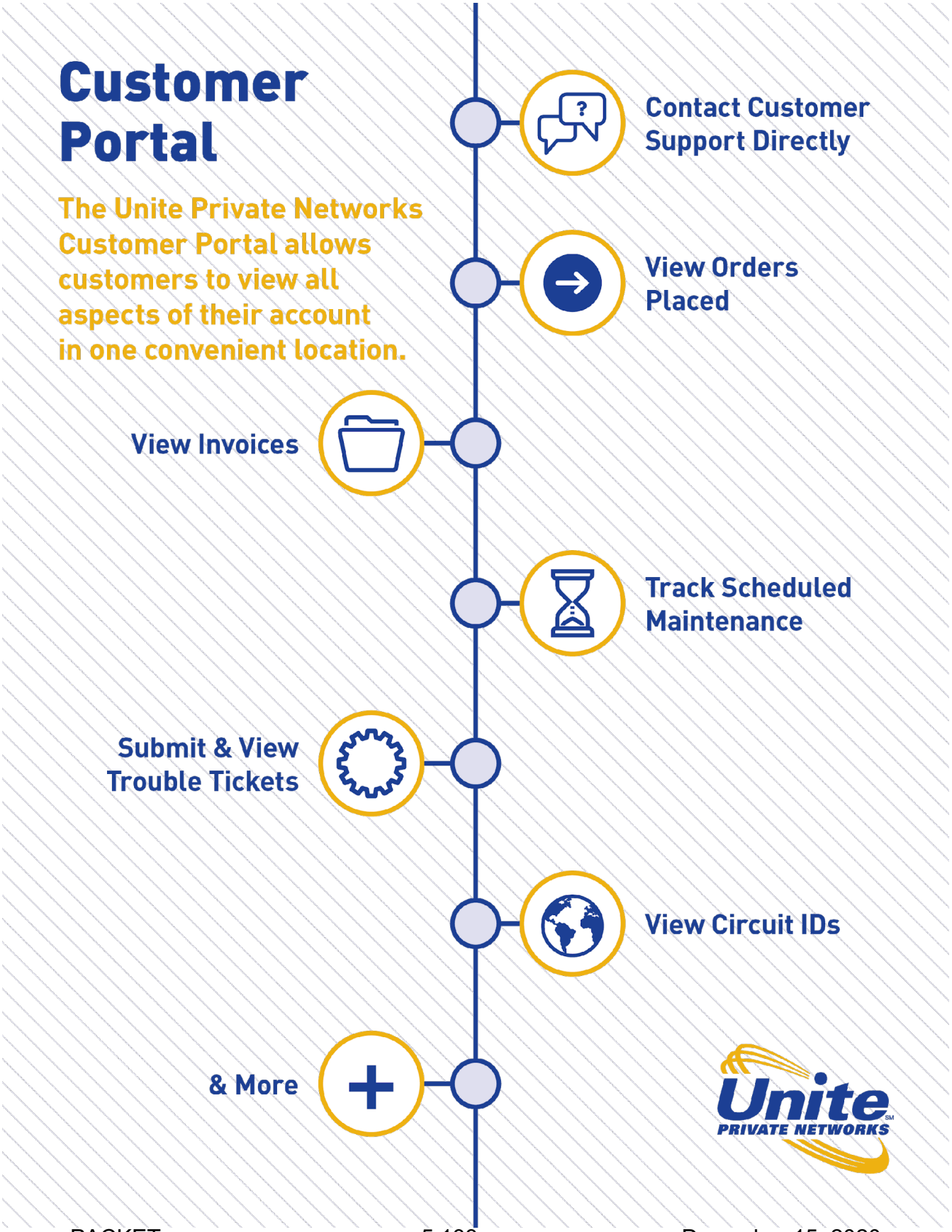


Client Portal to Review Past Trouble and Maintenance Ticket History

- User friendly access to a variety of customer online account information

Customer Portal

The Unite Private Networks Customer Portal allows customers to view all aspects of their account in one convenient location.



Escalation Contact List

To assist UPN in tracking and coordinating all necessary activities for resolving issues expeditiously, the following phone numbers are the first contacts for trouble resolution. All dispatches, if deemed necessary, will be generated through these contacts:

1-866-963-4237 or 816-903-3927 24x7x365

The escalation process provides another method for obtaining information and resolutions, once an issue has been reported to Unite Private Networks.

Service Escalation Contact List

Level	Name	Email	Cell Phone
1st	Jamey Crubaugh NOC Manager	jamey.crubaugh@upnfiber.com	816-381-0278
2nd	Marcus Prieto Director – Network Operations Center	marcus.prieto@upnfiber.com	816-591-3045
3rd	Bill Tyler RVP of Operations- Texas	Bill.tyler@upnfiber.com	(469) 354-3214
4th	Jimmy Chapman Vice President of Operations	Jimmy.chapman@upnfiber.com	(816) 656-1281
5th	Chad Senglaub Chief Operations & Technology Officer	chad.senglaub@upnfiber.com	816-500-9935

Contacts

If you need anything, please don't hesitate to contact us. We are here for you.

Nicholas O'Sullivan
Nicholas.OSullivan@upnfiber.com
(214) 470-2710

Kathy Roquemore – Account Director
Kathy.roquemore@upnfiber.com
(806) 549-9653

Stuart Howerter –Vice President Sales, Emerging Markets
Stuart.howerter@upnfiber.com
(402) 617-3544

Cary Collins – Sr. Solutions Engineer
Cary.collins@upnfiber.com
(806) 201-6803

Jimmy Chapman – VP Operations, South
Jimmy.chapman@upnfiber.com
(816) 656-1281

Financials

Please see sealed confidential envelope for our financials.

EXECUTION OF OFFER

Date:

In compliance with this RFP, and subject to all the conditions herein, the undersigned offers and agrees to furnish any or all commodities or services at the prices quoted.

By executing this offer, Offeror affirms that he/she has not given, offered to give, nor intends to give at anytime hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer. Failure to sign the offer, or signing it with a false statement, shall void the submitted offer or any resulting contracts, and the Offeror shall be removed from all proposal lists.

By the signature hereon affixed, the Offeror hereby certifies that neither the Offeror or the firm, corporation, or institution represented by the Offeror or anyone acting for such firm, corporation, or institution has violate the antitrust laws of this State, codified in Section 15.01, et seq., Texas Business and Commerce Code, or the Federal antitrust laws, nor communicated directly or indirectly the offer being made to any competitor or any other person in such line of business. By signing this offer, Offeror certifies that if a Texas address is shown as the address of the Offeror, Offeror qualifies as a Texas Resident Offeror as defined in Rule 1 TAC 113.8.

This offer consists of pages number 1 through 100.

Offeror/ COMPANY: **Unite Private Networks, LLC**

SIGNATURE (INK): Kathy Roquemore

NAME: (TYPED/PRINTED) **Kathy Roquemore**

TITLE: **Account Director-Sales Texas**

STREET: **7200 NW 86th St Suite M**

CITY/STATE/ZIP: **Kansas City, MO 64153**

TELEPHONE: **806-549-9653** FAX: **816-903-9401**

E-MAIL ADDRESS: **Kathy.Roquemore@upnfiber.com**

UPN has office also located at 4701 S Loop 289 Lubbock, TX 79424

Revised November 4, 2020

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

Unite Private Networks, LLC

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

Not Applicable

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

Not Applicable

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☒ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

Unite Private Networks, LLC has no conflicts of interest to disclose.

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 Kathy Roquemore

Signature of vendor doing business with the governmental entity

11-24-2020

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/ Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or anagency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency andthat is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or afamily member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed;or

(ii) the local governmental entity is considering entering into a contract with thevendor;

(B) has given to the local government officer or a family member of the officer one or more giftsthat have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that localgovernmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(2) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmentalentity; or

(B) submits to the local governmental entity an application, response to a request for proposalsor bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(3) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or(C) of a family relationship with a local government officer.

IMPORTANT: READ CAREFULLY BEFORE MAKING BID GENERAL CONDITIONS OF BIDDING

1. All bids are to be submitted as specified in the procurement document(s).

2. Each Bidder is requested to provide: Descriptive literature clearly marked to show each item on this bid. Any catalog or manufacturer's reference in this proposal is descriptive, but not restrictive, and is used only to indicate type and quality. If, however, the bidder proposes similar but not identical terms, he must furnish all particulars. If no mention is made of any exceptions, it is assumed that he is bidding on the article specified and not on an approved equal and he will be required to deliver exact article specified.

3. Prices should be itemized. (Indicate unit price and extend to show total price.) In case of discrepancy between the unit price and the extension, the unit price shall govern.

4. Unit price for each item offered shall include all discounts; e.g., trade, seasonal, etc. with net 30 days payment terms. Discounts shall not be shown as such but shall be incorporated in the base bid price. Any bid showing discounts will be considered an alternate bid. The City of Midland will not be responsible for any goods delivered without a purchase order number.

5. If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code. The City of Midland reserves the right to award by item or by total bid, or to reject any or all bids or parts of bids. Further, the City of Midland reserves all rights granted by Section 271.027 of the Texas Local Government Code. The City of Midland reserves the right to award the bid to the lowest responsible bidder.

6. Time of proposed delivery shall be stated in number of calendar days.

7. NOTE: The City of Midland, Texas is exempt from all Federal, State and City tax. Please do not include these taxes in your bid price or invoice. Taxable items must be so designated, and the City will supply vendor with a Tax Exemption Certificate, properly executed.

8. All items are to be delivered, unloaded and stacked at the location indicated on the Bid Request and Purchase Order.

9. All items are to be delivered F.O.B. to the City of Midland, Texas with freight prepaid and included in the bid.

10. Detailed specifications rule over General specifications (headings, etc.)

11. The City of Midland reserves the right to remove a company from the bid list for (1) continued failure to respond to request for bids, (2) failure to deliver merchandise within promised time, or (3) delivery of substandard merchandise.

12. No officer or employee of the City shall have a financial interest, direct or indirect, in any contract with the City, or be financially interested, directly or indirectly, in the sale to the City of any lands, materials, supplies or services except as allowed under chapter 176 of the Local Government Code. Form CIQ shall be submitted and placed on file with the City of Midland.

13. The City shall determine the most advantageous bid for the City and accept the proposal of the responsible party submitting the lowest and/or most advantageous bid or reject any and all bids.

14. The City of Midland, Texas may consider as informal any bid not prepared and submitted in accordance with the provisions hereof, and may waive, in its sole discretion, any informalities.

STANDARD PURCHASE TERMS AND CONDITIONS
PURCHASING DIVISION, CITY OF MIDLAND, TEXAS

"Seller", as used herein, has the same meaning as "Company". "Buyer", as used herein, has the same meaning as "City".

Seller and Buyer agree as follows:

1. SELLER TO PACKAGE GOODS - Seller will package goods in accordance with good commercial practice. Each shipping container shall be clearly and permanently marked as follows; (a) Seller's name and address, (b) Consignee's name, and address, and purchase order number, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing slip. Seller shall bear cost of packaging unless otherwise provided. Goods shall be suitably packed to secure lowest transportation costs and to conform with requirements of common carriers and any applicable specifications. Buyer's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

2. SHIPMENT UNDER RESERVATION PROHIBITED - Seller is not authorized to ship the goods under reservation and no tender of a bill of lading will serve as a tender of goods.

3. TITLE & RISK OF LOSS - The title and risk of loss of the goods shall not pass to Buyer until Buyer actually receives and takes possession of the goods at the point or points of delivery in Midland, Texas.

4. NO REPLACEMENT OF DEFECTIVE TENDER - Every tender or delivery of goods must fully comply with all provisions of this contract as to time of delivery, quality and the like. If a tender is made which does not fully conform, this shall constitute a breach and Seller shall not have the right to substitute a conforming tender, provided, where the time for performance has yet expired, the Seller may reasonably notify Buyer of his intention to cure and may then make a conforming tender within the contract time but not afterward.

5. PLACE OF DELIVERY - The place of delivery shall be that set forth in the block of the purchase order entitled "deliver to".

6. INVOICES - Seller shall submit separate ORIGINAL invoices, on each purchase order. Invoices shall indicate the purchase order number. All invoices must be mailed to City of Midland, Accounts Payable, P.O. Box 1152, Midland, TX 79702-1152. Payment will be made within 30 days from the date the invoice and properly executed receiving documents are received by City of Midland, Accounts Payable at the above address. Invoices sent to any other address will delay payment.

7. GRATUITIES - The buyer may, by written notice to the seller, cancel this contract without liability to Seller, if it is determined by Buyer that gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by the seller, or any agent or representative of the Seller, to any officer or employee of the City of Midland with a view toward securing a contract or securing favorable treatment with respect to performing of such a contract. In the event this contract is cancelled by Buyer pursuant to this provision, Buyer shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by Seller in providing such gratuities.

8. WARRANTY - PRICE -

a. The price to be paid by the Buyer shall be that contained in Seller's bid which Seller warrants to be no higher than Seller's current prices on order by others for products of the kind and specifications covered by this agreement for similar quantities under similar or like conditions and methods of purchase. In the event Seller breaches this warranty, the prices of the items shall be reduced to the Seller's current prices on order by others, or in the alternative, Buyer may cancel this contract without liability to Seller for breach or Seller's actual expense.

b. The Seller warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for commission, percentage, brokerage, or contingent

fee excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Seller for the purpose of securing business. For breach or violation of this warranty the Buyer shall have the right or rights to cancel this contract without liability and to deduct from the contract price, or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee.

9. WARRANTY - PRODUCT - Seller shall not limit or exclude any implied warranties and any attempt to do so shall render this contract voidable at the option of the Buyer. Seller warrants that the goods furnished will conform to the specification, drawings, and description listed in the bid invitation, and to the sample(s) furnished by Seller, if any. In the event of a conflict between the specifications, drawings and descriptions, the specifications shall govern.
10. SAFETY WARRANTY - Seller warrants that the product sold to Buyer shall conform to the standards promulgated by the U.S. Department of Labor under the Occupational Safety and Health Act of 1970. In the event the product does not conform to OSHA standards, Buyer may return the product for correction or replacement at the Seller's expense. In the event Seller fails to make the appropriate correction within a reasonable time, correction made by buyer will be at Seller's expense.

11. RIGHT OF INSPECTION - Buyer shall have the right to inspect the goods at delivery before accepting them.

12. CANCELLATION - Buyer shall have the right to cancel for default all or any part of the undelivered portion of this order if Seller breached any of the terms hereof including warranties of Seller if the Seller becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any other remedies which Buyer may have in law or equity.

13. TERMINATION - The performance of work under this order may be terminated in whole, or in part by the Buyer in accordance with this provision. Termination of work hereunder shall be effected by the delivery to Seller of a "Notice of Termination" specifying the extent to which performance of work under the order is terminated and the date upon which such termination becomes effective. Such right of termination is in addition to and not in lieu of the rights of Buyer set forth in Clause 13, herein.

14. FORCE MAJEURE - Neither party shall be held responsible for losses, resulting if the fulfillment of any terms or provisions of this contract is delayed or prevented by any cause not within the control of the party whose performance is interfered with, and which by the exercise of reasonable diligence said party is unable to prevent.

15. ASSIGNMENT - DELEGATION - No right or interest in this contract shall be assigned or delegation of any obligation made by Seller without the written permission of the Buyer. Any attempted assignment or delegation by the Seller shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph.

16. MODIFICATIONS - This contract can be modified or rescinded only by a writing signed by both of the parties or their duly authorized agents.

17. INTERPRETATION - PAROL EVIDENCE - This writing, plus any specifications for bids and performance provided by Buyer in its advertisement for bids, is intended by the parties as a final expression of this agreement. No course of prior dealings between the parties and no usage of the trade shall be relevant to supplement or explain any term used in this agreement. Acceptance or acquiescence in a course of performance rendered under this agreement shall not be relevant to determine the meaning of this agreement even though the accepting or acquiescing party has knowledge of the performance and opportunity for objection. Whenever a term defined by the Uniform Commercial Code is used in this agreement, the definition contained in the Code is to control.

18. ADVERTISING - Seller shall not advertise or publish without Buyer's prior consent the fact that Buyer has entered into the contract, except to the extent necessary to comply with proper requests for information from an authorized representative of the federal, state or local government.

19. RIGHT TO ASSURANCE - Whenever one party to the contract in good faith has reason to question the other party's intent to perform he may demand that the other party give written assurance of this intent to perform.

In the event that a demand is made and no assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the contract.

20. PROTECTION AGAINST ROYALTIES OR PATENT INFRINGEMENT - The Seller shall pay all royalties and license fees, and shall provide for the use of any design, device, material or process covered by letters patent or copyright by suitable legal agreement with Patentee or Owner thereof. The Seller shall defend all suits or claims for infringement of any patent or copyrights and shall indemnify and save the Buyer harmless from any loss on account thereof, except that Buyer shall defend all such suits and claims and shall be responsible for all such loss when a particular design, device, material or process is allowed to the Seller, the Seller shall indemnify and save Buyer harmless from any loss on account thereof. If the material or process specified or required by Buyer is an infringement, the Seller shall be responsible for such loss unless he promptly gives written notice to the buyer of such infringement.
21. TIME - It is hereby expressly agreed and understood that time is of the essence for the performance of this contract, and any failure by contract to meet the time specifications of this agreement will cause Seller to be in default of this agreement.

22. TAX - The City of Midland is exempt from all Federal, State and City tax. Please do not include these taxes in your bid price or invoice. Taxable items must be so designated, and the City will supply vendor with a Tax Exemption Certificate, properly executed.

23. **INSURANCE –**

The following provisions apply unless the agreement is for the supply of goods only:

Seller shall at all times during the term of this agreement maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage Worker's
Compensation: Statutory limits	
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project or policy aggregate, including completed operations, and shall be on an occurrence basis.

The Workers' Compensation coverage provided by Seller shall inure to the benefit of employees injured during the course and scope of their employment by Seller pursuant to this agreement.

The Business Automobile Liability insurance provided by Seller shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-owner vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this agreement.

All insurance required pursuant to this agreement, except for Worker's Compensation Insurance, shall name the Buyer as an additional insured on a claims occurred basis. All insurance required pursuant to this agreement, including Worker's Compensation Insurance, shall provide for a waiver of subrogation as to the Buyer.

The parties agree that, prior to the execution of the agreement, Seller shall provide one or more certificates of insurance showing that the requirements of this article have been met, and specifically containing, without limitations, the following endorsement:

"The City of Midland is included as an additional insured, on a claims occurred basis, on all policies except for Worker's Compensation. The Seller and Insurer hereby waive all rights of subrogation with respect to claims against the City of Midland, its agents, employees and officers, on all policies of insurance." Buyer shall be provided the notice by Seller's insurance provider not later than thirty (30) days

prior to any reduction or termination of such coverage. Buyer shall not be required to provide any insurance whatsoever pursuant to this agreement.

Seller shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this agreement to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers compensation).

24. ASSIGNMENT - Seller shall not, either directly or indirectly, assign all or any part of this agreement or any interest, right or privilege herein, without the prior written consent of the Buyer. The issue on whether or not to grant consent to an assignment is in the sole discretion of the Buyer.

25. **RELEASE - NOTWITHSTANDING ANY OTHER PROVISIONS, SELLER HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES BUYER, BUYER'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH SELLER HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR BUYER'S NEGLIGENCE.**

26. GOVERNING LAW AND VENUE - This agreement shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this agreement or the performance of this agreement shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this agreement shall be deemed to have occurred in Midland County, Texas.

27. INDEPENDENT CONTRACTOR - It is expressly understood and agreed that Seller shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the Buyer; that Seller shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between Buyer and Seller, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between Buyer and Seller. No person performing any of the work and services described hereunder by Seller shall be considered an officer, agent, servant or employee of the Buyer. Further, it is specifically understood and agreed that nothing in this agreement is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Seller shall be an independent contractor under this agreement and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The Buyer does not have the power to direct the order in which the work is done. The Buyer shall not have the right to control the means, methods or details of the Seller's work. Seller shall assume exclusive responsibility for the work. Seller is entirely free to do the work in its own way.

28. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES - As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this agreement, Seller or his legal representative, shall give the City Manager, or any other reasonable official of the Buyer, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one-hundred-twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Seller will settle, the physical and mailing addresses of Seller at the time and date the claim was presented and the physical and mailing addresses of Seller for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Seller relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the Buyer from any liability whatsoever. The Buyer is under no obligation to provide notice to Seller that Seller's notice is insufficient. Buyer reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Seller's failure to comply with the requirements herein shall perpetually bar Seller's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if Buyer has actual or constructive notice or knowledge of said claim or alleged damages. Seller agrees that the requirements of this entire agreement are reasonable.

29. **INDEMNITY (NOT APPLICABLE TO PURCHASE AGREEMENTS) - SELLER WILL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF SELLER**, its agents or
employees, or any subcontractor, arising out of, or resulting from, Seller's use of, or activities on, the agreement premises, and Seller will be required to pay any judgment with costs which may be obtained against Buyer or any of its officers, agents or employees, including reasonable attorney's fees.

SELLER SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, ACCIDENTAL DEATH, PERSONAL INJURIES, PROPERTY DAMAGE, LOSSES, AND EXPENSE OF ANY CHARACTER WHATSOEVER INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF BUYER, BUYER'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH SELLER OR SELLER'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE, IN THE EXECUTION, SUPERVISION AND OPERATIONS
GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS AGREEMENT AND SELLER WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST BUYER OR ANY OF BUYER'S OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

30. SOVEREIGN IMMUNITY - By executing this agreement the Buyer is not waiving its right of sovereign immunity. The Buyer is retaining its immunity from suit. The Buyer is not granting consent to be sued by legislative resolution or action. **THERE IS NO WAIVER OF SOVEREIGN IMMUNITY**.

31. THIRD PARTY BENEFICIARY - The Buyer's approval of this agreement does not create a third party beneficiary. There is no third party beneficiary to this agreement. No person or entity who is not a party to this agreement shall have any third party beneficiary or other rights hereunder.

32. **ATTORNEY FEES - BY EXECUTING THIS AGREEMENT, SELLER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS**
OR MAY HAVE IN THE FUTURE AGAINST THE BUYER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT. THE SELLER SPECIFICALLY AGREES THAT IF THE SELLER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE SELLER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH SELLER MIGHT OTHERWISE BE ENTITLED.

SELLER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. SELLER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. THE SELLER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BUYER AND THE SELLER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE SELLER AND BUYER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

33. CONSIDERATION - The terms of this agreement are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

34. CERTIFICATION - In accordance with the Texas Local Government Code, the City of Midland Department of Facilities and Fleet Management does hereby certify that the City of Midland is in compliance with Sections 252, 271 and all applicable sections of the Texas Local Government Code and other state law as it applies to procurement and contracting issues.

35. FEDERAL WAGE REQUIREMENTS - If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this agreement, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this agreement, to which the parties to this agreement have agreed to be bound.

36. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS - Seller shall at all times during the term of this agreement comply with applicable federal, state, and local laws regarding Seller’s activities pursuant to this agreement, including but not limited to all applicable sections of the Municipal Code of Midland, Texas, as may be amended, said sections being hereby incorporated by reference and made a part of this agreement for all legal purposes. Failure to abide by any such law mentioned herein constitutes grounds for the immediate termination of this agreement.

NOTICE TO BIDDERS

IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED **CONTRACT AND INSURANCE REQUIREMENTS ARE NONNEGOTIABLE**. MODIFICATIONS BY BIDDER/COMPANY OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/COMPANY MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.

IF THE SELECTED BIDDER/COMPANY CANNOT MEET THE ABOVE REQUIREMENTS, THEN **THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER**.

IMPORTANT NOTICE – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/COMPANY MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE, WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

COMPLIANCE: Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006,

please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

ANY VENDOR WHO FAILS TO COMPLY WITH THE TERMS OF THE AWARD **MAY BE DECLARED AN IRRESPONSIBLE VENDOR**. BIDS SUBMITTED BY SAID VENDOR SHALL NOT BE CONSIDERED AGAIN FOR A MINIMUM PERIOD OF SIX MONTHS AS DETERMINED BY THE CITY MANAGER.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY
CERTIFICATION OF FILING

Certificate Number:
2020-690772

Date Filed:
11/17/2020

Date Acknowledged:

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.
Unite Private Networks, LLC
Kansas City, MO United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.
City of Midland, TX

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.
RFP 21001104
City-Owned Fiber Optic Network Installation

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary

5 Check only if there is NO Interested Party. [X]

6 UNSWORN DECLARATION

My name is **Kathy Roquemore**, and my date of birth is **12/29/1959**.

My address is **4701 S Loop 289** (street), **Lubbock** (city) **TX** (state), **79424** (zip code), **USA** (country).

I declare under penalty of perjury that the foregoing is true and correct.

Executed in **Lubbock** County, State of **TX**, on the **20** day of **November** (month) 20**20** (year).

STEPHANIE HOWERTON
Notary Public, State of Texas
Comm. Expires 05-03-2021
Notary ID 12325300

Kathy Roquemore
Signature of authorized agent of contracting business entity
(Declarant)

Stephanie Howerton

Responses to City of Midland RFP 21001104*
City-Owned Fiber Optic Network Installation

***UPN and the City entered into City of Midland Contract No. 18003326R on April 10, 2019. Upon award, UPN reserves the right to similarly negotiate a final agreement with the City.**

Section	Unite Private Networks (UPN) Response
RFP Section 1.24.2.1	UPN does not object to incorporating the RFP documents and proposal documents into the final agreement. However, UPN reserves the right to negotiate a final agreement intended to resolve any discrepancies between the documents.
RFP Section 1.24.2.2 Contract Section 28 Contract Section 13	UPN reserves the right to negotiate (i) a committed term length and (ii) termination language with the City related to UPN's operation and maintenance of the City-owned fiber.
RFP Section 1.24.2.4 Contract Section 8	UPN agrees to indemnify and release the City to the extent any claims and damages do not arise directly or indirectly out of the gross negligence or willful misconduct of the City.
Contract Section 9	UPN reserves the right to negotiate a work completion date that considers the time needed to acquire all necessary permits to complete construction.
Contract Section 22	UPN agrees to release the City from any claims not related to the City's failure to pay, to the extent those claims and damages do not arise directly or indirectly out of the gross negligence or willful misconduct of the City or its representatives.
Contract Section 27	Given that City-owned fiber will reside within conduit that contains other, non-City fibers, specific termination language will need to be negotiated regarding the operation and maintenance portion of the arrangement between the UPN and the City. All maintenance on the City-owned fibers must be performed by UPN for the duration of the City's ownership.

C I T Y O F M I D L A N D

ADDENDUM

BID # 21001104

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 1

DATE: November 12, 2020

The following questions were raised by one or more of the proposers. The answers are provided as a matter of clarification for all proposers as follows:

Q1. Fire Station 6 & Fire Station 11 have the SAME address listed: 301 Tradewinds Blvd.
A1. Fire Station 6 – 301 Tradewinds Blvd ; Fire Station 11 – 6511 Briarwood Ave

Q2. Water Pollution and PD Range Academy have the SAME address listed: 3600 FM 307
A2. Water Pollution – 3600 FM 307; PD Range Academy – 2201 CR 1150 S

Q3. Water Purification - Google shows the correct address to be 5006 N Midland Dr.
A3. 5000 North Midland Drive

Q4. Edgewood Tower - Google shows the correct address to be 4700 W. Storey Ave
A4. That is correct.

Q5. Airport address is listed as 2709 Wright Dr.
A5. 9506 La Force Blvd

Q6. Peggy Sue shows Avalon Lane with NO House Number
A6. 5500 North CR 1240 (Mockingbird & Avalon Road)

Q7. Wadley Tower - Google shows correct address as 1201 W. Wadley Ave
A7. 1201 East Wadley

Q8. Fire Station 4, should the address be 5100 N Big Spring St?
A8. Yes.

Q9. Does the City of Midland have a Pole Agreement in place with ONCOR or are they in the process of getting one?
A9. We don't have an agreement with ONCOR.

Q10. If the City does not have a Pole Agreement with ONCOR will they be willing for a vendor to bid a 20 Yr Dark Fiber IRU?
A10. We wouldn't consider anything for more than 10 years.

Q11. Can the vendor sub 10 Gb LIT Fiber Options to connect these sites together on this bid?
A11. No.

Q12. Will the City of Midland accept Ring Topology for the Dark Fiber solution?
A12. Yes.

Q13. Is this an all sites or none RFP?
A13. All sites.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Unite Private Networks, LLC
Company Name

Kathy Roquemore
Bidder Authorized Signature

11-24-2020
Date

Kathy Roquemore
Please Print Above Name

(806) 549-9653
Phone

CITY OF MIDLAND

ADDENDUM

BID # 21001104

City-Wide Fiber Optic Network

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 2

DATE: November 17, 2020

The following are questions and answers below:

Q: Will fiber switches be required by bidders or can they be suggested by a bidder? If you have the equipment what will it terminate to?
A: (The switches and routers will be provided by the City and needs to terminate to a patch panel.)

Q: Does the city own the power poles to attach the fiber?
A: No.

Q:We noticed this RFP was put out in the June/July time frame of 2020. Was that RFP canceled? https://www.texasbids.us/texas-bids/bids-NBD15261066216967282.htm
Section 1.17 Rights Reserved: Is the funding for this project in place?
A: That was a project to connect one new site. This project is also funded.

Q: There are 3 locations in the RFP with addresses that match other sites, like (Fire Station 3 and 4, etc.) can you clarify
A: Fire Station 6: 301 Tradewinds BlVD
Fire Station 11: 6511 Briarwood Ave
Water Pollution Control Plant: 3600 FM 307
Police Range/Academy: 2201 County Road 1150 South

Q: Please provide a map of existing city fiber
A: https://www.google.com/maps/@31.9982413,-102.1132795,12z/data=!3m1!4b1!4m2!6m1!1s1PBMJpClOcMRAyUTankdcv-o1qznCp1E_

Q: Please list any preferred interconnection points
A: None- please use the best path.

Q:Please provide the minimum strand count per end point
A: A minimum of 12 strands per end point is required.

Q: Please clarify the preferred termination for the dark fiber at each end point.
A: Single-Mode and LC

Q: Please clarify any monitoring/repair callout requirements.

A: We will be monitoring the network and we will let the vendor know of the outage.

Q: May the winning bidder install additional fiber/conduit for their own use as part of this project?

A: Yes

Q: Are there any areas where construction must be underground or aerial?

A: None

Q: Any known hazmat contamination locations in the city?

A: https://www.tceq.texas.gov/remediation/superfund/sites/county/midland.html

Q: Any city regulations for mitigation of locations in questions above?

A: Have referred this question to our Legal Department.

Q: Confirming this will be treated as a Public Works project under TX law.

A: Have referred this question to our Legal Department.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Unite Private Networks, LLC

Company Name

Kathy Roquemore

Bidder Authorized Signature

11-24-2020

Date

Kathy Roquemore

Please Print Above Name

(806) 549-9653

Phone

CITY OF MIDLAND

ADDENDUM

BID # 21001104

City-Wide Fiber Optic Network

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 3

DATE: November 17, 2020

The following are questions and answers below:

Q: On page 47 - What is the procedure for making pre-arrangements to drop off bid packets?
A: When dropping off the bid packet, if bidder could please contact the purchasing office by phone 432-685-7234 and meet someone from the Purchasing Department at the North Doors.

Q: Addendum One states the address for PD Range/Academy as 2201 CR 1150 S. The shooting range appears to be S of FM 307, and to the East of CR 1150. Can you please supply the latitude and longitude of the PD Range/Academy?
A: Latitude 31.993949 Longitude -102.004223

Q: Addendum One states that the City will accept proposals for 120 months maximum. Will the City be issuing a revised proposal form to include the 120-month term?
A: No, we will not be revising the proposal form

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Unite Private Networks,LLC
Company Name

Kathy Roquemore
Bidder Authorized Signature

11-24-2020
Date

Kathy Roquemore
Please Print Above Name

(806) 549-9653
Phone

CITY OF MIDLAND

ADDENDUM

BID # 21001104

City-Wide Fiber Optic Network

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 4

DATE: November 18, 2020

The following are questions and answers below:

Q: Confirming this will be treated as a Public Works project under TX law as per question in Addendum 2.

A: The contract requires performance and payment bonds which is generally a requirement for public works projects. In our case it is a requirement for contracts.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Unite Private Networks, LLC

Company Name

Kathy Roquemore

Bidder Authorized Signature

11-24-2020

Date

Kathy Roquemore

Please Print Above Name

(806) 549-9653

Phone

CITY OF MIDLAND

ADDENDUM

BID # 21001104

City-Wide Fiber Optic Network

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 5

DATE: November 19, 2020

The following are questions and answers below:

Q: If this project is funded as per the answer on addendum 2, what is the value?
A: We are awaiting bids to assign a value to the project. We have an estimated value but are not inclined to reveal a dollar figure.

Q: Addendum 2 has a link to existing city fiber , This has no information, does the city actually have any city owned fiber infrastructure?
A: Yes, the information is in the link. There is City-owned fiber to the Municipal Court, Public Works Orchard Complex, Health Department, Central Fire Station, Front Street Tower, the new Animal Services Shelter.

Q: Addendum 2 question asks if the bidder can install additional fiber and conduit, is the City's goal to award this project to a telecom provider?
A: The City's goal is to provide fiber to our facilities and sites in order to improve overall communications for the organization.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Unite Private Networks, LLC
Company Name

Kathy Roquemore
Bidder Authorized Signature

11-24-2020
Date

Kathy Roquemore
Please Print Above Name

806 549-9653
Phone

City Council Meeting

Item Number: 6

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION AWARDING A CONTRACT FOR THE REPAVING, STRIPING, AND PAINTING OF THE SCHARBAUER SPORTS COMPLEX PARKING LOTS TO DANNY'S ASPHALT AND PAVING, INC., FOR A TOTAL COST OF $266,815.00; APPROVING $26,682.00 IN CONTINGENCIES; AND AUTHORIZING THE TRANSFER OF FUNDS FOR SAID CONTRACT (GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the execution of a contract for the Repaving, Striping, and Painting at Scharbauer Sports Complex Parking Lots Project for the Community Services Department.

Recommended City Council Action:

Approve

Fiscal Impact:

Funds are available in Fund 620 and in Project 900065, which will be transferred to Fund 620, for this contract.

Discussion:

The Interim City Manager approved specifications and authorized advertisement for bids for the Repaving, Striping, and Painting at Scharbauer Sports Complex Parking Lots Project. Twenty-one (21) bid requests were issued. We received four (4) bids. Staff recommends awarding a contract to the apparent low bidder, Danny's Asphalt and Paving, Inc. Please see the attached memo from Tina Jauz, Community Services Director, for additional information.

Therefore, please consider a resolution awarding a contract for the Repaving, Striping, and

Painting at Scharbauer Sports Complex Parking Lots Project to Danny's Asphalt and Paving, Inc. of Odessa, Texas for a cost of $266,815.00 plus $26,682.00 in contingencies for a total amount of $293,497.00.

Morris William Jr.

City Manager's Office

CITY OF MIDLAND

Community Services Department
Interoffice Memorandum

Date: November 20, 2020
To: Robert Patrick, Interim City Manager
From: Tina Jauz, Community Services Director
Subject: Parking Lot repairs, seal coating, and striping at Scharbauer Sports Complex

The parking lots at the Scharbauer Sports Complex have been evaluated by the City of Midland Transportation Department. In order to preserve the integrity of the pavement, the Complex parking lots need crack sealing, seal coating, and striping. This work has not been done in the life of the Sports Complex. Bids were taken to complete the necessary work throughout all Sports Complex parking lots, with the exception of the newly constructed lot at the blue and white auxiliary fields.

Staff recommends entering into a contract with the lowest bidder, Danny's Asphalt and Paving (Basin Asphalt). Their bid for the work is $266,815.00. A 10% contingency ($26,682.00) is included in the requested funding to cover any unexpected costs that may arise during installation. Total project cost with the contingency allowance is $293,497.00.

Funds are available in Fund 620 and in Project 900065, which will be transferred to Fund 620, for this contract.

RESOLUTION NO. _____

RESOLUTION AWARDING A CONTRACT FOR THE REPAVING, STRIPING, AND PAINTING OF THE SCHARBAUER SPORTS COMPLEX PARKING LOTS TO DANNY'S ASPHALT AND PAVING, INC., FOR A TOTAL COST OF $266,815.00; APPROVING $26,682.00 IN CONTINGENCIES; AND AUTHORIZING THE TRANSFER OF FUNDS FOR SAID CONTRACT

WHEREAS, the Interim City Manager approved specifications and authorized the advertisement for bids for the repaving, striping, and painting of the Scharbauer Sports Complex parking lots; and

WHEREAS, Bid No. 21000247 was opened on November 13, 2020, with the most advantageous bid being submitted by Danny's Asphalt and Paving, Inc., as shown on the bid tabulation attached hereto as Exhibit A and incorporated herein for all purposes; and

WHEREAS, the City Council finds the $266,815.00 proposed by Danny's Asphalt and Paving, Inc., for the repaving, striping, and painting of the Scharbauer Sports Complex parking lots to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to award a contract to Danny's Asphalt and Paving, Inc., for the repaving, striping, and painting of the Scharbauer Sports Complex parking lots; and

WHEREAS, the City Council finds it to be in the public interest to approve $26,682.00 for contingencies;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, a contract with Danny's Asphalt and Paving, Inc., for the repaving, striping, and painting of the Scharbauer Sports Complex parking lots for a total cost of $266,815.00. Said contract being in a form substantially similar to Exhibit B, which is attached hereto and incorporated herein for all purposes.

SECTION TWO. That the sum of $26,682.00 for contingencies is hereby approved for said contract.

SECTION THREE. That the sum of $122,277.00 is hereby transferred from Project 900065 to Fund 620.

SECTION FOUR. That the City Comptroller is hereby authorized and directed to pay Danny's Asphalt and Paving, Inc., pursuant to the terms of said contract from funds available in Fund 620 upon receipt of proper invoices or statements approved by the Interim City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

APPROVED AS TO FORM ONLY:

_____
John Ohnemiller, City Attorney

City of Midland - Bid Tabulation

BID # 21000247 Repaving, Striping, and Painting of Scharbauer Sports Complex Parking Lots **OPENED** November 13, 2020			Danny's Asphalt Paving Inc. 2000 E 42ND C#310 Odessa, TX 79762 432-563-1583 gw@dannyspaving.com	Unicare Building Maintence, Inc. 11148 Morrison Lane Dallas, TX 75229 214-724-4621 isaac.s@unicaremaintence.com	DPR McHam 6621 N FM 1788 Midland, TX 79707 432-438-8444 estimating@dprmcham.com	JD King PO BOX 1254 Seminole, TX 79360 432-209-6777 stephanie.ruder@jdkingcorp.com
ITEM		DESCRIPTION	COST		COST	COST
1		Materials Portion Incorporated Into Project	$169,500.00		$290,792.00	
2		Labor Portion Incorporated Info Project	$81,325.00		$75,600.00	
3		Other Costs Not Incorporated Into Project	$15,990.00		$17,630.00	$864,734.56
		TOTALS:	**$266,815.00**	**$384.955.48**	**$384,022.00**	**$864,734.56**

Bidding Summary:

21 Bid requests were issued.

4 Bids listed above

0 NO BIDS were received.

17 Bidders did not respond.

Exhibit A

THE CITY OF MIDLAND

CONTRACT

Contract No.21000247

THIS CONTRACT, effective the 16 day of December, 2020, by and between the City of Midland, hereinafter referred to as "City", and Danny's Asphalt Paving, Inc., hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 266,815.00 DOLLARS

2. **Scope of Work:** Company shall perform all work described for repaving, striping and painting of Scharbauer Sports Complex Parking Lots in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Tina Jauz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than 60 calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise unavailable in any fiscal period for current payments due under the contract, then contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §
§
COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, ._____, an officer of Danny's Asphalt Paving, Inc., known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

CITY OF MIDLAND

PURCHASING DIVISION DATE: 10/21/2020

BID REQUEST PAGE: 1

(THIS IS NOT AN ORDER) **BID NO: 21000247**

OPENING TIME: 2:00 PM **CLOSING DATE: 11/11/2020**

CITY OF MIDLAND
300 NORTH LORAINE
P. O. BOX 1152
MIDLAND, TX 79702

BIDS WILL BE RECEIVED IN THE OFFICE OF THE City Secretary, 300 N Loraine Ste 310
UNTIL 2:00 P.M.on November 11, 2020 FOR GOODS AND SERVICES DESCRIBED BELOW WHICH WILL BE DELIVERED TO:
Scharbauer Sports Complex Parking Lots located at 5514 Champions Dr, Midland, TX 79706

-

ITEM NO.	QTY	UNIT	DESCRIPTION	UNIT PRICE	AMOUNT
			Repaving, Striping and Painting of Scharbauer Sports Complex Parking lots *Does not include parking West of Blue/ White Auxilliary Fields	TOTAL	$266,815.00

NOTICE TO BIDDERS:

1. FAILURE TO RESPOND WITH EITHER A BID OR "NO BID" WILL SUBJECT YOUR FIRM TO REMOVAL FROM THE BID LIST FOR THIS TYPE OF MATERIAL, EQUIPMENT OR SUPPLY ITEM.
2. BIDS SHALL BE DELIVERED TO THE CITY IN A SEALED PACKAGE (ENVELOPE, ETC) **UNLESS THE CITY STATES** THAT THE BID MAY BE FAXED OR E-MAILED, OTHERWISE, BIDS FAXED OR E-MAILED DIRECTLY TO THE CITY WILL BE REJECTED. A SEALED BID MAY BE FAXED TO A THIRD PARTY FOR SEALED DELIVERY TO THE CITY. PLEASE CALL FOR MORE INFORMATION.
3. IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED CONTRACT AND INSURANCE REQUIREMENTS ARE **NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/CONTRACTOR OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/CONTRACTOR MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.
4. IF THE SELECTED BIDDER/CONTRACTOR CANNOT MEET THE REQUIREMENTS OF PARAGRAPH 3, THEN THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER.
5. **IMPORTANT NOTICE** – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/CONTRACTOR MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

FOR ADDITIONAL INFORMATION, CONTACT (432) 685-7234 OR 685-7233. FAX NO. (432) 685-0523

NOTE: EACH BIDDER IS TO INDICATE BRAND NAME PRODUCT NUMBER AND ATTACH DESCRIPTIVE LITERATURE CLEARLY MARKED TO SHOW EACH ITEM ON THIS BID.

THE UNDERSIGNED HEREBY OFFERS TO FURNISH AND DELIVER THE ARTICLES OR SERVICE AS SPECIFIED ABOVE AT THE PRICES AND TERMS HEREIN STATED AND IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND CONDITIONS OF BIDDING ALL WHICH ARE MADE A PART OF THIS OFFER. THIS OFFER IS NOT SUBJECT TO WITHDRAWAL WITHOUT PERMISSION.

COMPANY NAME: Danny's Asphalt Paving Inc.
ADDRESS 2000 E 42nd #C310
CITY Odessa ST Tx ZIP 79762
PHONE NO. 432-563-1583 FAX NO. 432-463-1274
EMAIL: Gw@dannyspaving.com

CASH DISCOUNT: NA % DAYS
DELIVERY CAN BE MADE
AUTHORIZED SIGNATURE

PLEASE READ CONDITIONS FOR BIDDING ON BACK BEFORE SUBMITTING

MIDLAND
Purchasing Division

ATTENTION: Due to the Coronavirus (COVID-19) pandemic, the City of Midland's City Hall is closed to the Public. All bidders are encouraged to mail bid packets to one of the addresses below rather than delivering them in person in the interests of maintaining social distancing:

USPS Mailing Address:		***Physical Address for mail carriers other than USPS:***
City of Midland, Texas Attn: City Secretary's Office P O Box 1152 Midland, TX 79702	OR	City of Midland, Texas Attn: City Secretary's Office 300 North Loraine St, Suite 330 Midland, TX 79701

If bid packets are delivered in person then bidders must make arrangements in advance to drop the bid packets off at the north doors of City Hall before the bid opening deadline, and social distancing measures will be maintained for the health of all parties involved.

ATTENTION: The public bid opening will be shown via the City Council Meeting live feed in order to maintain social distancing due to COVID-19. This can be accessed from the following web address at the time of the bid opening:

http://www.midlandtexas.gov/600/Watch-Council-Meetings

NOTICE TO BIDDERS

IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED **CONTRACT AND INSURANCE REQUIREMENTS ARE NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/COMPANY OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/COMPANY MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.

IF THE SELECTED BIDDER/COMPANY CANNOT MEET THE ABOVE REQUIREMENTS, THEN **THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER**.

IMPORTANT NOTICE – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/COMPANY MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE, WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

COMPLIANCE: Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006,

please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

ANY VENDOR WHO FAILS TO COMPLY WITH THE TERMS OF THE AWARD **MAY BE DECLARED AN IRRESPONSIBLE VENDOR**. BIDS SUBMITTED BY SAID VENDOR SHALL NOT BE CONSIDERED AGAIN FOR A MINIMUM PERIOD OF SIX MONTHS AS DETERMINED BY THE CITY MANAGER.

MIDLAND
Purchasing Division

Danny's Asphalt Paving Inc.
Contractor's Name

PROPOSAL Bid
21000247

To: Purchasing Manager
City of Midland
Midland, Texas

Gentlemen: The undersigned bidder, having examined the plans, specifications and contract documents, the location of the proposed work and being fully advised as to the extent and character of the work proposes to furnish all materials, equipment and to perform all labor and work necessary for the complete work described by and in accordance with the attached plans, specifications and contract for the sum of:

Materials Portion Incorporated Into Project $169,500.00 DOLLARS

Labor Portion Incorporated Into Project $81,325.00 DOLLARS

Other Costs Not Incorporated Into Project $15,990.00 DOLLARS

Total Proposal $266,815.00 DOLLARS

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered by the above bid and he further agrees to commence work within ten (10) days after the date of written notice to do so and to substantially complete same within 60 calendar days.

VENDOR CONTACT:
All potential vendors shall direct ALL questions, areas for bid clarification and specification verification to the Purchasing Agent IN WRITING, via mail or fax as follows:

The City Of Midland
Office of the Purchasing Manager
P.O. Box 1152
Midland, TX 79702

OR

FAX: (432) 685-0523

E-mail: purchasing@midlandtexas.gov

All vendors on the bid list will then be notified of the questions and presented an answer. Verbal responses shall not be considered binding.

AWARD
If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code.

NOTE: Bid and proposal terms are interchangeable.

BID WAIVERS:

A. WAIVER OF ATTORNEY FEES: BY SIGNING THIS PROPOSAL, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH

OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND THE BIDDER.

THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND THE CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

B. WAIVER: BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**
2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS;**
3. **ACCEPTANCE OR REJECTION OF ANY BIDS; OR**
4. **AWARD OF THE CONTRACT.**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

C. Notice of Alleged Breach; Statutory Prerequisites: As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Bidder or his legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing

(consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Bidder will settle, the physical and mailing addresses of Bidder at the time and date the claim was presented and the physical and mailing addresses of Bidder for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Bidder relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Bidder that Bidder's notice is insufficient. The City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Bidder's failure to comply with the requirements herein shall perpetually bar Bidder's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if the City has actual or constructive notice or knowledge of said claim or alleged damages. Bidder agrees that the requirements of this entire Contract are reasonable.

By Signing below, your company agrees to the above waiver(s). If this form is not signed and included with your bid documents your bid will be considered non-responsive and will be rejected.

SOVEREIGN IMMUNITY: By Executing this contract the City is not waiving its right of Sovereign immunity. the City is retaining its IMMUNITY from suit. the City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

Danny's Asphalt Paving Inc.		432-563-1583
Bidder	Authorized Signature	Telephone
2000 E 42nd #C310 Odessa, Tx 79762	G.W. Hanson	432-563-1274
Address, City and State	Please Print above Name	Fax

Bidder's Enclosure Check List: (Bidder - Please review the following list and check to ensure that you have included the documents with your bid.)

☑ PROOF OF AUTOMOBILE, WORKER'S COMPENSATION AND GENERAL LIABILITY INSURANCE COVERAGE AS REQUIRED BY THE TERMS OF THE CONTRACT. (**Upon award and prior to execution of the contract The City of Midland will have to be added to the policy as an additional insured and a certificate issued reflecting that provision) including a waiver of subrogation as stated in the contract)**

☑ 5% BID BOND FOR CONTRACTS IN AMOUNTS OF $50,000 OR MORE. (ONLY WHEN EXHIBIT "C" IS INCLUDED IN THE CONTRACT).* **THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO PROVIDE A PAYMENT BOND AND PERFORMANCE BOND FOR BIDS OF $50,000 OR MORE. IF BOND FORMS WERE NOT INCLUDED, THEY MAY BE OBTAINED FROM THE OFFICE OF THE PURCHASING MANAGER. Call (432) 685-7234 for information.**

PLEASE NOTE:

FAILURE TO INCLUDE ANY OF THE REQUIRED DOCUMENTS ON THE CHECK LIST, MAY CAUSE REJECTION OF YOUR BID.

***FAILURE TO PROVIDE LIABILITY OR WORKER'S COMPENSATION INSURANCE AND SUBSEQUENT CERTIFICATES; OR, PAYMENT AND/OR PERFORMANCE BONDS AS REQUIRED BY THE CONTRACT MAY CAUSE FORFEITURE OF YOUR BID BOND OR OTHER SURETY (I.E.- CASH OR CASHIERS CHECK).**

Merchants Bonding Company

P.O. BOX 26720 • AUSTIN, TX 78755-0720

BID BOND
PUBLIC WORK

KNOW ALL PERSONS BY THESE PRESENTS:

That DANNY'S ASPHALT PAVING, INC.

(hereinafter called the Principal) as Principal, and the MERCHANTS BONDING COMPANY (Mutual) a corporation of the State of Iowa, with its Home Office in the City of Des Moines, Iowa, (hereinafter called Surety), as Surety, are held and firmly bound to CITY OF MIDLAND

(hereinafter called the Obligee) in the full and just sum of ($ ----------5%----------)

FIVE PERCENT OF THE GREATEST AMOUNT BID---------- Dollars

good and lawful money of the United States of America, to the payment of which sum of money well and truly to be made, the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed and dated this 13TH day of NOVEMBER, 2020.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if the Obligee shall make any award to the Principal for

SCHARBAUER SPORTS COMPLEX

21000247

according to the terms of the proposal or bid made by the Principal therefor, and the Principal shall duly make and enter into a contract with the Obligee in accordance with the terms of said proposal or bid and award, and shall give bond for the faithful performance thereof with the MERCHANTS BONDING COMPANY (Mutual) and Surety, or with other Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure to do so, pay to the Obligee the damages which the Obligee may suffer by reason of such failure, not exceeding the penalty of this bond, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect.

IN TESTIMONY WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed.

DANNY'S ASPHALT PAVING, INC.
Principal

Witness:

By

Attest:

MERCHANTS BONDING COMPANY (Mutual)

By

MARLA HILL, ATTORNEY-IN-FACT

HOWARD COWAN, ATTORNEY-IN-FACT

CON 0333 AU (5/98)

MERCHANTS BONDING COMPANY™

POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations of the State of Iowa (herein collectively called the "Companies") do hereby make, constitute and appoint, individually,

Howard Cowan; Marla Hill

their true and lawful Attorney(s)-in-Fact, to sign its name as surety(ies) and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

This Power-of-Attorney is granted and is signed and sealed by facsimile under and by authority of the following By-Laws adopted by the Board of Directors of Merchants Bonding Company (Mutual) on April 23, 2011 and amended August 14, 2015 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 16, 2015.

"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof."

"The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and aut hority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.

In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner-Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 11th day of February , 2020 .

MERCHANTS NATIONAL BONDING, INC. -o- 2003

MERCHANTS BONDING COMPANY (MUTUAL) INCORPORATED -o- 1933

MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.

By Larry Taylor
President

STATE OF IOWA
COUNTY OF DALLAS ss.
On this 11th day of February 2020 , before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument are the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.

NOTARIAL SEAL IOWA

POLLY MASON
Commission Number 750576
My Commission Expires
January 07, 2023

Polly Mason
Notary Public

(Expiration of notary's commission does not invalidate this instrument)

I, William Warner, Jr., Secretary of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 13TH day of NOVEMBER , 2020 .

MERCHANTS NATIONAL BONDING, INC. -o- 2003

MERCHANTS BONDING COMPANY (MUTUAL) INCORPORATED -o- 1933

William Warner Jr.
Secretary

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/12/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Higginbotham Insurance Agency, Inc. 4800 E University Blvd Suite B odessa TX 79762	**CONTACT NAME:** Lynda Clark **PHONE (A/C, No, Ext):** 432-368-7676 **FAX (A/C, No):** 432-368-7505 **E-MAIL ADDRESS:** lclark@higginbotham.net
INSURED DANNY49 Danny's Asphalt Paving, Inc. 12820 Hwy 191 Midland TX 79707	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** **INSURER A :** United Fire Lloyds 43559 **INSURER B :** Texas Mutual Insurance Company 22945 **INSURER C :** Travelers Property Casualty Co of Am 25674 **INSURER D :** Continental Casualty Company 20443 **INSURER E :** Westchester Surplus Lines Ins Co 10172 **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 1947010956 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [X] PRO-JECT [X] LOC OTHER:			85324677	4/1/2020	4/1/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
A	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY			85324677	4/1/2020	4/1/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ $ $ 0/0 $
A	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED RETENTION $			85324677	4/1/2020	4/1/2021	EACH OCCURRENCE AGGREGATE $	$ 5,000,000 $ 5,000,000 $
B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [Y] N/A **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below			0001245455	4/1/2020	4/1/2021	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
C D E	Excess Liability Contractor's Equipment Contractors Pollution			ZUP61M9476020NF C6078567753 G28398773 001	4/1/2020 4/1/2020 8/28/2020	4/1/2021 4/1/2021 8/28/2021	Occurrence/Aggregate Leased/Rented Equipme Poll Event/Aggregate	5,000,000 1,000,000 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The General Liability (CG2010 04 13 and CG2037 04 13) and Automobile Liability policy includes a blanket automatic additional insured endorsement that provides additional insured status and General Liability, Automobile Liabilityand Workers' Compensation policies include a blanket waiver of subrogation endorsement to the certificate holder only when there is a written contract between the named insured and the certificate holder that requires such status.

The General Liability and Automobile Liability policies include a blanket notice of cancellation to certificate holders endorsement, providing for 30 days' advance notice if the policy is canceled by the company other than for nonpayment of premium, 10 days' notice after the policy is canceled for nonpayment of premium. Notice is sent to certificate holders with mailing addresses on file with the agent or the company. The endorsement does not provide for notice of cancellation if the named insured requests cancellation.
See Attached...

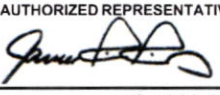
CERTIFICATE HOLDER

City of Midland
300 N Loraine
PO Box 1152
Midland TX 79702

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



© 1988-2015 ACORD CORPORATION. All rights reserved.

AGENCY CUSTOMER ID: DANNY49

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Higginbotham Insurance Agency, Inc.	Danny's Asphalt Paving, Inc. 12820 Hwy 191 Midland TX 79707
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** CERTIFICATE OF LIABILITY INSURANCE

The General Liability(CG2001 04/13) and Auto Liability(CA7334 09/15), and Umbrella, and Excess policies contain a special endorsement with "Primary and Noncontributory" wording.

Umbrella Policy is follow form of the underlying policies. Underlying policies are: Work Comp Policy #0001245455; General Liability Policy # 85324677, and Commercial Auto Policy # 85324677
Excess Policy is follow form of the underlying Umbrella policy #85324677

Workers Compensation Excludes Officers: Charlotte Carroll and Daniel P Carroll

© 2008 ACORD CORPORATION. All rights reserved.
The ACORD name and logo are registered marks of ACORD

THE CITY OF MIDLAND

SPECIFICATION

1. SCOPE

Repaving, Striping and Painting of Scharbauer Sports Complex Parking Lots and does not include parking West of Blue/White Auxiliary Fields located at 5514 Champions Dr, Midland, TX 79706

2. VENDOR CONTACT:

All potential vendors shall direct ALL questions, areas for bid clarification and specification verification to the Purchasing Agent IN WRITING, via mail or fax as follows:

The City Of Midland
Office of the Purchasing Manager
P.O. Box 1152
Midland, TX 79702

OR

FAX: (432)685-0523

Email: purchasing@midlandtexas.gov

All vendors on the bid list will then be notified of the questions and presented an answer. Information provided by other City personnel shall not be considered binding.

3. DEFINITIONS

3.1. CITY

City of Midland

3.2. COMPANY

Successful Bidder

4. DOCUMENTS

Contract

Exhibit A - These specifications, Proposal or Cost Summary

Exhibit B – Intentionally Omitted

Exhibit C – Bonding Requirements

Exhibit D – Wage Schedule

5. REQUIREMENTS

Vendor shall comment in the right margin as to whether or not his bid meets or exceeds the minimum specification shown. Please explain how it exceeds or falls short of the requirement. Use blue or Black ink if completed by hand or typewriter. A separate sheet may be used as long as each item is identified and the sheet(s) are signed.

	Requirement	Vendor Comment
5.1. PERMITS/ COMPLIANCE WITH LAW	PACKET 6.188	December 15, 2020

5.1.1. Permits and Licenses:

5.1.1.1. The Company shall, at his expense, obtain all permits and licenses necessary for the performance of the contract, and give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations governing the Company's performance of the work. (Call 685-7390 for permit information.)

5.1.2. Taxes:

5.1.2.1. Portions of the contract qualify for exemption pursuant to the provisions of the Texas Limited Sales, Excise and Use Tax Act. (Refer to Texas Tax Code, Title 2, Subtitle E, Chapter 151, Subchapter H, Subsections 151.309, 151.311 and 151.3111.)

5.1.2.2. Tax Exemption Certificate.

The Company may obtain a sales tax exemption certificate from the City of Midland upon request from the Purchasing Office.

5.1.2.3. All labor performed on the project, all materials incorporated into the project and other costs such as overhead allocation qualify for the exemption. However, equipment, parts for equipment, and tools purchased for use on the project, but are not incorporated may not qualify for the exemption.

5.1.2.4. Company shall be responsible for the determination of what portion, if any, of the contract has taxes due and payment of said taxes. DO NOT BILL ANY SALES OR USE TAX TO THE CITY.

5.2. GENERAL

5.2.1. Award

5.2.1.1. If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code

5.2.2. Bid Validity Period

5.2.2.1. Unless otherwise stated, bids shall be valid for a minimum of 90 days.

5.2.3. Scope of Work for repaving, striping and painting of Scharbauer Sports Complex Parking Lots asphalt seal coating 1,434,054 SQFT

5.2.3.1. Clean areas to be free from debris with power broom and/or air blowers

5.2.3.2. Seal Cracks ¼" and larger with ASTM 6690 hot pour rubberized crack filler

5.2.3.3. Seal two coats gemseal fedspec premium refined tar emulsion pavement sand sealer

5.2.3.4. Sealer to be applied at a rate of 1-1.5 gallons per 100 SQFT

5.2.3.5. Stripe all parking, ADA, and fire lanes to match previous configuration with commercial grade latex traffic paint

5.2.3.7. Alternate 1- Repaint all yellow curbing (need a separate price)

5.2.3.8. Alternate 2- Repaint all red curbing and "firelane" lettering (need a separate price)

6. SITE HOUSE KEEPING

Clean existing site, roadways, adjacent structures and improvements of dust, dirt, and debris caused by construction of fence. Return adjacent areas to condition existing before fence construction began. Clean roadways of debris caused by debris transport.

7. BID WAIVERS:

A. <u>WAIVER OF ATTORNEY FEES</u>: BY SUBMITTING THIS BID, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE BID, THE CONSTRUCTION, VALIDITY OR INTERPRETATION OF THE BID DOCUMENTS, OR THE CONSTRUCTION, VALIDITY, INTERPRETATION, AWARD, OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS BID, THE CONSTRUCTION, VALIDITY OR INTERPRETATION OF THE BID DOCUMENTS, OR THE CONSTRUCTION, VALIDITY, INTERPRETATION, AWARD, OR BREACH OF THE CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE BID DOCUMENTS INCLUDING BUT NOT LIMITED TO THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THESE BID DOCUMENTS, INCLUDING THE CONTRACT, WITH COMPETENT LEGAL COUNSEL PRIOR TO SUBMISSION OF THE BID OR EXECUTION OF THE CONTRACT.

B. WAIVER: BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**
2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS;**
3. **ACCEPTANCE OR REJECTION OF ANY BIDS; OR**

4. **AWARD OF THE CONTRACT.**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT.

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS.

THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT.

BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

Company Name	Phone
Authorized Signature	Fax
Print Above Name	Date
Email Address	

T H E C I T Y OF M I D L A N D

CONTRACT

Contract No.21000247

THIS CONTRACT, effective the __ day of _____, 2020, by and between the City of Midland, hereinafter referred to as "City", and _____, hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ _____ DOLLARS

2. **Scope of Work:** Company shall perform all work described for repaving, striping and painting of Scharbauer Sports Complex Parking Lots in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Tina Jauz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than ____calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise unavailable in any fiscal period for contract payments due under the contract, then contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §
§
COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, _____, an officer of _____, known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

BID BOND

THE STATE OF TEXAS §

SURETY NO. _____

COUNTY OF MIDLAND §

KNOW ALL MEN BY THESE PRESENTS, THAT _____

_____

_____

(hereinafter called the Principal), as Principal, and _____

_____

_____

(hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____

_____ DOLLARS

($_____), for the payment whereof the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid or Proposal to enter into a certain written Contract with the obligee to_____

_____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully enter into such written Contract, then this obligation shall be void; otherwise to remain in full force and effect.

IT IS EXPRESSLY UNDERSTOOD AND AGREED that if said Principal should withdraw its Bid anytime after such Bid is opened and before official rejection to such Bid or, if successful in securing the award thereof, said Principal should fail to enter into the Contract and furnish satisfactory Performance Bond and Payment Bond, the Obligee, in either such events, shall be entitled and is hereby given the right to collect the full amount of this Bid Bond as liquidated damages.

PROVIDED, further that if any legal action be filed upon this Bond venue shall lie in Midland County, Texas

IN WITNESS THEREOF, THE SAID PRINCIPAL AND SURETY do sign and seal this instrument, this _____ day of _____, 20____.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: ATTACH POWER OF ATTORNEY

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for _____, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

PERFORMANCE BOND

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

SURETY'S NO. _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____

_____.

(hereinafter called the principal(s)), as principal(s), and _____

_____,

(hereinafter called the Surety(s)), as Surety(s), are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), the amount of _____DOLLARS, ($_____) for the payment whereof the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20____, to furnish and deliver the following equipment:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

SPECIFICALLY including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein, as well as the Principals primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications,

instructions to bidders, general and special conditions and other contract documents, including any addendums thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

PROVIDED further that this Performance Bond is submitted in compliance with Chapter 2253 of the Texas Government Code.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise effect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of this contract, assignment thereof, or to the work to be performed thereunder.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____, 20_____.

_____	_____
Principal	Surety
By_____	By_____
Address_____	Address_____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: ATTACH POWER OF ATTORNEY

EXHIBIT D – HEAVY AND HIGHWAY – rev 01-05-18

General Decision Number: TX180007 01/05/2018 TX7

Superseded General Decision Number: TX20170007

State: Texas

Construction Types: Heavy and Highway

Counties: Armstrong, Carson, Crosby, Ector, Irion, Lubbock, Midland, Potter, Randall, Taylor and Tom Green Counties in Texas.

HEAVY & HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018

* SUTX2011-002 08/02/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving & Structures)	$ 13.55	
ELECTRICIAN	$ 20.96	
FORM BUILDER/FORM SETTER		
Paving & Curb	$ 12.36	
Structures	$ 13.52	
LABORER		
Asphalt Raker	$ 12.28	
Flagger	$ 9.30	
Laborer, Common	$ 10.30	
Laborer, Utility	$ 11.80	

Work Zone Barricade
Servicer.....$ 10.30

POWER EQUIPMENT OPERATOR:
Asphalt Distributer.....$ 14.87
Asphalt Paving Machine.....$ 13.40
Broom and Sweeper.....$ 11.21
Crane, Lattice Boom 80
Tons or Less.....$ 16.82
Crawler Tractor Operator....$ 13.96
Excavator, 50,000 lbs or
less.....$ 13.46
Front End Loader Operator,
Over 3 CY.....$ 12.77
Front End Loader, 3CY or
less.....$ 12.28
Loader/Backhoe.....$ 14.18
Mechanic.....$ 20.14
Milling Machine.....$ 15.54
Motor Grader, Rough.....$ 16.15
Motor Grader, Fine.....$ 17.49
Pavement Marking Machine....$ 16.42
Reclaimer/Pulverizer.....$ 12.85
Roller, Asphalt.....$ 10.95
Roller, Other.....$ 10.36
Scraper.....$ 10.61
Spreader Box.....$ 12.60

Servicer.....$ 13.98

Steel Worker (Reinforcing).....$ 13.50

TRUCK DRIVER
Lowboy-Float.....$ 14.46
Single Axle.....$ 12.74
Single or Tandem Axle Dump..$ 11.33
Tandem Axle Tractor with
Semi.....$ 12.49

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons

resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007

in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

IMPORTANT NOTICE

Conflict Of Interest Reporting Requirements

Compliance with LOCAL GOVERNMENT CODE TITLE 5. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES SUBTITLE C. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES OF MORE THAN ONE TYPE OF LOCAL GOVERNMENT CHAPTER 176. DISCLOSURE OF CERTAIN RELATIONSHIPS WITH LOCAL GOVERNMENT OFFICERS; PROVIDING PUBLIC ACCESS TO CERTAIN INFORMATION.

Form CIQ: This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. This questionnaire shall be filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code. A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

Bidders are responsible for filing Conflict of Interest form "CIQ" in accordance with the above referenced statute. Failure to do so is a class C Misdemeanor. Contracts or Purchase Orders awarded to a vendor that has violated this law is subject to termination at such time that the violation is discovered with no recourse to the City of Midland. The bidder will be subsequently removed from the bidders list for a minimum of one year.

When there is no known conflict of interest as defined by the statute, it is not necessary to file/submit the Form CIQ. The form must be submitted if a conflict is subsequently discovered.

By submitting a response to this request, vendor represents that it complies with the requirements of Chapter 176 of the Texas Local Government Code.

For a current list of the local government officers go to: http://www.midlandtexas.gov/

Upon completion of the form, sign and submit with bid or mail to:

City of Midland
Attn: City Secretary
PO Box 1152
Midland, Texas 79702

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 _____ _____

Signature of vendor doing business with the governmental entity Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

Consideration of Location of Bidder's Principal Place of Business
For Bids of $50,000 up to $100,000 for Services and $500,000 for Commodities
Affidavit of Eligibility

Pursuant to Texas Local Government Code 271.9051, in purchasing real property, personal property that is not affixed to real property, or services, if the City receives one or more bids from a bidder whose principal place of business is in the City of Midland and whose bid is within five percent (5%) of the lowest bid price received by the City from a bidder who is not a resident of the City of Midland, the City may enter into a contract with:

(1) the lowest bidder; or

(2) the bidder whose principal place of business is in the City of Midland if the City Council determines, in writing, that the local bidder offers the City the best combination of contract price and additional economic development opportunities for the City of Midland created by the contract award, including the employment of residents of the City of Midland and increased tax revenues to the City of Midland.

In order to receive consideration, bidders must submit this affidavit to:

Erika Martinez
Purchasing Manager
City of Midland
300 N. Loraine St.,
PO BOX 1152
Midland, TX 79702-1152

Complete all areas below. Incomplete affidavits may be rejected.

Local Business Name: _____

Local Address (must be within the City limits): _____

1. Is the above address the principal place of business for the business named above? ☐ Yes ☐ No
2. How many residents of the City of Midland are employed at the above business location? _____
3. Year your business was established in the City of Midland: _____
4. If you collect sales tax for ANY class of customer, provide the following Reseller information:

   Reseller Permit Number: _____

   Company Name and Address (as it appears on permit):

   _____

   _____

   _____

5. Does your business have more than one office in the State of Texas? ☐ Yes ☐ No
   If Yes, identify the office location considered as the point-of sale for the purpose of sales tax calculation:

   _____

   _____

6. Was the local business required to pay business and/or real property tax for the most recent tax year?

   ☐ Yes ☐ No

   If Yes, did the local business pay any of this tax to the City of Midland? ☐ Yes ☐ No

Under penalty of perjury, the undersigned states that the foregoing statements are true and correct. It is further acknowledged that any person, firm, corporation or entity intentionally submitting false information to the City in an attempt to qualify for eligibility shall be prohibited from bidding on City of Midland products and services for a period of one (1) year.

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

STANDARD PURCHASE TERMS AND CONDITIONS
PURCHASING DIVISION, CITY OF MIDLAND, TEXAS

"Seller", as used herein, has the same meaning as "Company". "Buyer", as used herein, has the same meaning as "City".

Seller and Buyer agree as follows:

1. SELLER TO PACKAGE GOODS - Seller will package goods in accordance with good commercial practice. Each shipping container shall be clearly and permanently marked as follows; (a) Seller's name and address, (b) Consignee's name, and address, and purchase order number, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing slip. Seller shall bear cost of packaging unless otherwise provided. Goods shall be suitably packed to secure lowest transportation costs and to conform with requirements of common carriers and any applicable specifications. Buyer's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

2. SHIPMENT UNDER RESERVATION PROHIBITED - Seller is not authorized to ship the goods under reservation and no tender of a bill of lading will serve as a tender of goods.

3. TITLE & RISK OF LOSS - The title and risk of loss of the goods shall not pass to Buyer until Buyer actually receives and takes possession of the goods at the point or points of delivery in Midland, Texas.

4. NO REPLACEMENT OF DEFECTIVE TENDER - Every tender or delivery of goods must fully comply with all provisions of this contract as to time of delivery, quality and the like. If a tender is made which does not fully conform, this shall constitute a breach and Seller shall not have the right to substitute a conforming tender, provided, where the time for performance has yet expired, the Seller may reasonably notify Buyer of his intention to cure and may then make a conforming tender within the contract time but not afterward.

5. PLACE OF DELIVERY - The place of delivery shall be that set forth in the block of the purchase order entitled "deliver to".

6. INVOICES - Seller shall submit separate ORIGINAL invoices, on each purchase order. Invoices shall indicate the purchase order number. All invoices must be mailed to City of Midland, Accounts Payable, P.O. Box 1152, Midland, TX 79702-1152. Payment will be made within 30 days from the date the invoice and properly executed receiving documents are received by City of Midland, Accounts Payable at the above address. Invoices sent to any other address will delay payment.

7. GRATUITIES - The buyer may, by written notice to the seller, cancel this contract without liability to Seller, if it is determined by Buyer that gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by the seller, or any agent or representative of the Seller, to any officer or employee of the City of Midland with a view toward securing a contract or securing favorable treatment with respect to performing of such a contract. In the event this contract is cancelled by Buyer pursuant to this provision, Buyer shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by Seller in providing such gratuities.

8. WARRANTY - PRICE -

a. The price to be paid by the Buyer shall be that contained in Seller's bid which Seller warrants to be no higher than Seller's current prices on order by others for products of the kind and specifications covered by this agreement for similar quantities under similar or like conditions and methods of purchase. In the event Seller breaches this warranty, the prices of the items shall be reduced to the Seller's current prices on order by others, or in the alternative, Buyer may cancel this contract without liability to Seller for breach or Seller's actual expense.

b. The Seller warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for commission, percentage, brokerage, or contingent fee excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Seller for the purpose of securing business. For breach or violation of this warranty the Buyer shall have the right or rights to cancel this contract without liability and to deduct from the contract price, or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee.

9. WARRANTY - PRODUCT - Seller shall not limit or exclude any implied warranties and any attempt to do so shall render this contract voidable at the option of the Buyer. Seller warrants that the goods furnished will conform to the specification, drawings, and description listed in the bid invitation, and to the sample(s) furnished by Seller, if any. In the event of a conflict between the specifications, drawings and descriptions, the specifications shall govern.

10. SAFETY WARRANTY - Seller warrants that the product sold to Buyer shall conform to the standards promulgated by the U.S. Department of Labor under the Occupational Safety and Health Act of 1970. In the event the product does not conform to OSHA standards, Buyer may return the product for correction or replacement at the Seller's expense. In the event Seller fails to make the appropriate correction within a reasonable time, correction made by buyer will be at Seller's expense.

11. RIGHT OF INSPECTION - Buyer shall have the right to inspect the goods at delivery before accepting them.

12. CANCELLATION - Buyer shall have the right to cancel for default all or any part of the undelivered portion of this order if Seller breached any of the terms hereof including warranties of Seller if the Seller becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any other remedies which Buyer may have in law or equity.

13. TERMINATION - The performance of work under this order may be terminated in whole, or in part by the Buyer in accordance with this provision. Termination of work hereunder shall be effected by the delivery to Seller of a "Notice of Termination" specifying the extent to which performance of work under the order is terminated and the date upon which such termination becomes effective. Such right of termination is in addition to and not in lieu of the rights of Buyer set forth in Clause 13, herein.

14. FORCE MAJEURE - Neither party shall be held responsible for losses, resulting if the fulfillment of any terms or provisions of this contract is delayed or prevented by any cause not within the control of the party whose performance is interfered with, and which by the exercise of reasonable diligence said party is unable to prevent.

15. ASSIGNMENT - DELEGATION - No right or interest in this contract shall be assigned or delegation of any obligation made by Seller without the written permission of the Buyer. Any attempted assignment or delegation by the Seller shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph.

16. MODIFICATIONS - This contract can be modified or rescinded only by a writing signed by both of the parties or their duly authorized agents.

17. INTERPRETATION - PAROL EVIDENCE - This writing, plus any specifications for bids and performance provided by Buyer in its advertisement for bids, is intended by the parties as a final expression of this agreement. No course of prior dealings between the parties and no usage of the trade shall be relevant to supplement or explain any term used in this agreement. Acceptance or acquiescence in a course of performance rendered under this agreement shall not be relevant to determine the meaning of this agreement even though the accepting or acquiescing party has knowledge of the performance and opportunity for objection. Whenever a term defined by the Uniform Commercial Code is used in this agreement, the definition contained in the Code is to control.

18. ADVERTISING - Seller shall not advertise or publish without Buyer's prior consent the fact that Buyer has entered into the contract, except to the extent necessary to comply with proper requests for information from an authorized representative of the federal, state or local government.

19. RIGHT TO ASSURANCE - Whenever one party to the contract in good faith has reason to question the other party's intent to perform he may demand that the other party give written assurance of this intent to perform. In the event that a demand is made and no assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the contract.

20. PROTECTION AGAINST ROYALTIES OR PATENT INFRINGEMENT - The Seller shall pay all royalties and license fees, and shall provide for the use of any design, device, material or process covered by letters patent or copyright by suitable legal agreement with Patentee or Owner thereof. The Seller shall defend all suits or claims for infringement of any patent or copyrights and shall indemnify and save the Buyer harmless from any loss on account thereof, except that Buyer shall defend all such suits and claims and shall be responsible for all such loss when a particular design, device, material or process is allowed to the Seller, the Seller shall indemnify and save Buyer harmless from any loss on account thereof. If the material or process specified or required by Buyer is an infringement, the Seller shall be responsible for such loss unless he promptly gives written notice to the buyer of such infringement.

21. TIME - It is hereby expressly agreed and understood that time is of the essence for the performance of this contract, and any failure by contract to meet the time specifications of this agreement will cause Seller to be in default of this agreement.

22. TAX - The City of Midland is exempt from all Federal, State and City tax. Please do not include these taxes in your bid price or invoice. Taxable items must be so designated, and the City will supply vendor with a Tax Exemption Certificate, properly executed.

23. **INSURANCE –**

The following provisions apply unless the agreement is for the supply of goods only:

Seller shall at all times during the term of this agreement maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Worker's Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project or policy aggregate, including completed operations, and shall be on an occurrence basis.

The Workers' Compensation coverage provided by Seller shall inure to the benefit of employees injured during the course and scope of their employment by Seller pursuant to this agreement.

The Business Automobile Liability insurance provided by Seller shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-owner vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this agreement.

All insurance required pursuant to this agreement, except for Worker's Compensation Insurance, shall name the Buyer as an additional insured on a claims occurred basis. All insurance required pursuant to this agreement, including Worker's Compensation Insurance, shall provide for a waiver of subrogation as to the Buyer.

The parties agree that, prior to the execution of the agreement, Seller shall provide one or more certificates of insurance showing that the requirements of this article have been met, and specifically containing, without limitations, the following endorsement:

"The City of Midland is included as an additional insured, on a claims occurred basis, on all policies except for Worker's Compensation. The Seller and Insurer hereby waive all rights of subrogation with respect to claims against the City of Midland, its agents, employees and officers, on all policies of insurance."
Buyer shall be provided the notice by Seller's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage. Buyer shall not be required to provide any insurance whatsoever pursuant to this agreement.

Seller shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this agreement to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers compensation).

24. ASSIGNMENT - Seller shall not, either directly or indirectly, assign all or any part of this agreement or any interest, right or privilege herein, without the prior written consent of the Buyer. The issue on whether or not to grant consent to an assignment is in the sole discretion of the Buyer.

25. RELEASE - NOTWITHSTANDING ANY OTHER PROVISIONS, SELLER HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES BUYER, BUYER'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH SELLER HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR BUYER'S NEGLIGENCE.

26. GOVERNING LAW AND VENUE - This agreement shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this agreement or the performance of this agreement shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this agreement shall be deemed to have occurred in Midland County, Texas.

27. INDEPENDENT CONTRACTOR - It is expressly understood and agreed that Seller shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the Buyer; that Seller shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between Buyer and Seller, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between Buyer and Seller. No person performing any of the work and services described hereunder by Seller shall be considered an officer, agent, servant or employee of the Buyer. Further, it is specifically understood and agreed that nothing in this agreement is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Seller shall be an independent contractor under this agreement and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The Buyer does not have the power to direct the order in which the work is done. The Buyer shall not have the right to control the means, methods or details of the Seller's work. Seller shall assume exclusive responsibility for the work. Seller is entirely free to do the work in its own way.

28. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES - As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this agreement, Seller or his legal representative, shall give the City Manager, or any other reasonable official of the Buyer, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one-hundred-twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Seller will settle, the physical and mailing addresses of Seller at the time and date the claim was presented and the physical and mailing addresses of Seller for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Seller relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the Buyer from any liability whatsoever. The Buyer is under no obligation to provide notice to Seller that Seller's notice is insufficient. Buyer reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Seller's failure to comply with the requirements herein shall perpetually bar Seller's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if Buyer has actual or constructive notice or knowledge of said claim or alleged damages. Seller agrees that the requirements of this entire agreement are reasonable.

29. INDEMNITY (NOT APPLICABLE TO PURCHASE AGREEMENTS) - SELLER WILL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING REASONABLE ATTORNEY'S FEES,

BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF SELLER, its agents or employees, or any subcontractor, arising out of, or resulting from, Seller's use of, or activities on, the agreement premises, and Seller will be required to pay any judgment with costs which may be obtained against Buyer or any of its officers, agents or employees, including reasonable attorney's fees.

SELLER SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, ACCIDENTAL DEATH, PERSONAL INJURIES, PROPERTY DAMAGE, LOSSES, AND EXPENSE OF ANY CHARACTER WHATSOEVER INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF BUYER, BUYER'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH SELLER OR SELLER'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS AGREEMENT AND SELLER WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST BUYER OR ANY OF BUYER'S OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

30. SOVEREIGN IMMUNITY - By executing this agreement the Buyer is not waiving its right of sovereign immunity. The Buyer is retaining its immunity from suit. The Buyer is not granting consent to be sued by legislative resolution or action. **THERE IS NO WAIVER OF SOVEREIGN IMMUNITY**.

31. THIRD PARTY BENEFICIARY - The Buyer's approval of this agreement does not create a third party beneficiary. There is no third party beneficiary to this agreement. No person or entity who is not a party to this agreement shall have any third party beneficiary or other rights hereunder.

32. <u>ATTORNEY FEES</u> - BY EXECUTING THIS AGREEMENT, SELLER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE BUYER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT. THE SELLER SPECIFICALLY AGREES THAT IF THE SELLER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE SELLER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH SELLER MIGHT OTHERWISE BE ENTITLED.

SELLER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. SELLER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. THE SELLER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BUYER AND THE SELLER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE SELLER AND BUYER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

33. CONSIDERATION - The terms of this agreement are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

34. CERTIFICATION - In accordance with the Texas Local Government Code, the City of Midland Department of Facilities and Fleet Management does hereby certify that the City of Midland is in compliance with Sections 252, 271 and all applicable sections of the Texas Local Government Code and other state law as it applies to procurement and contracting issues.

35. FEDERAL WAGE REQUIREMENTS - If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this agreement and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this agreement, to which the parties to this agreement have agreed to be bound.

36. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS - Seller shall at all times during the term of this agreement comply with applicable federal, state, and local laws regarding Seller's activities pursuant to this agreement, including but not limited to all applicable sections of the Municipal Code of Midland, Texas, as may be amended, said sections being hereby incorporated by reference and made a part of this agreement for all legal purposes. Failure to abide by any such law mentioned herein constitutes grounds for the immediate termination of this agreement.

CITY OF MIDLAND

ADDENDUM

BID # 21000247

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 1

DATE: October 28, 2020

The following changes have been made to the specifications.

Please contact Don Manuz at 432-889-6118 for a site visit but questions need to be emailed to purchasing@midlandtexas.gov so that the Purchasing Department can get the answers out to all potential bidders.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Danny's Asphalt Paving Inc.
Company Name

Bidder Authorized Signature

11/11/2020
Date

G.W. Hanson
Please Print Above Name

432-563-1583
Phone

CITY OF MIDLAND

ADDENDUM

BID # 21000247

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 2

DATE: October 30, 2020

The following questions were raised by one or more of the proposers. The answers are provided as a matter of clarification for all proposers as follows:

Q1. May I please get the start date for the contract? This question is in regards to the cold weather that may affect the paint that is applied.
A2. The start date is pending approvals of the contract. A pre-construction meeting will be held to determine a timeline for the work to avoid conflicts with events at the work site. Time will be allowed if temperatures will affect the work.

Q2. Can you please provide the required thickness needed for all the striping services listed in the RFP?
A2. The minimum thickness for the paint striping is 15 mils.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Danny's Asphalt Paving Inc.
Company Name

Bidder Authorized Signature

11/11/2020
Date

G.W. Hanson
Please Print Above Name

432-563-1583
Phone

CITY OF MIDLAND

ADDENDUM

BID # 21000247

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 3

DATE: November 9, 2020

The following questions were raised by one or more of the proposers. The answers are provided as a matter of clarification for all proposers as follows:

Q1. There are concrete curbs running throughout the complex. Will these also be seal coated and the cracks on them filled?
A1. The cracks need to be filled and seal coated.

Q2. We noticed that there were a number of old handicap signs and wheel stops that were in need of being replaced. Will we need to replace those?
A2. You will only be painting the handicapped areas.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Danny's Asphalt Paving Inc.
Company Name

Bidder Authorized Signature

11/11/2020
Date

G.W. Hanson
Please Print Above Name

432-563-1583
Phone

CITY OF MIDLAND

ADDENDUM

BID # 21000247

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 4

DATE: November 10, 2020

The bid date and time will be extended to November 13th, 2020 at 2:00.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Danny's Asphalt Paving Inc.
Company Name

Bidder Authorized Signature

11/11/2020
Date

G.W. Hanson
Please Print Above Name

432-563-1583
Phone

EXHIBIT D – BUILDING WAGE RATES rev 09-14-18

General Decision Number: TX180311 09/14/2018 TX311

Superseded General Decision Number: TX20170311

State: Texas

Construction Type: Building

County: Midland County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	09/14/2018

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

ENGI0178-005 06/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane	$ 29.00	10.60
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above	$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under	$ 27.50	10.60

* IRON0084-011 06/01/2018

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 23.77	7.12

PLUM0404-001 07/01/2016

	Rates	Fringes
PLUMBER	$ 25.91	9.40

SUTX2014-037 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER	$ 13.82	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.76	0.00
ELECTRICIAN	$ 23.18	6.31
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 19.77	7.13
IRONWORKER, REINFORCING	$ 12.27	0.00
IRONWORKER, STRUCTURAL	$ 22.16	5.26
LABORER: Common or General	$ 11.80	0.00
LABORER: Mason Tender - Brick	$ 11.38	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.58	0.00
LABORER: Pipelayer	$ 12.49	2.13
LABORER: Roof Tearoff	$ 11.28	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.25	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 18.29	1.31
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 14.83	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00

OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00
OPERATOR: Roller	$ 12.70	0.00
PAINTER (Brush, Roller, and Spray)	$ 15.00	0.73
PIPEFITTER	$ 25.80	8.55
ROOFER	$ 14.75	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 22.73	7.52
SHEET METAL WORKER, Excludes HVAC Duct Installation	$ 19.50	0.00
TILE FINISHER	$ 11.22	0.00
TILE SETTER	$ 14.74	0.00
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO

is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

City of Midland - Bid Tabulation

BID # 21000247 Repaving, Striping, and Painting of Scharbauer Sports Complex Parking Lots **OPENED** November 13, 2020			Danny's Asphalt Paving Inc. 2000 E 42ND C#310 Odessa, TX 79762 432-563-1583 gw@dannyspaving.com	Unicare Building Maintence, Inc. 11148 Morrison Lane Dallas, TX 75229 214-724-4621 isaac.s@unicaremaintence.com	DPR McHam 6621 N FM 1788 Midland, TX 79707 432-438-8444 estimating@dprmcham.com	JD King PO BOX 1254 Seminole, TX 79360 432-209-6777 stephanie.ruder@jdkingcorp.com
ITEM		DESCRIPTION	COST		COST	COST
1		Materials Portion Incorporated Into Project	$169,500.00		$290,792.00	
2		Labor Portion Incorporated Info Project	$81,325.00		$75,600.00	
3		Other Costs Not Incorporated Into Project	$15,990.00		$17,630.00	$864,734.56
		TOTALS:	**$266,815.00**	**$384.955.48**	**$384,022.00**	**$864,734.56**

Bidding Summary:

21 Bid requests were issued.

4 Bids listed above

0 NO BIDS were received.

17 Bidders did not respond.

THE CITY OF MIDLAND

CONTRACT

Contract No.21000247

THIS CONTRACT, effective the 16 day of December, 2020, by and between the City of Midland, hereinafter referred to as "City", and Danny's Asphalt Paving, Inc., hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 266,815.00 DOLLARS

2. **Scope of Work:** Company shall perform all work described for repaving, striping and painting of Scharbauer Sports Complex Parking Lots in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Tina Jauz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than 60 calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise unavailable in any fiscal period for current payments due under the contract, then contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §
§
COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, ._____, an officer of Danny's Asphalt Paving, Inc., known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

CITY OF MIDLAND

PURCHASING DIVISION DATE: 10/21/2020

BID REQUEST PAGE: 1

(THIS IS NOT AN ORDER) **BID NO: 21000247**

OPENING TIME: 2:00 PM **CLOSING DATE: 11/11/2020**

CITY OF MIDLAND
300 NORTH LORAINE
P. O. BOX 1152
MIDLAND, TX 79702

BIDS WILL BE RECEIVED IN THE OFFICE OF THE City Secretary, 300 N Loraine Ste 310
UNTIL 2:00 P.M.on November 11, 2020 FOR GOODS AND SERVICES DESCRIBED BELOW WHICH WILL BE DELIVERED TO:
Scharbauer Sports Complex Parking Lots located at 5514 Champions Dr, Midland, TX 79706

-

ITEM NO.	QTY	UNIT	DESCRIPTION	UNIT PRICE	AMOUNT
			Repaving, Striping and Painting of Scharbauer Sports Complex Parking lots *Does not include parking West of Blue/ White Auxilliary Fields	TOTAL	$266,815.00

NOTICE TO BIDDERS:

1. FAILURE TO RESPOND WITH EITHER A BID OR "NO BID" WILL SUBJECT YOUR FIRM TO REMOVAL FROM THE BID LIST FOR THIS TYPE OF MATERIAL, EQUIPMENT OR SUPPLY ITEM.
2. BIDS SHALL BE DELIVERED TO THE CITY IN A SEALED PACKAGE (ENVELOPE, ETC) **UNLESS THE CITY STATES** THAT THE BID MAY BE FAXED OR E-MAILED, OTHERWISE, BIDS FAXED OR E-MAILED DIRECTLY TO THE CITY WILL BE REJECTED. A SEALED BID MAY BE FAXED TO A THIRD PARTY FOR SEALED DELIVERY TO THE CITY. PLEASE CALL FOR MORE INFORMATION.
3. IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED CONTRACT AND INSURANCE REQUIREMENTS ARE **NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/CONTRACTOR OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/CONTRACTOR MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.
4. IF THE SELECTED BIDDER/CONTRACTOR CANNOT MEET THE REQUIREMENTS OF PARAGRAPH 3, THEN THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER.
5. **IMPORTANT NOTICE** – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/CONTRACTOR MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

FOR ADDITIONAL INFORMATION, CONTACT (432) 685-7234 OR 685-7233. FAX NO. (432) 685-0523

NOTE: EACH BIDDER IS TO INDICATE BRAND NAME PRODUCT NUMBER AND ATTACH DESCRIPTIVE LITERATURE CLEARLY MARKED TO SHOW EACH ITEM ON THIS BID.

THE UNDERSIGNED HEREBY OFFERS TO FURNISH AND DELIVER THE ARTICLES OR SERVICE AS SPECIFIED ABOVE AT THE PRICES AND TERMS HEREIN STATED AND IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND CONDITIONS OF BIDDING ALL WHICH ARE MADE A PART OF THIS OFFER. THIS OFFER IS NOT SUBJECT TO WITHDRAWAL WITHOUT PERMISSION.

COMPANY NAME: Danny's Asphalt Paving Inc.
ADDRESS 2000 E 42nd #C310
CITY Odessa ST Tx ZIP 79762
PHONE NO. 432-563-1583 FAX NO. 432-463-1274
EMAIL: Gw@dannyspaving.com

CASH DISCOUNT: NA % DAYS
DELIVERY CAN BE MADE
AUTHORIZED SIGNATURE

PLEASE READ CONDITIONS FOR BIDDING ON BACK BEFORE SUBMITTING

MIDLAND
Purchasing Division

ATTENTION: Due to the Coronavirus (COVID-19) pandemic, the City of Midland's City Hall is closed to the Public. All bidders are encouraged to mail bid packets to one of the addresses below rather than delivering them in person in the interests of maintaining social distancing:

USPS Mailing Address:		***Physical Address for mail carriers other than USPS:***
City of Midland, Texas Attn: City Secretary's Office P O Box 1152 Midland, TX 79702	OR	City of Midland, Texas Attn: City Secretary's Office 300 North Loraine St, Suite 330 Midland, TX 79701

If bid packets are delivered in person then bidders must make arrangements in advance to drop the bid packets off at the north doors of City Hall before the bid opening deadline, and social distancing measures will be maintained for the health of all parties involved.

ATTENTION: The public bid opening will be shown via the City Council Meeting live feed in order to maintain social distancing due to COVID-19. This can be accessed from the following web address at the time of the bid opening:

http://www.midlandtexas.gov/600/Watch-Council-Meetings

NOTICE TO BIDDERS

IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED **CONTRACT AND INSURANCE REQUIREMENTS ARE NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/COMPANY OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/COMPANY MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.

IF THE SELECTED BIDDER/COMPANY CANNOT MEET THE ABOVE REQUIREMENTS, THEN **THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER**.

IMPORTANT NOTICE – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/COMPANY MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE, WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

COMPLIANCE: Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006,

please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

ANY VENDOR WHO FAILS TO COMPLY WITH THE TERMS OF THE AWARD **MAY BE DECLARED AN IRRESPONSIBLE VENDOR**. BIDS SUBMITTED BY SAID VENDOR SHALL NOT BE CONSIDERED AGAIN FOR A MINIMUM PERIOD OF SIX MONTHS AS DETERMINED BY THE CITY MANAGER.

MIDLAND
Purchasing Division

Danny's Asphalt Paving Inc.
Contractor's Name

PROPOSAL Bid
21000247

To: Purchasing Manager
City of Midland
Midland, Texas

Gentlemen: The undersigned bidder, having examined the plans, specifications and contract documents, the location of the proposed work and being fully advised as to the extent and character of the work proposes to furnish all materials, equipment and to perform all labor and work necessary for the complete work described by and in accordance with the attached plans, specifications and contract for the sum of:

Materials Portion Incorporated Into Project $169,500.00 DOLLARS

Labor Portion Incorporated Into Project $81,325.00 DOLLARS

Other Costs Not Incorporated Into Project $15,990.00 DOLLARS

Total Proposal $266,815.00 DOLLARS

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the Contract Documents pertaining to the work covered by the above bid and he further agrees to commence work within ten (10) days after the date of written notice to do so and to substantially complete same within 60 calendar days.

VENDOR CONTACT:
All potential vendors shall direct ALL questions, areas for bid clarification and specification verification to the Purchasing Agent IN WRITING, via mail or fax as follows:

The City Of Midland
Office of the Purchasing Manager
P.O. Box 1152
Midland, TX 79702

OR

FAX: (432) 685-0523

E-mail: purchasing@midlandtexas.gov

All vendors on the bid list will then be notified of the questions and presented an answer. Verbal responses shall not be considered binding.

AWARD
If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code.

NOTE: Bid and proposal terms are interchangeable.

BID WAIVERS:

A. WAIVER OF ATTORNEY FEES: BY SIGNING THIS PROPOSAL, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH

OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND THE BIDDER.

THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND THE CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

B. WAIVER: BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**
2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS;**
3. **ACCEPTANCE OR REJECTION OF ANY BIDS; OR**
4. **AWARD OF THE CONTRACT.**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

C. Notice of Alleged Breach; Statutory Prerequisites: As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Bidder or his legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing

(consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Bidder will settle, the physical and mailing addresses of Bidder at the time and date the claim was presented and the physical and mailing addresses of Bidder for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Bidder relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Bidder that Bidder's notice is insufficient. The City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Bidder's failure to comply with the requirements herein shall perpetually bar Bidder's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if the City has actual or constructive notice or knowledge of said claim or alleged damages. Bidder agrees that the requirements of this entire Contract are reasonable.

By Signing below, your company agrees to the above waiver(s). If this form is not signed and included with your bid documents your bid will be considered non-responsive and will be rejected.

SOVEREIGN IMMUNITY: By Executing this contract the City is not waiving its right of Sovereign immunity. the City is retaining its IMMUNITY from suit. the City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

Danny's Asphalt Paving Inc.		432-563-1583
Bidder	Authorized Signature	Telephone
2000 E 42nd #C310 Odessa, Tx 79762	G.W. Hanson	432-563-1274
Address, City and State	Please Print above Name	Fax

Bidder's Enclosure Check List: (Bidder - Please review the following list and check to ensure that you have included the documents with your bid.)

☑ PROOF OF AUTOMOBILE, WORKER'S COMPENSATION AND GENERAL LIABILITY INSURANCE COVERAGE AS REQUIRED BY THE TERMS OF THE CONTRACT. (**Upon award and prior to execution of the contract The City of Midland will have to be added to the policy as an additional insured and a certificate issued reflecting that provision) including a waiver of subrogation as stated in the contract)**

☑ 5% BID BOND FOR CONTRACTS IN AMOUNTS OF $50,000 OR MORE. (ONLY WHEN EXHIBIT "C" IS INCLUDED IN THE CONTRACT).* **THE SUCCESSFUL BIDDER SHALL BE REQUIRED TO PROVIDE A PAYMENT BOND AND PERFORMANCE BOND FOR BIDS OF $50,000 OR MORE. IF BOND FORMS WERE NOT INCLUDED, THEY MAY BE OBTAINED FROM THE OFFICE OF THE PURCHASING MANAGER. Call (432) 685-7234 for information.**

PLEASE NOTE:

FAILURE TO INCLUDE ANY OF THE REQUIRED DOCUMENTS ON THE CHECK LIST, MAY CAUSE REJECTION OF YOUR BID.

***FAILURE TO PROVIDE LIABILITY OR WORKER'S COMPENSATION INSURANCE AND SUBSEQUENT CERTIFICATES; OR, PAYMENT AND/OR PERFORMANCE BONDS AS REQUIRED BY THE CONTRACT MAY CAUSE FORFEITURE OF YOUR BID BOND OR OTHER SURETY (I.E.- CASH OR CASHIERS CHECK).**

Merchants Bonding Company

P.O. BOX 26720 • AUSTIN, TX 78755-0720

BID BOND
PUBLIC WORK

KNOW ALL PERSONS BY THESE PRESENTS:

That DANNY'S ASPHALT PAVING, INC.

(hereinafter called the Principal) as Principal, and the MERCHANTS BONDING COMPANY (Mutual) a corporation of the State of Iowa, with its Home Office in the City of Des Moines, Iowa, (hereinafter called Surety), as Surety, are held and firmly bound to CITY OF MIDLAND

(hereinafter called the Obligee) in the full and just sum of ($ ----------5%----------)

FIVE PERCENT OF THE GREATEST AMOUNT BID---------- Dollars

good and lawful money of the United States of America, to the payment of which sum of money well and truly to be made, the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed and dated this 13TH day of NOVEMBER, 2020.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if the Obligee shall make any award to the Principal for

SCHARBAUER SPORTS COMPLEX

21000247

according to the terms of the proposal or bid made by the Principal therefor, and the Principal shall duly make and enter into a contract with the Obligee in accordance with the terms of said proposal or bid and award, and shall give bond for the faithful performance thereof with the MERCHANTS BONDING COMPANY (Mutual) and Surety, or with other Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure to do so, pay to the Obligee the damages which the Obligee may suffer by reason of such failure, not exceeding the penalty of this bond, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect.

IN TESTIMONY WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed.

DANNY'S ASPHALT PAVING, INC.
Principal

Witness:

By

Attest:

MERCHANTS BONDING COMPANY (Mutual)

By

MARLA HILL, ATTORNEY-IN-FACT

HOWARD COWAN, ATTORNEY-IN-FACT

CON 0333 AU (5/98)

MERCHANTS BONDING COMPANY™

POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations of the State of Iowa (herein collectively called the "Companies") do hereby make, constitute and appoint, individually,

Howard Cowan; Marla Hill

their true and lawful Attorney(s)-in-Fact, to sign its name as surety(ies) and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

This Power-of-Attorney is granted and is signed and sealed by facsimile under and by authority of the following By-Laws adopted by the Board of Directors of Merchants Bonding Company (Mutual) on April 23, 2011 and amended August 14, 2015 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 16, 2015.

"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof."

"The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and aut hority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.

In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner-Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 11th day of February , 2020 .

MERCHANTS NATIONAL BONDING, INC. -o- 2003

MERCHANTS BONDING COMPANY (MUTUAL) INCORPORATED -o- 1933

MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.

By Larry Taylor
President

STATE OF IOWA
COUNTY OF DALLAS ss.
On this 11th day of February 2020 , before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument are the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.

NOTARIAL SEAL IOWA

POLLY MASON
Commission Number 750576
My Commission Expires
January 07, 2023

Polly Mason
Notary Public

(Expiration of notary's commission does not invalidate this instrument)

I, William Warner, Jr., Secretary of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 13TH day of NOVEMBER , 2020 .

MERCHANTS NATIONAL BONDING, INC. -o- 2003

MERCHANTS BONDING COMPANY (MUTUAL) INCORPORATED -o- 1933

William Warner Jr.
Secretary

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/12/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Higginbotham Insurance Agency, Inc. 4800 E University Blvd Suite B odessa TX 79762	**CONTACT NAME:** Lynda Clark **PHONE (A/C, No, Ext):** 432-368-7676 **FAX (A/C, No):** 432-368-7505 **E-MAIL ADDRESS:** lclark@higginbotham.net
INSURED DANNY49 Danny's Asphalt Paving, Inc. 12820 Hwy 191 Midland TX 79707	**INSURER(S) AFFORDING COVERAGE** — **NAIC #** **INSURER A :** United Fire Lloyds — 43559 **INSURER B :** Texas Mutual Insurance Company — 22945 **INSURER C :** Travelers Property Casualty Co of Am — 25674 **INSURER D :** Continental Casualty Company — 20443 **INSURER E :** Westchester Surplus Lines Ins Co — 10172 **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 1947010956 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [X] PRO-JECT [X] LOC OTHER:			85324677	4/1/2020	4/1/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
A	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY			85324677	4/1/2020	4/1/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ $ $ 0/0 $
A	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED RETENTION $			85324677	4/1/2020	4/1/2021	EACH OCCURRENCE AGGREGATE $	$ 5,000,000 $ 5,000,000 $
B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [Y] N/A **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below			0001245455	4/1/2020	4/1/2021	X PER STATUTE / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
C D E	Excess Liability Contractor's Equipment Contractors Pollution			ZUP61M9476020NF C6078567753 G28398773 001	4/1/2020 4/1/2020 8/28/2020	4/1/2021 4/1/2021 8/28/2021	Occurrence/Aggregate Leased/Rented Equipme Poll Event/Aggregate	5,000,000 1,000,000 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

The General Liability (CG2010 04 13 and CG2037 04 13) and Automobile Liability policy includes a blanket automatic additional insured endorsement that provides additional insured status and General Liability, Automobile Liabilityand Workers' Compensation policies include a blanket waiver of subrogation endorsement to the certificate holder only when there is a written contract between the named insured and the certificate holder that requires such status.

The General Liability and Automobile Liability policies include a blanket notice of cancellation to certificate holders endorsement, providing for 30 days' advance notice if the policy is canceled by the company other than for nonpayment of premium, 10 days' notice after the policy is canceled for nonpayment of premium. Notice is sent to certificate holders with mailing addresses on file with the agent or the company. The endorsement does not provide for notice of cancellation if the named insured requests cancellation.
See Attached...

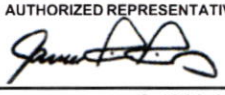
CERTIFICATE HOLDER

City of Midland
300 N Loraine
PO Box 1152
Midland TX 79702

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



© 1988-2015 ACORD CORPORATION. All rights reserved.

AGENCY CUSTOMER ID: DANNY49

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Higginbotham Insurance Agency, Inc.	Danny's Asphalt Paving, Inc. 12820 Hwy 191 Midland TX 79707
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** CERTIFICATE OF LIABILITY INSURANCE

The General Liability(CG2001 04/13) and Auto Liability(CA7334 09/15), and Umbrella, and Excess policies contain a special endorsement with "Primary and Noncontributory" wording.

Umbrella Policy is follow form of the underlying policies. Underlying policies are: Work Comp Policy #0001245455; General Liability Policy # 85324677, and Commercial Auto Policy # 85324677
Excess Policy is follow form of the underlying Umbrella policy #85324677

Workers Compensation Excludes Officers: Charlotte Carroll and Daniel P Carroll

© 2008 ACORD CORPORATION. All rights reserved.
The ACORD name and logo are registered marks of ACORD

THE CITY OF MIDLAND

SPECIFICATION

1. SCOPE

Repaving, Striping and Painting of Scharbauer Sports Complex Parking Lots and does not include parking West of Blue/White Auxiliary Fields located at 5514 Champions Dr, Midland, TX 79706

2. VENDOR CONTACT:

All potential vendors shall direct ALL questions, areas for bid clarification and specification verification to the Purchasing Agent IN WRITING, via mail or fax as follows:

The City Of Midland
Office of the Purchasing Manager
P.O. Box 1152
Midland, TX 79702

OR

FAX: (432)685-0523

Email: purchasing@midlandtexas.gov

All vendors on the bid list will then be notified of the questions and presented an answer. Information provided by other City personnel shall not be considered binding.

3. DEFINITIONS

3.1. CITY

City of Midland

3.2. COMPANY

Successful Bidder

4. DOCUMENTS

Contract

Exhibit A - These specifications, Proposal or Cost Summary

Exhibit B – Intentionally Omitted

Exhibit C – Bonding Requirements

Exhibit D – Wage Schedule

5. REQUIREMENTS

Vendor shall comment in the right margin as to whether or not his bid meets or exceeds the minimum specification shown. Please explain how it exceeds or falls short of the requirement. Use blue or Black ink if completed by hand or typewriter. A separate sheet may be used as long as each item is identified and the sheet(s) are signed.

	Requirement	Vendor Comment
5.1. PERMITS; COMPLIANCE WITH LAW	6.258	December 15, 2020

PACKET

5.1.1. Permits and Licenses:

5.1.1.1. The Company shall, at his expense, obtain all permits and licenses necessary for the performance of the contract, and give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations governing the Company's performance of the work. (Call 685-7390 for permit information.)

5.1.2. Taxes:

5.1.2.1. Portions of the contract qualify for exemption pursuant to the provisions of the Texas Limited Sales, Excise and Use Tax Act. (Refer to Texas Tax Code, Title 2, Subtitle E, Chapter 151, Subchapter H, Subsections 151.309, 151.311 and 151.3111.)

5.1.2.2. Tax Exemption Certificate.

The Company may obtain a sales tax exemption certificate from the City of Midland upon request from the Purchasing Office.

5.1.2.3. All labor performed on the project, all materials incorporated into the project and other costs such as overhead allocation qualify for the exemption. However, equipment, parts for equipment, and tools purchased for use on the project, but are not incorporated may not qualify for the exemption.

5.1.2.4. Company shall be responsible for the determination of what portion, if any, of the contract has taxes due and payment of said taxes. DO NOT BILL ANY SALES OR USE TAX TO THE CITY.

5.2. GENERAL

5.2.1. Award

5.2.1.1. If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code

5.2.2. Bid Validity Period

5.2.2.1. Unless otherwise stated, bids shall be valid for a minimum of 90 days.

5.2.3. Scope of Work for repaving, striping and painting of Scharbauer Sports Complex Parking Lots asphalt seal coating 1,434,054 SQFT

5.2.3.1. Clean areas to be free from debris with power broom and/or air blowers

5.2.3.2. Seal Cracks ¼" and larger with ASTM 6690 hot pour rubberized crack filler

5.2.3.3. Seal two coats gemseal fedspec premium refined tar emulsion pavement sand sealer

5.2.3.4. Sealer to be applied at a rate of 1-1.5 gallons per 100 SQFT

5.2.3.5. Stripe all parking, ADA, and fire lanes to match previous configuration with commercial grade latex traffic paint

5.2.3.7. Alternate 1- Repaint all yellow curbing (need a separate price)

5.2.3.8. Alternate 2- Repaint all red curbing and "firelane" lettering (need a separate price)

6. SITE HOUSE KEEPING

Clean existing site, roadways, adjacent structures and improvements of dust, dirt, and debris caused by construction of fence. Return adjacent areas to condition existing before fence construction began. Clean roadways of debris caused by debris transport.

7. BID WAIVERS:

A. <u>WAIVER OF ATTORNEY FEES</u>: BY SUBMITTING THIS BID, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE BID, THE CONSTRUCTION, VALIDITY OR INTERPRETATION OF THE BID DOCUMENTS, OR THE CONSTRUCTION, VALIDITY, INTERPRETATION, AWARD, OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS BID, THE CONSTRUCTION, VALIDITY OR INTERPRETATION OF THE BID DOCUMENTS, OR THE CONSTRUCTION, VALIDITY, INTERPRETATION, AWARD, OR BREACH OF THE CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE BID DOCUMENTS INCLUDING BUT NOT LIMITED TO THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THESE BID DOCUMENTS, INCLUDING THE CONTRACT, WITH COMPETENT LEGAL COUNSEL PRIOR TO SUBMISSION OF THE BID OR EXECUTION OF THE CONTRACT.

B. WAIVER: BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY'S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**
2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS;**
3. **ACCEPTANCE OR REJECTION OF ANY BIDS; OR**

4. **AWARD OF THE CONTRACT.**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT.

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS.

THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT.

BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

Company Name	Phone
Authorized Signature	Fax
Print Above Name	Date
Email Address	

T H E C I T Y OF M I D L A N D

CONTRACT

Contract No.21000247

THIS CONTRACT, effective the __ day of _____, 2020, by and between the City of Midland, hereinafter referred to as "City", and _____, hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ _____ DOLLARS

2. **Scope of Work:** Company shall perform all work described for repaving, striping and painting of Scharbauer Sports Complex Parking Lots in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Tina Jauz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than ____calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise unavailable in any fiscal period for current payments due under the contract, then contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §

§

COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, _____, an officer of _____, known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

BID BOND

THE STATE OF TEXAS §

SURETY NO. _____

COUNTY OF MIDLAND §

KNOW ALL MEN BY THESE PRESENTS, THAT _____

_____

_____

(hereinafter called the Principal), as Principal, and _____

_____

_____

(hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____

_____ DOLLARS

($_____), for the payment whereof the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid or Proposal to enter into a certain written Contract with the obligee to_____

_____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully enter into such written Contract, then this obligation shall be void; otherwise to remain in full force and effect.

IT IS EXPRESSLY UNDERSTOOD AND AGREED that if said Principal should withdraw its Bid anytime after such Bid is opened and before official rejection to such Bid or, if successful in securing the award thereof, said Principal should fail to enter into the Contract and furnish satisfactory Performance Bond and Payment Bond, the Obligee, in either such events, shall be entitled and is hereby given the right to collect the full amount of this Bid Bond as liquidated damages.

PROVIDED, further that if any legal action be filed upon this Bond venue shall lie in Midland County, Texas

IN WITNESS THEREOF, THE SAID PRINCIPAL AND SURETY do sign and seal this instrument, this _____ day of _____, 20____.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: ATTACH POWER OF ATTORNEY

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for _____, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

Form Revised August 2012

PERFORMANCE BOND

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

SURETY'S NO. _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____

_____.

(hereinafter called the principal(s)), as principal(s), and _____

_____,

(hereinafter called the Surety(s)), as Surety(s), are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), the amount of _____DOLLARS, ($_____) for the payment whereof the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20____, to furnish and deliver the following equipment:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

SPECIFICALLY including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein, as well as the Principals primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications,

instructions to bidders, general and special conditions and other contract documents, including any addendums thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

PROVIDED further that this Performance Bond is submitted in compliance with Chapter 2253 of the Texas Government Code.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise effect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of this contract, assignment thereof, or to the work to be performed thereunder.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____, 20_____.

_____	_____
Principal	Surety
By_____	By_____
Address_____	Address_____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: ATTACH POWER OF ATTORNEY

EXHIBIT D – HEAVY AND HIGHWAY – rev 01-05-18

General Decision Number: TX180007 01/05/2018 TX7

Superseded General Decision Number: TX20170007

State: Texas

Construction Types: Heavy and Highway

Counties: Armstrong, Carson, Crosby, Ector, Irion, Lubbock, Midland, Potter, Randall, Taylor and Tom Green Counties in Texas.

HEAVY & HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018

* SUTX2011-002 08/02/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving & Structures)	$ 13.55	
ELECTRICIAN	$ 20.96	
FORM BUILDER/FORM SETTER		
Paving & Curb	$ 12.36	
Structures	$ 13.52	
LABORER		
Asphalt Raker	$ 12.28	
Flagger	$ 9.30	
Laborer, Common	$ 10.30	
Laborer, Utility	$ 11.80	

Work Zone Barricade
Servicer.....$ 10.30

POWER EQUIPMENT OPERATOR:
Asphalt Distributer.....$ 14.87
Asphalt Paving Machine.....$ 13.40
Broom and Sweeper.....$ 11.21
Crane, Lattice Boom 80
Tons or Less.....$ 16.82
Crawler Tractor Operator....$ 13.96
Excavator, 50,000 lbs or
less.....$ 13.46
Front End Loader Operator,
Over 3 CY.....$ 12.77
Front End Loader, 3CY or
less.....$ 12.28
Loader/Backhoe.....$ 14.18
Mechanic.....$ 20.14
Milling Machine.....$ 15.54
Motor Grader, Rough.....$ 16.15
Motor Grader, Fine.....$ 17.49
Pavement Marking Machine....$ 16.42
Reclaimer/Pulverizer.....$ 12.85
Roller, Asphalt.....$ 10.95
Roller, Other.....$ 10.36
Scraper.....$ 10.61
Spreader Box.....$ 12.60

Servicer.....$ 13.98

Steel Worker (Reinforcing).....$ 13.50

TRUCK DRIVER
Lowboy-Float.....$ 14.46
Single Axle.....$ 12.74
Single or Tandem Axle Dump..$ 11.33
Tandem Axle Tractor with
Semi.....$ 12.49

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons

resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007

in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

IMPORTANT NOTICE

Conflict Of Interest Reporting Requirements

Compliance with LOCAL GOVERNMENT CODE TITLE 5. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES SUBTITLE C. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES OF MORE THAN ONE TYPE OF LOCAL GOVERNMENT CHAPTER 176. DISCLOSURE OF CERTAIN RELATIONSHIPS WITH LOCAL GOVERNMENT OFFICERS; PROVIDING PUBLIC ACCESS TO CERTAIN INFORMATION.

Form CIQ: This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. This questionnaire shall be filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code. A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

Bidders are responsible for filing Conflict of Interest form "CIQ" in accordance with the above referenced statute. Failure to do so is a class C Misdemeanor. Contracts or Purchase Orders awarded to a vendor that has violated this law is subject to termination at such time that the violation is discovered with no recourse to the City of Midland. The bidder will be subsequently removed from the bidders list for a minimum of one year.

When there is no known conflict of interest as defined by the statute, it is not necessary to file/submit the Form CIQ. The form must be submitted if a conflict is subsequently discovered.

By submitting a response to this request, vendor represents that it complies with the requirements of Chapter 176 of the Texas Local Government Code.

For a current list of the local government officers go to: http://www.midlandtexas.gov/

Upon completion of the form, sign and submit with bid or mail to:

City of Midland
Attn: City Secretary
PO Box 1152
Midland, Texas 79702

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

Consideration of Location of Bidder's Principal Place of Business
For Bids of $50,000 up to $100,000 for Services and $500,000 for Commodities
Affidavit of Eligibility

Pursuant to Texas Local Government Code 271.9051, in purchasing real property, personal property that is not affixed to real property, or services, if the City receives one or more bids from a bidder whose principal place of business is in the City of Midland and whose bid is within five percent (5%) of the lowest bid price received by the City from a bidder who is not a resident of the City of Midland, the City may enter into a contract with:

(1) the lowest bidder; or

(2) the bidder whose principal place of business is in the City of Midland if the City Council determines, in writing, that the local bidder offers the City the best combination of contract price and additional economic development opportunities for the City of Midland created by the contract award, including the employment of residents of the City of Midland and increased tax revenues to the City of Midland.

In order to receive consideration, bidders must submit this affidavit to:

Erika Martinez
Purchasing Manager
City of Midland
300 N. Loraine St.,
PO BOX 1152
Midland, TX 79702-1152

Complete all areas below. Incomplete affidavits may be rejected.

Local Business Name: _____

Local Address (must be within the City limits): _____

1. Is the above address the principal place of business for the business named above? ☐ Yes ☐ No
2. How many residents of the City of Midland are employed at the above business location? _____
3. Year your business was established in the City of Midland: _____
4. If you collect sales tax for ANY class of customer, provide the following Reseller information:

   Reseller Permit Number: _____

   Company Name and Address (as it appears on permit):

   _____

   _____

   _____

5. Does your business have more than one office in the State of Texas? ☐ Yes ☐ No
   If Yes, identify the office location considered as the point-of sale for the purpose of sales tax calculation:

   _____

   _____

6. Was the local business required to pay business and/or real property tax for the most recent tax year?

   ☐ Yes ☐ No

   If Yes, did the local business pay any of this tax to the City of Midland? ☐ Yes ☐ No

Under penalty of perjury, the undersigned states that the foregoing statements are true and correct. It is further acknowledged that any person, firm, corporation or entity intentionally submitting false information to the City in an attempt to qualify for eligibility shall be prohibited from bidding on City of Midland products and services for a period of one (1) year.

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

STANDARD PURCHASE TERMS AND CONDITIONS
PURCHASING DIVISION, CITY OF MIDLAND, TEXAS

"Seller", as used herein, has the same meaning as "Company". "Buyer", as used herein, has the same meaning as "City".

Seller and Buyer agree as follows:

1. SELLER TO PACKAGE GOODS - Seller will package goods in accordance with good commercial practice. Each shipping container shall be clearly and permanently marked as follows; (a) Seller's name and address, (b) Consignee's name, and address, and purchase order number, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing slip. Seller shall bear cost of packaging unless otherwise provided. Goods shall be suitably packed to secure lowest transportation costs and to conform with requirements of common carriers and any applicable specifications. Buyer's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

2. SHIPMENT UNDER RESERVATION PROHIBITED - Seller is not authorized to ship the goods under reservation and no tender of a bill of lading will serve as a tender of goods.

3. TITLE & RISK OF LOSS - The title and risk of loss of the goods shall not pass to Buyer until Buyer actually receives and takes possession of the goods at the point or points of delivery in Midland, Texas.

4. NO REPLACEMENT OF DEFECTIVE TENDER - Every tender or delivery of goods must fully comply with all provisions of this contract as to time of delivery, quality and the like. If a tender is made which does not fully conform, this shall constitute a breach and Seller shall not have the right to substitute a conforming tender, provided, where the time for performance has yet expired, the Seller may reasonably notify Buyer of his intention to cure and may then make a conforming tender within the contract time but not afterward.

5. PLACE OF DELIVERY - The place of delivery shall be that set forth in the block of the purchase order entitled "deliver to".

6. INVOICES - Seller shall submit separate ORIGINAL invoices, on each purchase order. Invoices shall indicate the purchase order number. All invoices must be mailed to City of Midland, Accounts Payable, P.O. Box 1152, Midland, TX 79702-1152. Payment will be made within 30 days from the date the invoice and properly executed receiving documents are received by City of Midland, Accounts Payable at the above address. Invoices sent to any other address will delay payment.

7. GRATUITIES - The buyer may, by written notice to the seller, cancel this contract without liability to Seller, if it is determined by Buyer that gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by the seller, or any agent or representative of the Seller, to any officer or employee of the City of Midland with a view toward securing a contract or securing favorable treatment with respect to performing of such a contract. In the event this contract is cancelled by Buyer pursuant to this provision, Buyer shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by Seller in providing such gratuities.

8. WARRANTY - PRICE -

a. The price to be paid by the Buyer shall be that contained in Seller's bid which Seller warrants to be no higher than Seller's current prices on order by others for products of the kind and specifications covered by this agreement for similar quantities under similar or like conditions and methods of purchase. In the event Seller breaches this warranty, the prices of the items shall be reduced to the Seller's current prices on order by others, or in the alternative, Buyer may cancel this contract without liability to Seller for breach or Seller's actual expense.

b. The Seller warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for commission, percentage, brokerage, or contingent fee excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Seller for the purpose of securing business. For breach or violation of this warranty the Buyer shall have the right or rights to cancel this contract without liability and to deduct from the contract price, or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee.

9. WARRANTY - PRODUCT - Seller shall not limit or exclude any implied warranties and any attempt to do so shall render this contract voidable at the option of the Buyer. Seller warrants that the goods furnished will conform to the specification, drawings, and description listed in the bid invitation, and to the sample(s) furnished by Seller, if any. In the event of a conflict between the specifications, drawings and descriptions, the specifications shall govern.

10. SAFETY WARRANTY - Seller warrants that the product sold to Buyer shall conform to the standards promulgated by the U.S. Department of Labor under the Occupational Safety and Health Act of 1970. In the event the product does not conform to OSHA standards, Buyer may return the product for correction or replacement at the Seller's expense. In the event Seller fails to make the appropriate correction within a reasonable time, correction made by buyer will be at Seller's expense.

11. RIGHT OF INSPECTION - Buyer shall have the right to inspect the goods at delivery before accepting them.

12. CANCELLATION - Buyer shall have the right to cancel for default all or any part of the undelivered portion of this order if Seller breached any of the terms hereof including warranties of Seller if the Seller becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any other remedies which Buyer may have in law or equity.

13. TERMINATION - The performance of work under this order may be terminated in whole, or in part by the Buyer in accordance with this provision. Termination of work hereunder shall be effected by the delivery to Seller of a "Notice of Termination" specifying the extent to which performance of work under the order is terminated and the date upon which such termination becomes effective. Such right of termination is in addition to and not in lieu of the rights of Buyer set forth in Clause 13, herein.

14. FORCE MAJEURE - Neither party shall be held responsible for losses, resulting if the fulfillment of any terms or provisions of this contract is delayed or prevented by any cause not within the control of the party whose performance is interfered with, and which by the exercise of reasonable diligence said party is unable to prevent.

15. ASSIGNMENT - DELEGATION - No right or interest in this contract shall be assigned or delegation of any obligation made by Seller without the written permission of the Buyer. Any attempted assignment or delegation by the Seller shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph.

16. MODIFICATIONS - This contract can be modified or rescinded only by a writing signed by both of the parties or their duly authorized agents.

17. INTERPRETATION - PAROL EVIDENCE - This writing, plus any specifications for bids and performance provided by Buyer in its advertisement for bids, is intended by the parties as a final expression of this agreement. No course of prior dealings between the parties and no usage of the trade shall be relevant to supplement or explain any term used in this agreement. Acceptance or acquiescence in a course of performance rendered under this agreement shall not be relevant to determine the meaning of this agreement even though the accepting or acquiescing party has knowledge of the performance and opportunity for objection. Whenever a term defined by the Uniform Commercial Code is used in this agreement, the definition contained in the Code is to control.

18. ADVERTISING - Seller shall not advertise or publish without Buyer's prior consent the fact that Buyer has entered into the contract, except to the extent necessary to comply with proper requests for information from an authorized representative of the federal, state or local government.

19. RIGHT TO ASSURANCE - Whenever one party to the contract in good faith has reason to question the other party's intent to perform he may demand that the other party give written assurance of this intent to perform. In the event that a demand is made and no assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the contract.

20. PROTECTION AGAINST ROYALTIES OR PATENT INFRINGEMENT - The Seller shall pay all royalties and license fees, and shall provide for the use of any design, device, material or process covered by letters patent or copyright by suitable legal agreement with Patentee or Owner thereof. The Seller shall defend all suits or claims for infringement of any patent or copyrights and shall indemnify and save the Buyer harmless from any loss on account thereof, except that Buyer shall defend all such suits and claims and shall be responsible for all such loss when a particular design, device, material or process is allowed to the Seller, the Seller shall indemnify and save Buyer harmless from any loss on account thereof. If the material or process specified or required by Buyer is an infringement, the Seller shall be responsible for such loss unless he promptly gives written notice to the buyer of such infringement.

21. TIME - It is hereby expressly agreed and understood that time is of the essence for the performance of this contract, and any failure by contract to meet the time specifications of this agreement will cause Seller to be in default of this agreement.

22. TAX - The City of Midland is exempt from all Federal, State and City tax. Please do not include these taxes in your bid price or invoice. Taxable items must be so designated, and the City will supply vendor with a Tax Exemption Certificate, properly executed.

23. **INSURANCE –**

The following provisions apply unless the agreement is for the supply of goods only:

Seller shall at all times during the term of this agreement maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Worker's Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project or policy aggregate, including completed operations, and shall be on an occurrence basis.

The Workers' Compensation coverage provided by Seller shall inure to the benefit of employees injured during the course and scope of their employment by Seller pursuant to this agreement.

The Business Automobile Liability insurance provided by Seller shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-owner vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this agreement.

All insurance required pursuant to this agreement, except for Worker's Compensation Insurance, shall name the Buyer as an additional insured on a claims occurred basis. All insurance required pursuant to this agreement, including Worker's Compensation Insurance, shall provide for a waiver of subrogation as to the Buyer.

The parties agree that, prior to the execution of the agreement, Seller shall provide one or more certificates of insurance showing that the requirements of this article have been met, and specifically containing, without limitations, the following endorsement:

"The City of Midland is included as an additional insured, on a claims occurred basis, on all policies except for Worker's Compensation. The Seller and Insurer hereby waive all rights of subrogation with respect to claims against the City of Midland, its agents, employees and officers, on all policies of insurance."
Buyer shall be provided the notice by Seller's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage. Buyer shall not be required to provide any insurance whatsoever pursuant to this agreement.

Seller shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this agreement to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers compensation).

24. ASSIGNMENT - Seller shall not, either directly or indirectly, assign all or any part of this agreement or any interest, right or privilege herein, without the prior written consent of the Buyer. The issue on whether or not to grant consent to an assignment is in the sole discretion of the Buyer.

25. RELEASE - NOTWITHSTANDING ANY OTHER PROVISIONS, SELLER HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES BUYER, BUYER'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH SELLER HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR BUYER'S NEGLIGENCE.

26. GOVERNING LAW AND VENUE - This agreement shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this agreement or the performance of this agreement shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this agreement shall be deemed to have occurred in Midland County, Texas.

27. INDEPENDENT CONTRACTOR - It is expressly understood and agreed that Seller shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the Buyer; that Seller shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between Buyer and Seller, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between Buyer and Seller. No person performing any of the work and services described hereunder by Seller shall be considered an officer, agent, servant or employee of the Buyer. Further, it is specifically understood and agreed that nothing in this agreement is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Seller shall be an independent contractor under this agreement and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The Buyer does not have the power to direct the order in which the work is done. The Buyer shall not have the right to control the means, methods or details of the Seller's work. Seller shall assume exclusive responsibility for the work. Seller is entirely free to do the work in its own way.

28. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES - As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this agreement, Seller or his legal representative, shall give the City Manager, or any other reasonable official of the Buyer, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one-hundred-twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Seller will settle, the physical and mailing addresses of Seller at the time and date the claim was presented and the physical and mailing addresses of Seller for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Seller relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the Buyer from any liability whatsoever. The Buyer is under no obligation to provide notice to Seller that Seller's notice is insufficient. Buyer reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Seller's failure to comply with the requirements herein shall perpetually bar Seller's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if Buyer has actual or constructive notice or knowledge of said claim or alleged damages. Seller agrees that the requirements of this entire agreement are reasonable.

29. INDEMNITY (NOT APPLICABLE TO PURCHASE AGREEMENTS) - SELLER WILL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING REASONABLE ATTORNEY'S FEES,

BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF SELLER, its agents or employees, or any subcontractor, arising out of, or resulting from, Seller's use of, or activities on, the agreement premises, and Seller will be required to pay any judgment with costs which may be obtained against Buyer or any of its officers, agents or employees, including reasonable attorney's fees.

SELLER SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, ACCIDENTAL DEATH, PERSONAL INJURIES, PROPERTY DAMAGE, LOSSES, AND EXPENSE OF ANY CHARACTER WHATSOEVER INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF BUYER, BUYER'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH SELLER OR SELLER'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS AGREEMENT AND SELLER WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST BUYER OR ANY OF BUYER'S OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

30. SOVEREIGN IMMUNITY - By executing this agreement the Buyer is not waiving its right of sovereign immunity. The Buyer is retaining its immunity from suit. The Buyer is not granting consent to be sued by legislative resolution or action. **THERE IS NO WAIVER OF SOVEREIGN IMMUNITY**.

31. THIRD PARTY BENEFICIARY - The Buyer's approval of this agreement does not create a third party beneficiary. There is no third party beneficiary to this agreement. No person or entity who is not a party to this agreement shall have any third party beneficiary or other rights hereunder.

32. <u>ATTORNEY FEES</u> - BY EXECUTING THIS AGREEMENT, SELLER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE BUYER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT. THE SELLER SPECIFICALLY AGREES THAT IF THE SELLER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE SELLER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH SELLER MIGHT OTHERWISE BE ENTITLED.

SELLER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. SELLER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. THE SELLER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BUYER AND THE SELLER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE SELLER AND BUYER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

33. CONSIDERATION - The terms of this agreement are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

34. CERTIFICATION - In accordance with the Texas Local Government Code, the City of Midland Department of Facilities and Fleet Management does hereby certify that the City of Midland is in compliance with Sections 252, 271 and all applicable sections of the Texas Local Government Code and other state law as it applies to procurement and contracting issues.

35. FEDERAL WAGE REQUIREMENTS - If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this agreement and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this agreement, to which the parties to this agreement have agreed to be bound.

36. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS - Seller shall at all times during the term of this agreement comply with applicable federal, state, and local laws regarding Seller's activities pursuant to this agreement, including but not limited to all applicable sections of the Municipal Code of Midland, Texas, as may be amended, said sections being hereby incorporated by reference and made a part of this agreement for all legal purposes. Failure to abide by any such law mentioned herein constitutes grounds for the immediate termination of this agreement.

CITY OF MIDLAND

ADDENDUM

BID # 21000247

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 1

DATE: October 28, 2020

The following changes have been made to the specifications.

Please contact Don Manuz at 432-889-6118 for a site visit but questions need to be emailed to purchasing@midlandtexas.gov so that the Purchasing Department can get the answers out to all potential bidders.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Danny's Asphalt Paving Inc.
Company Name

Bidder Authorized Signature

11/11/2020
Date

G.W. Hanson
Please Print Above Name

432-563-1583
Phone

CITY OF MIDLAND

ADDENDUM

BID # 21000247

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 2

DATE: October 30, 2020

The following questions were raised by one or more of the proposers. The answers are provided as a matter of clarification for all proposers as follows:

Q1. May I please get the start date for the contract? This question is in regards to the cold weather that may affect the paint that is applied.
A2. The start date is pending approvals of the contract. A pre-construction meeting will be held to determine a timeline for the work to avoid conflicts with events at the work site. Time will be allowed if temperatures will affect the work.

Q2. Can you please provide the required thickness needed for all the striping services listed in the RFP?
A2. The minimum thickness for the paint striping is 15 mils.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Danny's Asphalt Paving Inc.
Company Name

Bidder Authorized Signature

11/11/2020
Date

G.W. Hanson
Please Print Above Name

432-563-1583
Phone

CITY OF MIDLAND

ADDENDUM

BID # 21000247

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 3

DATE: November 9, 2020

The following questions were raised by one or more of the proposers. The answers are provided as a matter of clarification for all proposers as follows:

Q1. There are concrete curbs running throughout the complex. Will these also be seal coated and the cracks on them filled?
A1. The cracks need to be filled and seal coated.

Q2. We noticed that there were a number of old handicap signs and wheel stops that were in need of being replaced. Will we need to replace those?
A2. You will only be painting the handicapped areas.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Danny's Asphalt Paving Inc.
Company Name

Bidder Authorized Signature

11/11/2020
Date

G.W. Hanson
Please Print Above Name

432-563-1583
Phone

CITY OF MIDLAND

ADDENDUM

BID # 21000247

TO ALL BIDDERS ON THE SUBJECT BID:

ADDENDUM # 4

DATE: November 10, 2020

The bid date and time will be extended to November 13th, 2020 at 2:00.

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Danny's Asphalt Paving Inc.
Company Name

Bidder Authorized Signature

11/11/2020
Date

G.W. Hanson
Please Print Above Name

432-563-1583
Phone

EXHIBIT D – BUILDING WAGE RATES rev 09-14-18

General Decision Number: TX180311 09/14/2018 TX311

Superseded General Decision Number: TX20170311

State: Texas

Construction Type: Building

County: Midland County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	09/14/2018

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

ENGI0178-005 06/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane	$ 29.00	10.60
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above	$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under	$ 27.50	10.60

* IRON0084-011 06/01/2018

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 23.77	7.12

PLUM0404-001 07/01/2016

	Rates	Fringes
PLUMBER	$ 25.91	9.40

SUTX2014-037 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER	$ 13.82	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.76	0.00
ELECTRICIAN	$ 23.18	6.31
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 19.77	7.13
IRONWORKER, REINFORCING	$ 12.27	0.00
IRONWORKER, STRUCTURAL	$ 22.16	5.26
LABORER: Common or General	$ 11.80	0.00
LABORER: Mason Tender - Brick	$ 11.38	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.58	0.00
LABORER: Pipelayer	$ 12.49	2.13
LABORER: Roof Tearoff	$ 11.28	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.25	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 18.29	1.31
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 14.83	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00

OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00
OPERATOR: Roller	$ 12.70	0.00
PAINTER (Brush, Roller, and Spray)	$ 15.00	0.73
PIPEFITTER	$ 25.80	8.55
ROOFER	$ 14.75	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 22.73	7.52
SHEET METAL WORKER, Excludes HVAC Duct Installation	$ 19.50	0.00
TILE FINISHER	$ 11.22	0.00
TILE SETTER	$ 14.74	0.00
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO

is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

City Council Meeting

Item Number: 7

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION AWARDING A CONTRACT FOR THE "A" STREET MILL AND INLAY PAVING PROJECT TO CD KING CONSTRUCTION, LLC, DOING BUSINESS AS JD KING, OF SEMINOLE, TEXAS, AT A TOTAL COST OF $2,108,890.70; AND AUTHORIZING PAYMENT (GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the execution of a contract for the "A" Street Mill and Inlay Paving Project for the Engineering Services Department.

Recommended City Council Action:

Approve

Fiscal Impact:

Funds are available in Fund 180 2019 GO Bond Fund.

Discussion:

The Interim City Manager approved plans and specifications and authorized advertisement for bids for the "A" Street Mill and Inlay Paving Project. Bid requests were issued to sixty- three (63) vendors and we received four (4) bids. Staff recommends awarding the contract to CD King Construction, LLC dba JD King. Please see the attached memo from Matt Carr, City Engineer, for additional information.

Therefore, please consider a resolution awarding a contract to CD King Construction, LLC dba JD King, of Seminole, Texas for the "A" Street Mill and Inlay Paving Project in the amount of $2,108,890.70. Staff is also requesting an additional $210,889.07 in contingences plus $50,000.00 for project related costs for a project total of $2,369,779.77.

Morris Williams Jr.

City Manager's Office

INTEROFFICE MEMORANDUM

TO: Erika Martinez; City of Midland, Purchasing Manager

FROM: Matt C. Carr, P.E.; City of Midland, City Engineer

SUBJECT: "A" Street Mill And Inlay Paving Project ♦ Engr. Project No. BPU18-03 ♦ Bid Tabulation ♦ Funding #_____

DATE: December 01, 2020

Erika,

Engineer staff has reviewed the bid tabulation for the "A" Street Mill And Inlay Paving Project, a paving bond project. CD King Construction, LLC dba JD King of Seminole, Texas, is the apparent successful low bidder. Staff recommends awarding the "A" Street Mill And Inlay Paving Project to CD King Construction, LLC dba JD King.

CD King Construction, LLC dba JD King has an established history with other cities and developers of performing work of similar scale and scope to the "A" Street Mill And Inlay Paving Project. Furthermore, the unit prices appear to be in line with current pricing trends.

Funding is available for this project.

The apparent successful bidder was selected based on the base bid amount of **$2,108,890.70** as outlined in the bidding documents. In addition, we would like to request that a 10% contingency in the amount of **$210,889.07** be allowed for value added changes to the project during construction and **$50,000.00** for project related costs incurred by the City to facilitate the contract (i.e. TDLR inspections, material testing services, etc.). The total amount made available for the project would be **$2,369,779.77**.

The agreement specifies a construction period beginning within 15 calendar days of a written notice to proceed for construction.

Matt C. Carr, P.E.
City Engineer

Cc: Jose Ortiz
Regina Stephenson

RESOLUTION NO. _____

RESOLUTION AWARDING A CONTRACT FOR THE "A" STREET MILL AND INLAY PAVING PROJECT TO CD KING CONSTRUCTION, LLC, DOING BUSINESS AS JD KING, OF SEMINOLE, TEXAS, AT A TOTAL COST OF $2,108,890.70; AND AUTHORIZING PAYMENT

WHEREAS, the Interim City Manager approved the plans and specifications and advertised for competitive bids for the "A" Street Mill and Inlay Paving Project (the "Project"); and

WHEREAS, Bid No. 21000842 was opened on November 18, 2020, with the lowest responsible bidder being CD King Construction, LLC, doing business as JD King, of Seminole, Texas ("Contractor"), having submitted a bid of $2,108,890.70 as shown on the bid tabulation attached hereto as Exhibit "A" and incorporated herein for all legal purposes; and

WHEREAS, the total cost of the work to be completed, according to the previously advertised plans and specifications and the unit prices in Exhibit "A", shall not exceed $2,108,890.70; and

WHEREAS, the City Council finds it to be in the public interest to execute a contract with Contractor for said Project;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Mayor and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, a contract with Contractor for said Project at a total cost of $2,108,890.70, said contract being on file in the office of the City Secretary, referenced by the date and number of this resolution.

SECTION TWO. That the Interim City Manager is hereby authorized and directed to execute, on behalf of the City of Midland, change orders to said contract if (1) each change order involves a decrease or an increase of $50,000.00 or less and (2) the change orders, in total, do not increase the original contract price by more than 10 percent ($210,889.07).

SECTION THREE. That the City Comptroller is hereby authorized and directed to pay Contractor pursuant to the terms of said contract and change orders executed in accordance with this resolution in an amount not to exceed $2,319,779.77 from funds available in Fund 180 2019 GO Bond Fund upon receipt of proper invoices or statements approved by the Interim City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

_____
Jose Ortiz, Engineering Services Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

BPU18-03 - City of Midland: "A" Street Mill and Inlay Paving Project

City of Midland - Engineering Services; November 18,2020

BID TAB					Intergrity Services LLC			JD King			Jones Bros. Dirt & Paving			Reece Albert Inc.		
Bid Item	Pay Note	Description	Quantity	Units	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total
1	M1	Mobilization	4	MO	$ 78,429.92	$ 313,719.68	$ 313,719.68	$ 23,683.24	$ 94,732.96	$ 94,732.96	$ 50,000.00	$ 200,000.00	$ 200,000.00	$ 71,965.00	$ 287,860.00	$ 287,860.00
2	M2	Erosion/Sediment Control	4	MO	$ 6,106.05	$ 24,424.20	$ 24,424.20	$ 7,675.12	$ 30,700.48	$ 30,700.48	$ 2,500.00	$ 10,000.00	$ 10,000.00	$ 4,760.00	$ 19,040.00	$ 19,040.00
3	M3	Traffic Control	4	MO	$ 9,359.72	$ 37,438.88	$ 37,438.88	$ 8,500.00	$ 34,000.00	$ 34,000.00	$ 15,000.00	$ 60,000.00	$ 60,000.00	$ 9,025.00	$ 36,100.00	$ 36,100.00
4	M4	Job Site Safety	4	MO	$ 14,976.00	$ 59,904.00	$ 59,904.00	$ 1,750.00	$ 7,000.00	$ 7,000.00	$ 7,500.00	$ 30,000.00	$ 30,000.00	$ 3,060.00	$ 12,240.00	$ 12,240.00
5	M5	Material Mark-up	%	N/A	8%	N/A	N/A	15%	N/A	N/A	25%	N/A	N/A	10%	N/A	N/A
6	M6	Labor Mark-up	%	N/A	10%	N/A	N/A	15%	N/A	N/A	65%	N/A	N/A	10%	N/A	N/A
7	M7	Equipment Rental Markup	%	N/A	10%	N/A	N/A	15%	N/A	N/A	25%	N/A	N/A	10%	N/A	N/A
1	D1	8" Milling Unclassified Asphalt Pavement	3799	SY	$ 9.53	$ 36,204.47	$ 36,204.47	$ 3.10	$ 11,776.90	$ 11,776.90	$ 8.25	$ 31,341.75	$ 31,341.75	$ 5.75	$ 21,844.25	$ 21,844.25
2	D1	7" Milling Unclassified Asphalt Pavement	2862	SY	$ 7.78	$ 22,266.36	$ 22,266.36	$ 2.95	$ 8,442.90	$ 8,442.90	$ 9.00	$ 25,758.00	$ 25,758.00	$ 6.85	$ 19,604.70	$ 19,604.70
3	D1	5" Milling Unclassified Asphalt Pavement	26030	SY	$ 4.59	$ 119,477.70	$ 119,477.70	$ 2.70	$ 70,281.00	$ 70,281.00	$ 3.85	$ 100,215.50	$ 100,215.50	$ 3.75	$ 97,612.50	$ 97,612.50
4	D2	Removal & Disposal of Existing Concrete Curb & Gutter	1050	LF	$ 7.50	$ 7,875.00	$ 7,875.00	$ 3.40	$ 3,570.00	$ 3,570.00	$ 5.00	$ 5,250.00	$ 5,250.00	$ 7.35	$ 7,717.50	$ 7,717.50
5	D3	Removal & Disposal of Existing Concrete Sidewalk & Ramps	50	SY	$ 75.00	$ 3,750.00	$ 3,750.00	$ 5.80	$ 290.00	$ 290.00	$ 11.00	$ 550.00	$ 550.00	$ 44.70	$ 2,235.00	$ 2,235.00
6	D4	Removal & Disposal of Existing Miscellaneous Concrete	60	SY	$ 50.00	$ 3,000.00	$ 3,000.00	$ 170.90	$ 10,254.00	$ 10,254.00	$ 11.00	$ 660.00	$ 660.00	$ 51.20	$ 3,072.00	$ 3,072.00
1	P1	8" Continuously Reinforced Concrete Pavement	3280	SY	$ 106.08	$ 350,304.00	$ 347,942.40	$ 86.00	$ 282,080.00	$ 282,080.00	$ 97.90	$ 321,112.00	$ 321,112.00	$ 101.00	$ 331,280.00	$ 331,280.00
2	P1	7" Continuously Reinforced Concrete Pavement	700	SY	$ 92.31	$ 64,617.00	$ 64,617.00	$ 86.00	$ 60,200.00	$ 60,200.00	$ 93.50	$ 65,450.00	$ 65,450.00	$ 96.00	$ 67,200.00	$ 67,200.00
3	P2	2" Type D HMAC Asphalt Pavement Surface Course (PG70-22, 110 LBS / SY @ 1" Thick)	2830	TON	$ 145.80	$ 412,614.00	$ 412,614.00	$ 96.00	$ 271,680.00	$ 271,680.00	$ 110.50	$ 312,715.00	$ 312,715.00	$ 122.05	$ 345,401.50	$ 345,401.50
4	P3	3" Type C HMAC Asphalt Pavement Surface Course (PG64-22, 110 LBS / SY @ 1" Thick)	4240	TON	$ 131.76	$ 558,662.40	$ 558,662.40	$ 112.00	$ 474,880.00	$ 474,880.00	$ 112.25	$ 475,940.00	$ 475,940.00	$ 102.55	$ 434,812.00	$ 434,812.00
5	P4	Concrete-Asphalt Pavement Transition Sleeper Slab	490	SY	$ 37.01	$ 18,134.90	$ 18,134.90	$ 84.20	$ 41,258.00	$ 41,258.00	$ 86.90	$ 42,581.00	$ 42,581.00	$ 88.65	$ 43,438.50	$ 43,438.50
6	P5	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	5140	GAL	$ 5.40	$ 27,756.00	$ 27,756.00	$ 4.28	$ 21,999.20	$ 21,999.20	$ 7.60	$ 39,064.00	$ 39,064.00	$ 4.40	$ 22,616.00	$ 22,616.00
7	P6	Tack Coat (MC-30 or AEP, 0.10 Gal / SY)	2570	GAL	$ 4.86	$ 12,490.20	$ 12,490.20	$ 4.28	$ 10,999.60	$ 10,999.60	$ 5.20	$ 13,364.00	$ 13,364.00	$ 3.00	$ 7,710.00	$ 7,710.00
8	P7	11" Concrete Median	340	SY	$ 148.59	$ 50,520.60	$ 50,520.60	$ 58.00	$ 19,720.00	$ 19,720.00	$ 125.40	$ 42,636.00	$ 42,636.00	$ 104.30	$ 35,462.00	$ 35,462.00
9	P8	11" Concrete Directional Island	260	SY	$ 151.69	$ 39,439.40	$ 39,439.40	$ 58.00	$ 15,080.00	$ 15,080.00	$ 125.40	$ 32,604.00	$ 32,604.00	$ 104.65	$ 27,209.00	$ 27,209.00
10	P9	8" Concrete Fillet	101	SY	$ 136.68	$ 13,804.68	$ 13,804.68	$ 78.20	$ 7,898.20	$ 7,898.20	$ 92.40	$ 9,332.40	$ 9,332.40	$ 86.50	$ 8,736.50	$ 8,736.50
11	P9	7" Concrete Fillet	540	SY	$ 135.15	$ 72,961.00	$ 72,981.00	$ 86.20	$ 46,548.00	$ 46,548.00	$ 90.20	$ 48,708.00	$ 48,708.00	$ 77.55	$ 41,877.00	$ 41,877.00
12	P10	8" Concrete Valley Gutter	158	SY	$ 100.00	$ 15,800.00	$ 15,800.00	$ 78.20	$ 12,355.60	$ 12,355.60	$ 86.90	$ 13,730.20	$ 13,730.20	$ 87.40	$ 13,809.20	$ 13,809.20
13	P10	7" Concrete Valley Gutter	1282	SY	$ 99.00	$ 126,918.00	$ 126,918.00	$ 61.06	$ 78,278.92	$ 78,278.92	$ 86.90	$ 111,405.80	$ 111,405.80	$ 79.70	$ 102,175.40	$ 102,175.40
14	P11	6" Concrete Alley Approach	370	SY	$ 97.33	$ 29,879.08	$ 36,012.10	$ 74.20	$ 27,454.00	$ 27,454.00	$ 75.90	$ 28,083.00	$ 28,083.00	$ 78.45	$ 29,026.50	$ 29,026.50
15	P12	Type A Concrete Curb & Gutter	590	LF	$ 17.00	$ 10,030.00	$ 10,030.00	$ 19.10	$ 11,269.00	$ 11,269.00	$ 20.90	$ 12,331.00	$ 12,331.00	$ 23.25	$ 13,717.50	$ 13,717.50
16	P12	Type D Concrete Curb & Gutter	510	LF	$ 19.00	$ 9,690.00	$ 9,690.00	$ 19.10	$ 9,741.00	$ 9,741.00	$ 20.90	$ 10,659.00	$ 10,659.00	$ 23.75	$ 12,112.50	$ 12,112.50
17	P12	Type I Concrete Curb & Gutter	11	LF	$ 85.00	$ 935.00	$ 935.00	$ 26.20	$ 288.20	$ 288.20	$ 20.90	$ 229.90	$ 229.90	$ 74.95	$ 824.45	$ 824.45
18	P13	Concrete Pedestrian Access Ramp	570	SY	$ 195.00	$ 111,150.00	$ 111,150.00	$ 106.20	$ 60,534.00	$ 60,534.00	$ 108.90	$ 62,073.00	$ 62,073.00	$ 191.50	$ 109,155.00	$ 109,155.00
19	P14	4" Concrete Sidewalk	1150	SY	$ 49.50	$ 56,925.00	$ 56,925.00	$ 54.03	$ 62,134.50	$ 62,134.50	$ 64.90	$ 74,635.00	$ 74,635.00	$ 80.00	$ 92,000.00	$ 92,000.00
20	P15	Storm Inlet Ring & Cover Adjustment	4	EA	$ 2,500.00	$ 10,000.00	$ 10,000.00	$ 1,133.00	$ 4,532.00	$ 4,532.00	$ 1,650.00	$ 6,600.00	$ 6,600.00	$ 1,395.00	$ 5,580.00	$ 5,580.00
21	P15	Manhole Ring & Cover Adjustment	13	EA	$ 1,500.00	$ 19,500.00	$ 19,500.00	$ 1,133.00	$ 14,729.00	$ 14,729.00	$ 1,320.00	$ 17,160.00	$ 17,160.00	$ 1,400.00	$ 18,200.00	$ 18,200.00
22	P15	Water Valve Box Ring & Cover Adjustment	66	EA	$ 750.00	$ 49,500.00	$ 49,500.00	$ 365.00	$ 24,090.00	$ 24,090.00	$ 440.00	$ 29,040.00	$ 29,040.00	$ 1,035.00	$ 68,310.00	$ 68,310.00
23	P16	Flowable Fill / 2-Sack Backfill	115	SY	$ 89.61	$ 10,305.15	$ 10,305.15	$ 119.25	$ 13,713.75	$ 13,713.75	$ 33.00	$ 3,795.00	$ 3,795.00	$ 132.05	$ 15,185.75	$ 15,185.75
1	T1	Ground Box (Type C) (per TxDOT Item 624-6007)	11	EA	$ 1,650.00	$ 18,150.00	$ 18,150.00	$ 2,009.87	$ 22,108.57	$ 22,108.57	$ 1,650.00	$ 18,150.00	$ 18,150.00	$ 1,650.00	$ 18,150.00	$ 18,150.00
2	T1	Remove Ground Box (per TxDOT Item 624-6028)	10	EA	$ 275.00	$ 2,750.00	$ 2,750.00	$ 334.98	$ 3,349.80	$ 3,349.80	$ 275.00	$ 2,750.00	$ 2,750.00	$ 275.00	$ 2,750.00	$ 2,750.00
3	T1	Conduit (2", PVC, Schedule 80, Trenched) (per TxDOT Item 618-6046)	1770	LF	$ 66.00	$ 116,820.00	$ 116,820.00	$ 80.39	$ 142,290.30	$ 142,290.30	$ 66.00	$ 116,820.00	$ 116,820.00	$ 66.00	$ 116,820.00	$ 116,820.00
4	T1	Electrical Conductor (6 AWG, Bare) (per TxDOT Item 620-6009)	477	LF	$ 3.30	$ 1,574.10	$ 1,574.10	$ 4.02	$ 1,917.54	$ 1,917.54	$ 3.30	$ 1,574.10	$ 1,574.10	$ 3.30	$ 1,574.10	$ 1,574.10
5	T1	Remove Small Sign Assembly (per TxDOT Item 644-6076)	3	EA	$ 275.00	$ 825.00	$ 825.00	$ 334.98	$ 1,004.94	$ 1,004.94	$ 275.00	$ 825.00	$ 825.00	$ 275.00	$ 825.00	$ 825.00
6	T1	Install Highway Traffic Signal (System) (per TxDOT Item 680-6003)	6	EA	$ 2,750.00	$ 16,500.00	$ 16,500.00	$ 3,349.78	$ 20,098.68	$ 20,098.68	$ 2,750.00	$ 16,500.00	$ 16,500.00	$ 2,750.00	$ 16,500.00	$ 16,500.00
7	T1	Traffic Signal Cable (Type A, 14 AWG, 3 conductor) (per TxDOT Item 684-6029)	477	LF	$ 3.30	$ 1,574.10	$ 1,574.10	$ 4.02	$ 1,917.54	$ 1,917.54	$ 3.30	$ 1,574.10	$ 1,574.10	$ 3.30	$ 1,574.10	$ 1,574.10
8	T1	Pedestrian Pole Assembly (per TxDOT Item 687-6001)	6	EA	$ 1,980.00	$ 11,880.00	$ 11,880.00	$ 2,411.85	$ 14,471.10	$ 14,471.10	$ 1,980.00	$ 11,880.00	$ 11,880.00	$ 1,980.00	$ 11,880.00	$ 11,880.00
9	T1	Remove Pedestrian Pole Assembly (per TxDOT Item 687-6005)	1	EA	$ 275.00	$ 275.00	$ 275.00	$ 334.97	$ 334.97	$ 334.97	$ 275.00	$ 275.00	$ 275.00	$ 275.51	$ 275.51	$ 275.51
10	T1, T2	Pedestrian Detection Push Button (Standard) (per TxDOT Item 688-6002)	37	EA	$ 275.00	$ 10,175.00	$ 10,175.00	$ 334.98	$ 12,394.26	$ 12,394.26	$ 275.00	$ 10,175.00	$ 10,175.00	$ 275.00	$ 10,175.00	$ 10,175.00
11	T1	Pedestrian Signal Section (LED, Countdown) (per TxDOT Item 682-6018)	14	EA	$ 770.00	$ 10,780.00	$ 10,780.00	$ 937.94	$ 13,131.16	$ 13,131.16	$ 770.00	$ 10,780.00	$ 10,780.00	$ 770.00	$ 10,780.00	$ 10,780.00
12	T1	Remove Pedestrian Signal LED Traffic Signal Lamp Unit (per TxDOT Item 690-6094)	2	EA	$ 110.00	$ 220.00	$ 220.00	$ 134.00	$ 268.00	$ 268.00	$ 110.00	$ 220.00	$ 220.00	$ 110.00	$ 220.00	$ 220.00
13	T1	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Solid, 100 mil) (per TxDOT Item 666)	41	LF	$ 0.83	$ 34.03	$ 34.03	$ 0.59	$ 24.19	$ 24.19	$ 0.83	$ 34.03	$ 34.03	$ 0.83	$ 34.03	$ 34.03
14	T1	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Broken, 100 mil) (per TxDOT Item 666)	1319	LF	$ 0.83	$ 1,094.77	$ 1,094.77	$ 0.59	$ 778.21	$ 778.21	$ 0.83	$ 1,094.77	$ 1,094.77	$ 0.83	$ 1,094.77	$ 1,094.77
15	T1	Retroreflectorized Pavement Markings (Type I, White, 8 inch, Solid, 100 mil) (per TxDOT Item 666)	1541	LF	$ 1.65	$ 2,542.65	$ 2,542.65	$ 0.59	$ 909.19	$ 909.19	$ 1.65	$ 2,542.65	$ 2,542.65	$ 1.65	$ 2,542.65	$ 2,542.65
16	T1	Retroreflectorized Pavement Markings (Type I, White, 24 inch, Solid, 100 mil) (per TxDOT Item 666)	2033	LF	$ 9.90	$ 20,126.70	$ 20,126.70	$ 7.37	$ 14,983.21	$ 14,983.21	$ 9.90	$ 20,126.70	$ 20,126.70	$ 9.90	$ 20,126.70	$ 20,126.70

EXHIBIT "A"

P:\Engineering Services\Engineering Projects\2018\BPU18-03 A Street Paving & Utility Project\05 BID\5.3 Bid Tab\Pvng\2020.11.18 BPU19-03 A St Paving Bid Tab

BID TAB					Intergrity Services LLC			JD King			Jones Bros. Dirt & Paving			Reece Albert Inc.		
Bid Item	Pay Note	Description	Quantity	Units	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total
17	T1	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Solid, 100 mil) (per TxDOT Item 666)	6520	LF	$ 0.83	$ 5,411.60	$ 5,411.60	$ 0.59	$ 3,846.80	$ 3,846.80	$ 0.83	$ 5,411.60	$ 5,411.60	$ 0.83	$ 5,411.60	$ 5,411.60
18	T1	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Broken, 100 mil) (per TxDOT Item 666)	863	LF	$ 0.83	$ 716.29	$ 716.29	$ 0.59	$ 509.17	$ 509.17	$ 0.83	$ 716.29	$ 716.29	$ 0.83	$ 716.29	$ 716.29
19	T1	Retroreflectorized Pavement Markings (Type I, White, Arrow, 100 mil) (per TxDOT Item 666)	19	EA	$ 192.50	$ 3,657.50	$ 3,657.50	$ 410.00	$ 7,790.00	$ 7,790.00	$ 192.50	$ 3,657.50	$ 3,657.50	$ 192.50	$ 3,657.50	$ 3,657.50
20	T1	Retroreflectorized Pavement Markings (Type I, White, 18 inch, Yield Triangle, 100 mil) (per TxDOT Item 666 or 668)	34	EA	$ 27.50	$ 934.00	$ 935.00	$ 37.52	$ 1,275.68	$ 1,275.68	$ 27.50	$ 935.00	$ 935.00	$ 27.50	$ 935.00	$ 935.00
21	T1	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Solid, 2 coats) (per TxDOT Item 666)	430	LF	$ 2.20	$ 946.00	$ 946.00	$ 0.74	$ 318.20	$ 318.20	$ 2.20	$ 946.00	$ 946.00	$ 2.20	$ 946.00	$ 946.00
22	T1	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Broken, 2 coats) (per TxDOT Item 666)	41	LF	$ 2.20	$ 90.20	$ 90.20	$ 0.78	$ 31.98	$ 31.98	$ 2.20	$ 90.20	$ 90.20	$ 2.20	$ 90.20	$ 90.20
23	T1	Retroreflectorized Pavement Markings (Type II, White, 8 inch, Solid, 2 coats) (per TxDOT Item 666)	168	LF	$ 4.40	$ 739.20	$ 739.20	$ 1.21	$ 203.28	$ 203.28	$ 4.40	$ 739.20	$ 739.20	$ 4.40	$ 739.20	$ 739.20
24	T1	Retroreflectorized Pavement Markings (Type II, White, 24 inch, Solid, 2 coats) (per TxDOT Item 666)	328	LF	$ 11.00	$ 3,608.00	$ 3,608.00	$ 4.02	$ 1,318.56	$ 1,318.56	$ 11.00	$ 3,608.00	$ 3,608.00	$ 11.00	$ 3,608.00	$ 3,608.00
25	T1	Retroreflectorized Pavement Markings (Type II, Yellow, 4 inch, Solid, 2 coats) (per TxDOT Item 666)	623	EA	$ 2.20	$ 1,370.60	$ 1,370.60	$ 0.74	$ 461.02	$ 461.02	$ 2.20	$ 1,370.60	$ 1,370.60	$ 2.20	$ 1,370.60	$ 1,370.60
26	T1	Retroreflectorized Pavement Markings (Type II, White, Arrow, 2 coats) (per TxDOT Item 666)	6	EA	$ 110.00	$ 660.00	$ 660.00	$ 107.19	$ 643.14	$ 643.14	$ 110.00	$ 660.00	$ 660.00	$ 110.00	$ 660.00	$ 660.00
					Base Bid Total =	$ 2,933,471.44	**$ 2,937,243.86**	Base Bid Total =	$ 2,108,890.70	**$ 2,108,890.70**	Base Bid Total =	$ 2,470,479.29	**$ 2,470,479.29**	Base Bid Total =	$ 2,586,621.00	**$ 2,586,621.00**
							$3,772.42			$0.00			$0.00			$0.00

BPU18-03 - City of Midland: "A" Street Mill and Inlay Paving Project

City of Midland - Engineering Services; November 18,2020

BID TAB					Intergrity Services LLC			JD King			Jones Bros. Dirt & Paving			Reece Albert Inc.		
Bid Item	Pay Note	Description	Quantity	Units	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total
1	M1	Mobilization	4	MO	$ 78,429.92	$ 313,719.68	$ 313,719.68	$ 23,683.24	$ 94,732.96	$ 94,732.96	$ 50,000.00	$ 200,000.00	$ 200,000.00	$ 71,965.00	$ 287,860.00	$ 287,860.00
2	M2	Erosion/Sediment Control	4	MO	$ 6,106.05	$ 24,424.20	$ 24,424.20	$ 7,675.12	$ 30,700.48	$ 30,700.48	$ 2,500.00	$ 10,000.00	$ 10,000.00	$ 4,760.00	$ 19,040.00	$ 19,040.00
3	M3	Traffic Control	4	MO	$ 9,359.72	$ 37,438.88	$ 37,438.88	$ 8,500.00	$ 34,000.00	$ 34,000.00	$ 15,000.00	$ 60,000.00	$ 60,000.00	$ 9,025.00	$ 36,100.00	$ 36,100.00
4	M4	Job Site Safety	4	MO	$ 14,976.00	$ 59,904.00	$ 59,904.00	$ 1,750.00	$ 7,000.00	$ 7,000.00	$ 7,500.00	$ 30,000.00	$ 30,000.00	$ 3,060.00	$ 12,240.00	$ 12,240.00
5	M5	Material Mark-up	%	N/A	8%	N/A	N/A	15%	N/A	N/A	25%	N/A	N/A	10%	N/A	N/A
6	M6	Labor Mark-up	%	N/A	10%	N/A	N/A	15%	N/A	N/A	65%	N/A	N/A	10%	N/A	N/A
7	M7	Equipment Rental Markup	%	N/A	10%	N/A	N/A	15%	N/A	N/A	25%	N/A	N/A	10%	N/A	N/A
1	D1	8" Milling Unclassified Asphalt Pavement	3799	SY	$ 9.53	$ 36,204.47	$ 36,204.47	$ 3.10	$ 11,776.90	$ 11,776.90	$ 8.25	$ 31,341.75	$ 31,341.75	$ 5.75	$ 21,844.25	$ 21,844.25
2	D1	7" Milling Unclassified Asphalt Pavement	2862	SY	$ 7.78	$ 22,266.36	$ 22,266.36	$ 2.95	$ 8,442.90	$ 8,442.90	$ 9.00	$ 25,758.00	$ 25,758.00	$ 6.85	$ 19,604.70	$ 19,604.70
3	D1	5" Milling Unclassified Asphalt Pavement	26030	SY	$ 4.59	$ 119,477.70	$ 119,477.70	$ 2.70	$ 70,281.00	$ 70,281.00	$ 3.85	$ 100,215.50	$ 100,215.50	$ 3.75	$ 97,612.50	$ 97,612.50
4	D2	Removal & Disposal of Existing Concrete Curb & Gutter	1050	LF	$ 7.50	$ 7,875.00	$ 7,875.00	$ 3.40	$ 3,570.00	$ 3,570.00	$ 5.00	$ 5,250.00	$ 5,250.00	$ 7.35	$ 7,717.50	$ 7,717.50
5	D3	Removal & Disposal of Existing Concrete Sidewalk & Ramps	50	SY	$ 75.00	$ 3,750.00	$ 3,750.00	$ 5.80	$ 290.00	$ 290.00	$ 11.00	$ 550.00	$ 550.00	$ 44.70	$ 2,235.00	$ 2,235.00
6	D4	Removal & Disposal of Existing Miscellaneous Concrete	60	SY	$ 50.00	$ 3,000.00	$ 3,000.00	$ 170.90	$ 10,254.00	$ 10,254.00	$ 11.00	$ 660.00	$ 660.00	$ 51.20	$ 3,072.00	$ 3,072.00
1	P1	8" Continuously Reinforced Concrete Pavement	3280	SY	$ 106.08	$ 350,304.00	$ 347,942.40	$ 86.00	$ 282,080.00	$ 282,080.00	$ 97.90	$ 321,112.00	$ 321,112.00	$ 101.00	$ 331,280.00	$ 331,280.00
2	P1	7" Continuously Reinforced Concrete Pavement	700	SY	$ 92.31	$ 64,617.00	$ 64,617.00	$ 86.00	$ 60,200.00	$ 60,200.00	$ 93.50	$ 65,450.00	$ 65,450.00	$ 96.00	$ 67,200.00	$ 67,200.00
3	P2	2" Type D HMAC Asphalt Pavement Surface Course (PG70-22, 110 LBS / SY @ 1" Thick)	2830	TON	$ 145.80	$ 412,614.00	$ 412,614.00	$ 96.00	$ 271,680.00	$ 271,680.00	$ 110.50	$ 312,715.00	$ 312,715.00	$ 122.05	$ 345,401.50	$ 345,401.50
4	P3	3" Type C HMAC Asphalt Pavement Surface Course (PG64-22, 110 LBS / SY @ 1" Thick)	4240	TON	$ 131.76	$ 558,662.40	$ 558,662.40	$ 112.00	$ 474,880.00	$ 474,880.00	$ 112.25	$ 475,940.00	$ 475,940.00	$ 102.55	$ 434,812.00	$ 434,812.00
5	P4	Concrete-Asphalt Pavement Transition Sleeper Slab	490	SY	$ 37.01	$ 18,134.90	$ 18,134.90	$ 84.20	$ 41,258.00	$ 41,258.00	$ 86.90	$ 42,581.00	$ 42,581.00	$ 88.65	$ 43,438.50	$ 43,438.50
6	P5	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	5140	GAL	$ 5.40	$ 27,756.00	$ 27,756.00	$ 4.28	$ 21,999.20	$ 21,999.20	$ 7.60	$ 39,064.00	$ 39,064.00	$ 4.40	$ 22,616.00	$ 22,616.00
7	P6	Tack Coat (MC-30 or AEP, 0.10 Gal / SY)	2570	GAL	$ 4.86	$ 12,490.20	$ 12,490.20	$ 4.28	$ 10,999.60	$ 10,999.60	$ 5.20	$ 13,364.00	$ 13,364.00	$ 3.00	$ 7,710.00	$ 7,710.00
8	P7	11" Concrete Median	340	SY	$ 148.59	$ 50,520.60	$ 50,520.60	$ 58.00	$ 19,720.00	$ 19,720.00	$ 125.40	$ 42,636.00	$ 42,636.00	$ 104.30	$ 35,462.00	$ 35,462.00
9	P8	11" Concrete Directional Island	260	SY	$ 151.69	$ 39,439.40	$ 39,439.40	$ 58.00	$ 15,080.00	$ 15,080.00	$ 125.40	$ 32,604.00	$ 32,604.00	$ 104.65	$ 27,209.00	$ 27,209.00
10	P9	8" Concrete Fillet	101	SY	$ 136.68	$ 13,804.68	$ 13,804.68	$ 78.20	$ 7,898.20	$ 7,898.20	$ 92.40	$ 9,332.40	$ 9,332.40	$ 86.50	$ 8,736.50	$ 8,736.50
11	P9	7" Concrete Fillet	540	SY	$ 135.15	$ 72,961.00	$ 72,981.00	$ 86.20	$ 46,548.00	$ 46,548.00	$ 90.20	$ 48,708.00	$ 48,708.00	$ 77.55	$ 41,877.00	$ 41,877.00
12	P10	8" Concrete Valley Gutter	158	SY	$ 100.00	$ 15,800.00	$ 15,800.00	$ 78.20	$ 12,355.60	$ 12,355.60	$ 86.90	$ 13,730.20	$ 13,730.20	$ 87.40	$ 13,809.20	$ 13,809.20
13	P10	7" Concrete Valley Gutter	1282	SY	$ 99.00	$ 126,918.00	$ 126,918.00	$ 61.06	$ 78,278.92	$ 78,278.92	$ 86.90	$ 111,405.80	$ 111,405.80	$ 79.70	$ 102,175.40	$ 102,175.40
14	P11	6" Concrete Alley Approach	370	SY	$ 97.33	$ 29,879.08	$ 36,012.10	$ 74.20	$ 27,454.00	$ 27,454.00	$ 75.90	$ 28,083.00	$ 28,083.00	$ 78.45	$ 29,026.50	$ 29,026.50
15	P12	Type A Concrete Curb & Gutter	590	LF	$ 17.00	$ 10,030.00	$ 10,030.00	$ 19.10	$ 11,269.00	$ 11,269.00	$ 20.90	$ 12,331.00	$ 12,331.00	$ 23.25	$ 13,717.50	$ 13,717.50
16	P12	Type D Concrete Curb & Gutter	510	LF	$ 19.00	$ 9,690.00	$ 9,690.00	$ 19.10	$ 9,741.00	$ 9,741.00	$ 20.90	$ 10,659.00	$ 10,659.00	$ 23.75	$ 12,112.50	$ 12,112.50
17	P12	Type I Concrete Curb & Gutter	11	LF	$ 85.00	$ 935.00	$ 935.00	$ 26.20	$ 288.20	$ 288.20	$ 20.90	$ 229.90	$ 229.90	$ 74.95	$ 824.45	$ 824.45
18	P13	Concrete Pedestrian Access Ramp	570	SY	$ 195.00	$ 111,150.00	$ 111,150.00	$ 106.20	$ 60,534.00	$ 60,534.00	$ 108.90	$ 62,073.00	$ 62,073.00	$ 191.50	$ 109,155.00	$ 109,155.00
19	P14	4" Concrete Sidewalk	1150	SY	$ 49.50	$ 56,925.00	$ 56,925.00	$ 54.03	$ 62,134.50	$ 62,134.50	$ 64.90	$ 74,635.00	$ 74,635.00	$ 80.00	$ 92,000.00	$ 92,000.00
20	P15	Storm Inlet Ring & Cover Adjustment	4	EA	$ 2,500.00	$ 10,000.00	$ 10,000.00	$ 1,133.00	$ 4,532.00	$ 4,532.00	$ 1,650.00	$ 6,600.00	$ 6,600.00	$ 1,395.00	$ 5,580.00	$ 5,580.00
21	P15	Manhole Ring & Cover Adjustment	13	EA	$ 1,500.00	$ 19,500.00	$ 19,500.00	$ 1,133.00	$ 14,729.00	$ 14,729.00	$ 1,320.00	$ 17,160.00	$ 17,160.00	$ 1,400.00	$ 18,200.00	$ 18,200.00
22	P15	Water Valve Box Ring & Cover Adjustment	66	EA	$ 750.00	$ 49,500.00	$ 49,500.00	$ 365.00	$ 24,090.00	$ 24,090.00	$ 440.00	$ 29,040.00	$ 29,040.00	$ 1,035.00	$ 68,310.00	$ 68,310.00
23	P16	Flowable Fill / 2-Sack Backfill	115	SY	$ 89.61	$ 10,305.15	$ 10,305.15	$ 119.25	$ 13,713.75	$ 13,713.75	$ 33.00	$ 3,795.00	$ 3,795.00	$ 132.05	$ 15,185.75	$ 15,185.75
1	T1	Ground Box (Type C) (per TxDOT Item 624-6007)	11	EA	$ 1,650.00	$ 18,150.00	$ 18,150.00	$ 2,009.87	$ 22,108.57	$ 22,108.57	$ 1,650.00	$ 18,150.00	$ 18,150.00	$ 1,650.00	$ 18,150.00	$ 18,150.00
2	T1	Remove Ground Box (per TxDOT Item 624-6028)	10	EA	$ 275.00	$ 2,750.00	$ 2,750.00	$ 334.98	$ 3,349.80	$ 3,349.80	$ 275.00	$ 2,750.00	$ 2,750.00	$ 275.00	$ 2,750.00	$ 2,750.00
3	T1	Conduit (2", PVC, Schedule 80, Trenched) (per TxDOT Item 618-6046)	1770	LF	$ 66.00	$ 116,820.00	$ 116,820.00	$ 80.39	$ 142,290.30	$ 142,290.30	$ 66.00	$ 116,820.00	$ 116,820.00	$ 66.00	$ 116,820.00	$ 116,820.00
4	T1	Electrical Conductor (6 AWG, Bare) (per TxDOT Item 620-6009)	477	LF	$ 3.30	$ 1,574.10	$ 1,574.10	$ 4.02	$ 1,917.54	$ 1,917.54	$ 3.30	$ 1,574.10	$ 1,574.10	$ 3.30	$ 1,574.10	$ 1,574.10
5	T1	Remove Small Sign Assembly (per TxDOT Item 644-6076)	3	EA	$ 275.00	$ 825.00	$ 825.00	$ 334.98	$ 1,004.94	$ 1,004.94	$ 275.00	$ 825.00	$ 825.00	$ 275.00	$ 825.00	$ 825.00
6	T1	Install Highway Traffic Signal (System) (per TxDOT Item 680-6003)	6	EA	$ 2,750.00	$ 16,500.00	$ 16,500.00	$ 3,349.78	$ 20,098.68	$ 20,098.68	$ 2,750.00	$ 16,500.00	$ 16,500.00	$ 2,750.00	$ 16,500.00	$ 16,500.00
7	T1	Traffic Signal Cable (Type A, 14 AWG, 3 conductor) (per TxDOT Item 684-6029)	477	LF	$ 3.30	$ 1,574.10	$ 1,574.10	$ 4.02	$ 1,917.54	$ 1,917.54	$ 3.30	$ 1,574.10	$ 1,574.10	$ 3.30	$ 1,574.10	$ 1,574.10
8	T1	Pedestrian Pole Assembly (per TxDOT Item 687-6001)	6	EA	$ 1,980.00	$ 11,880.00	$ 11,880.00	$ 2,411.85	$ 14,471.10	$ 14,471.10	$ 1,980.00	$ 11,880.00	$ 11,880.00	$ 1,980.00	$ 11,880.00	$ 11,880.00
9	T1	Remove Pedestrian Pole Assembly (per TxDOT Item 687-6005)	1	EA	$ 275.00	$ 275.00	$ 275.00	$ 334.97	$ 334.97	$ 334.97	$ 275.00	$ 275.00	$ 275.00	$ 275.51	$ 275.51	$ 275.51
10	T1, T2	Pedestrian Detection Push Button (Standard) (per TxDOT Item 688-6002)	37	EA	$ 275.00	$ 10,175.00	$ 10,175.00	$ 334.98	$ 12,394.26	$ 12,394.26	$ 275.00	$ 10,175.00	$ 10,175.00	$ 275.00	$ 10,175.00	$ 10,175.00
11	T1	Pedestrian Signal Section (LED, Countdown) (per TxDOT Item 682-6018)	14	EA	$ 770.00	$ 10,780.00	$ 10,780.00	$ 937.94	$ 13,131.16	$ 13,131.16	$ 770.00	$ 10,780.00	$ 10,780.00	$ 770.00	$ 10,780.00	$ 10,780.00
12	T1	Remove Pedestrian Signal LED Traffic Signal Lamp Unit (per TxDOT Item 690-6094)	2	EA	$ 110.00	$ 220.00	$ 220.00	$ 134.00	$ 268.00	$ 268.00	$ 110.00	$ 220.00	$ 220.00	$ 110.00	$ 220.00	$ 220.00
13	T1	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Solid, 100 mil) (per TxDOT Item 666)	41	LF	$ 0.83	$ 34.03	$ 34.03	$ 0.59	$ 24.19	$ 24.19	$ 0.83	$ 34.03	$ 34.03	$ 0.83	$ 34.03	$ 34.03
14	T1	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Broken, 100 mil) (per TxDOT Item 666)	1319	LF	$ 0.83	$ 1,094.77	$ 1,094.77	$ 0.59	$ 778.21	$ 778.21	$ 0.83	$ 1,094.77	$ 1,094.77	$ 0.83	$ 1,094.77	$ 1,094.77
15	T1	Retroreflectorized Pavement Markings (Type I, White, 8 inch, Solid, 100 mil) (per TxDOT Item 666)	1541	LF	$ 1.65	$ 2,542.65	$ 2,542.65	$ 0.59	$ 909.19	$ 909.19	$ 1.65	$ 2,542.65	$ 2,542.65	$ 1.65	$ 2,542.65	$ 2,542.65
16	T1	Retroreflectorized Pavement Markings (Type I, White, 24 inch, Solid, 100 mil) (per TxDOT Item 666)	2033	LF	$ 9.90	$ 20,126.70	$ 20,126.70	$ 7.37	$ 14,983.21	$ 14,983.21	$ 9.90	$ 20,126.70	$ 20,126.70	$ 9.90	$ 20,126.70	$ 20,126.70

BID TAB					Intergrity Services LLC			JD King			Jones Bros. Dirt & Paving			Reece Albert Inc.		
Bid Item	Pay Note	Description	Quantity	Units	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total	Unit Price	Bid Total	Actual Bid Total
17	T1	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Solid, 100 mil) (per TxDOT Item 666)	6520	LF	$ 0.83	$ 5,411.60	$ 5,411.60	$ 0.59	$ 3,846.80	$ 3,846.80	$ 0.83	$ 5,411.60	$ 5,411.60	$ 0.83	$ 5,411.60	$ 5,411.60
18	T1	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Broken, 100 mil) (per TxDOT Item 666)	863	LF	$ 0.83	$ 716.29	$ 716.29	$ 0.59	$ 509.17	$ 509.17	$ 0.83	$ 716.29	$ 716.29	$ 0.83	$ 716.29	$ 716.29
19	T1	Retroreflectorized Pavement Markings (Type I, White, Arrow, 100 mil) (per TxDOT Item 666)	19	EA	$ 192.50	$ 3,657.50	$ 3,657.50	$ 410.00	$ 7,790.00	$ 7,790.00	$ 192.50	$ 3,657.50	$ 3,657.50	$ 192.50	$ 3,657.50	$ 3,657.50
20	T1	Retroreflectorized Pavement Markings (Type I, White, 18 inch, Yield Triangle, 100 mil) (per TxDOT Item 666 or 668)	34	EA	$ 27.50	$ 934.00	$ 935.00	$ 37.52	$ 1,275.68	$ 1,275.68	$ 27.50	$ 935.00	$ 935.00	$ 27.50	$ 935.00	$ 935.00
21	T1	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Solid, 2 coats) (per TxDOT Item 666)	430	LF	$ 2.20	$ 946.00	$ 946.00	$ 0.74	$ 318.20	$ 318.20	$ 2.20	$ 946.00	$ 946.00	$ 2.20	$ 946.00	$ 946.00
22	T1	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Broken, 2 coats) (per TxDOT Item 666)	41	LF	$ 2.20	$ 90.20	$ 90.20	$ 0.78	$ 31.98	$ 31.98	$ 2.20	$ 90.20	$ 90.20	$ 2.20	$ 90.20	$ 90.20
23	T1	Retroreflectorized Pavement Markings (Type II, White, 8 inch, Solid, 2 coats) (per TxDOT Item 666)	168	LF	$ 4.40	$ 739.20	$ 739.20	$ 1.21	$ 203.28	$ 203.28	$ 4.40	$ 739.20	$ 739.20	$ 4.40	$ 739.20	$ 739.20
24	T1	Retroreflectorized Pavement Markings (Type II, White, 24 inch, Solid, 2 coats) (per TxDOT Item 666)	328	LF	$ 11.00	$ 3,608.00	$ 3,608.00	$ 4.02	$ 1,318.56	$ 1,318.56	$ 11.00	$ 3,608.00	$ 3,608.00	$ 11.00	$ 3,608.00	$ 3,608.00
25	T1	Retroreflectorized Pavement Markings (Type II, Yellow, 4 inch, Solid, 2 coats) (per TxDOT Item 666)	623	EA	$ 2.20	$ 1,370.60	$ 1,370.60	$ 0.74	$ 461.02	$ 461.02	$ 2.20	$ 1,370.60	$ 1,370.60	$ 2.20	$ 1,370.60	$ 1,370.60
26	T1	Retroreflectorized Pavement Markings (Type II, White, Arrow, 2 coats) (per TxDOT Item 666)	6	EA	$ 110.00	$ 660.00	$ 660.00	$ 107.19	$ 643.14	$ 643.14	$ 110.00	$ 660.00	$ 660.00	$ 110.00	$ 660.00	$ 660.00
					Base Bid Total =	$ 2,933,471.44	**$ 2,937,243.86**	Base Bid Total =	$ 2,108,890.70	**$ 2,108,890.70**	Base Bid Total =	$ 2,470,479.29	**$ 2,470,479.29**	Base Bid Total =	$ 2,586,621.00	**$ 2,586,621.00**
							$3,772.42			$0.00			$0.00			$0.00

MIDLAND
Engineering Services

SPECIFICATIONS

Project Name: "A" Street Mill And Inlay Paving Project
Project Number: BPU18-03

MAYOR

Patrick Payton

COUNCIL MEMBERS

District 1	Scott Dufford	District 3	Jack Ladd
District 2	John Norman	District 4	Lori Blong
At-Large	Spencer Robnett	At Large	Michael Trost

CITY ENGINEER

Matt C. Carr, P.E.



Prepared by City of Midland, Texas
Engineering Services Division

October 2020

PACKET
7.314
December 15, 2020

NOTICE TO BIDDERS

ATTENTION: Due to the Coronavirus (COVID-19) pandemic, all bidders are encouraged to mail bid packets to one of the addresses below rather than delivering them in person in the interests of maintaining social distancing:

USPS Mailing Address:		***Physical Address for mail carriers other than USPS:***
City of Midland, Texas		**City of Midland, Texas**
Attn: City Secretary's Office	**OR**	**Attn: City Secretary's Office**
P O Box 1152		**300 North Loraine St, Suite 330**
Midland, TX 79702		**Midland, TX 79701**

If bid packets are delivered in person then bidders must drop the bid packets off at the first-floor front desk of City Hall before the bid opening deadline, and social distancing measures will be maintained for the health of all parties involved.

Sealed proposals, addressed to the Mayor and City Council of the City of Midland, Texas, for the furnishing of materials and labor together with other miscellaneous and appurtenant work will be received at the office of the City Secretary, City Hall, Midland, Texas, until 2:00 p.m. on the 11th day of November, 2020, and publicly opened and read aloud at that time.

ATTENTION: The public bid opening will be in the City Council Meeting Chambers in order to enable social distancing by the attendees due to COVID-19. Attendees must wear masks while they are inside City Hall.

The Proposed Work provides for the furnishing of materials and labor for "A" Street Mill And Inlay Paving Project together with other miscellaneous and appurtenant work.

ATTENTION: A NON-MANDATORY PRE-BID MEETING TELECONFERENCE will be held at 4:00 p.m. on Wednesday, November 4th, 2020. There will be no in-person pre-bid meeting due to COVID-19.

TELECONFERENCE CALL IN NUMBER: (866) 528-2256
ACCESS CODE: 4450719

ATTENTION: All questions submitted before or after the Non-Mandatory Pre-Bid Meeting Teleconference must be submitted via email to the following email address:

jferguson@midlandtexas.gov

The deadline for submitting additional questions after the Non-Mandatory Pre-Bid Meeting Teleconference is Noon on Friday, November 6, 2020. Questions submitted before the Noon deadline will be included in the Addendum that will go out that same day along with all discussion items, questions, answers, and any new information resulting from the Non-Mandatory Pre-Bid Meeting Teleconference. Questions submitted after the Noon deadline will not receive any additional information and will instead only be directed to the information already provided.

Bids will be received on a unit price basis.

No Bid may be withdrawn within a period of 60 days after the date fixed for opening Bids.

“FAX” or telephone bids or modifications will not be accepted.

Bid Envelopes shall be plainly marked "Proposal for City of Midland”.

ATTENTION: Information for bidders, proposal forms, specifications, and plans may be obtained by emailing purchasing@midlandtexas.gov.

A bid bond or proposal guaranty is to accompany the bid, thereby guaranteeing the good faith of the bidder and that the bidder will enter into the written contract. The guaranty is to amount to five percent (5%) of the total bid and must be in the form of cash or certified check, issued by a bank satisfactory to the City of Midland, or bid bond. If in the form of cash or certified check, it is expressly understood and agreed that the City of Midland is given the right to retain such as liquidated damages if such bidder withdraws its bid anytime after such bid is opened and before official rejection of such bid, or if successful in securing the awarded thereof, such bidder fails to enter into the contract and furnish satisfactory performance and payment bonds. If a bid bond is submitted, it shall be executed on forms contained in these contract documents by a corporate surety authorized to do business in the State of Texas and acceptable to the City of Midland.

WAIVER OF ATTORNEY FEES

BY SUBMITTING A BID, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY’S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY’S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE OWNER AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

WAIVER

BIDDER’S WAIVER:

BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY’S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**

2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS;**

3. **ACCEPTANCE OR REJECTION OF ANY BIDS; OR**

4. **AWARD OF THE CONTRACT**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

City of Midland

Amy Turner
City Secretary

Form Revised October 2020

INSTRUCTION AND INFORMATION FOR BIDDERS

1. LOCATION AND EXTENT OF WORK

The work and construction contemplated to be accomplished under this Contract is located in the City of Midland, Texas, and consists of municipal public works projects as set forth in the proposal.

The location and details for the construction and related work are shown upon a set of drawings dated October 20, 2020 and numbered from 1 (1) through 37 (37) inclusive. These drawings and plans, together with the specifications, form a part of the Contract. Where figures are shown on the drawings, they shall take precedence over scaled distances and dimensions.

2. TIME AND PLACE OF RECEIVING BIDS

All bids shall be sealed, addressed to the Mayor and City Council of the City of Midland, Texas, and will be received by the City Secretary in her office at City Hall, 300 N. Loraine Street, Midland, Texas, mailing address is P.O. Box 1152, Midland, Texas 79702, until time stated on the Advertisement for Bids.

3. PREPARATION OF BID FORM

Bids shall be submitted only on the forms provided therefore in the Contract Documents, and must not be submitted in letter form or in any other form. They shall be filled out in ink in both script and figures. The Proposal form provided in the Contract Documents sets forth in detail the various items and approximate quantities thereof contained in the Project. Bids submitted in any other form will be considered irregular and will be returned to the Bidder without receiving consideration by the Owner.

All bids must be submitted in sealed envelopes bearing on the outside the name of the Bidder, his address, and the name of the Project for which the bid is submitted. It is the sole responsibility of the Bidder to see that his bid is received in proper time. Any bid received after the scheduled closing time for receipt of bids will be returned to the Bidder unopened.

The bid must be signed in the name of the Bidder and must bear the signature in longhand of the persons duly authorized to sign the bid.

Changes in or additions to the bid form, recapitulations of the work bid upon, alternative proposals, or any other modification of the bid form which is not specifically called for in the Contract Documents may result in the Owner's rejection of the bid as not being responsive to the invitation. No oral or telephonic modification of any bid submitted will be considered and a telegraphic modification may be considered only if the postmark evidences that a confirmation of the telegram duly signed by the Bidder was placed in the mail prior to the opening of bids.

The bid submitted must not contain any erasures, interlineations or other corrections unless each such correction is suitably authenticated by affixing in the margin immediately opposite the correction the surnames of the person or persons signing the bid.

4. EXAMINATION OF SITE, DRAWINGS, ETC

Each Bidder is requested to visit the site of the proposed work and fully acquaint himself with the conditions relating to the construction and labor so that he may fully understand the facilities, difficulties and restrictions attending the execution of the work under the Contract. Bidders shall thoroughly examine and be familiar with the Plans and the Specifications. The failure or omission of any Bidder to receive or examine any form, instrument, addendum or other document or to visit the site and acquaint himself with conditions there existing shall in no way relieve any Bidder from obligations with respect to his bid or to the Contract. The submission of a bid shall be taken as prima-facie evidence of compliance with this section.

5. WITHDRAWAL OF BIDS

Any Bidder may withdraw his bid, either personally, by written request, or by telegraphic request confirmed in the manner specified above, at any time prior to the scheduled closing time for receipt of bids.

6. AGREEMENT AND BONDS

The successful Bidder will be required to furnish a Performance Bond, and a Payment Bond, in an amount equal to one hundred percent (100%) of the total Contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas, and acceptable to the City of Midland. All Bonds must be executed on forms contained in these Contract Documents. The form of Agreement which the successful Bidder, and Contractor will be required to execute is also included herewith. The form of Agreement and the form of the Bonds should be carefully examined by the Bidder.

7. INTERPRETATION OF PLANS AND DOCUMENTS

If any person contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans, Specifications, or other Contract Documents or finds discrepancies in, or omissions from the Plans or Specifications, he may submit to the Owner written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the Contract Documents will be made only by Addendum duly issued and a copy of such addendum will be mailed or delivered to each person receiving a set of such Contract Documents. The Owner will not be responsible for any other explanations or interpretations of the Contract Documents. No oral interpretations of any provision in the Contract Documents will be made to any Bidder.

8. BIDDERS INTERESTED IN MORE THAN ONE BID

No person, firm or corporation shall be allowed to make, or file more than one bid for the same work unless alternate bids are specifically called for. A person, firm or corporation that has submitted a sub-proposal to a Bidder, or that has quoted prices of materials to a Bidder is not thereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or making a prime proposal.

9. AWARD OF CONTRACT

The Owner reserves the right to reject any or all bids submitted and not make an award. The Owner also reserves the privilege of accepting any item as a separate contract or the combination of items of a contract. The Owner and Bidder agree that, if the Contract is awarded, that it will be awarded to either the lowest responsible bidder/proposer, or to the bidder/proposer who provides goods or services at the best value for the

City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code. Further, the Owner reserves all rights granted by Section 271.027 of the Texas Local Government Code. The Owner reserves the right to award the bid to the lowest responsible bidder.

10. OPENING OF BIDS

Bidders are invited to be present at the opening of the Proposals. All Proposals shall be made and received with the understanding that the Bidder accepts the terms and conditions contained in the Contract Documents.

11. COMPARISON OF BIDS

All bids will be compared on the basis of the Proposal.

12. BID GUARANTY

A Certified Check, Bank Money Order, issued by a bank satisfactory to the Owner, or a Bidder's Bond on the form provided and approved by the City Attorney, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the Owner, must accompany the Bidder's Proposal, as a guaranty that the Bidder will enter into a Contract and execute the required Performance Bond and Guaranty in the forms provided within fifteen (15) days after notice of award of Contract to him. Bids or Proposals without the required Bid Guaranty will not be considered. All Proposals shall remain in effect for a period of thirty (30) days after date of bid opening.

13. CONTRACT DOCUMENTS

The complete Contract Documents may include the following: (1) Notice to Bidders, (2) Instructions and Information for Bidders, (3) Proposal, (4) Experience Record, (5) Bid Bond, (6) Contract Agreement, (7) Performance Bond, (8) Payment Bond, (9) Insurance Certificate, (10) General Conditions, (11) Special Conditions, (12) Detailed Specifications all of which are bound together, and/or (13) Certificate of Payment. The Contract Documents shall also include Drawings or Detailed Plans for the proposed work. A complete set of the Contract Documents and the detailed plans are on file in the Office of the City Secretary.

14. TIME ELEMENT

The work to be done under this Contract shall be commenced within fifteen (15) days from the date of the notice from the City to the Contractor to commence work. The Contractor shall commence performance of the Contract on the date stated in the City's notice to the Contractor to proceed and shall complete the performance of the Contract without delay.

15. PAYMENTS

Payments to the Contractor will be based upon the prices stated in the proposal and upon basis of the work performed as determined by the Engineer. The Engineer's determination shall be considered as final unless changes are authorized by the City in writing which shall affect the work. Upon issuance of the Certificate of Completion, the Engineer shall proceed to take final measurements and prepare a final statement of the value of all work performed and materials furnished under the terms of the agreement and shall certify same to the Owner who shall pay to the Contractor on or after the 30th day, and before the 35th day, after the date of the

Certificate of Completion, the balance due the Contractor under the terms of this agreement, provided he has fully performed his contractual obligations under the terms of this Contract, and said payment shall become due in any event upon said performance by the Contractor. Notwithstanding any provision of these Contract documents to the contrary, it is expressly understood and agreed by the parties hereto that neither the Certificate of Acceptance, nor the final or any other payment hereunder, nor any partial or total occupancy or possession of the project by the Owner, shall relieve the Contractor of his responsibility for completion of the entire project in a good workmanlike manner and in full compliance with the plans and specifications and the fulfillment of any warranties which may be required in the Contract documents.

Revised October 2020

NOTICE TO BIDDERS

IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED **CONTRACT AND INSURANCE REQUIREMENTS ARE NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/CONTRACTOR OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/CONTRACTOR MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.

IF THE SELECTED BIDDER/CONTRACTOR CANNOT MEET THE ABOVE REQUIREMENTS, THEN **THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER**.

IMPORTANT NOTICE – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/CONTRACTOR MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE, WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

COMPLIANCE: Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006,

please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

ANY VENDOR WHO FAILS TO COMPLY WITH THE TERMS OF THE AWARD **MAY BE DECLARED AN IRRESPONSIBLE VENDOR**. BIDS SUBMITTED BY SAID VENDOR SHALL NOT BE CONSIDERED AGAIN FOR A MINIMUM PERIOD OF SIX MONTHS AS DETERMINED BY THE CITY MANAGER.

IMPORTANT NOTICE

Conflict Of Interest Reporting Requirements

Compliance with LOCAL GOVERNMENT CODE TITLE 5. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES SUBTITLE C. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES OF MORE THAN ONE TYPE OF LOCAL GOVERNMENT CHAPTER 176. DISCLOSURE OF CERTAIN RELATIONSHIPS WITH LOCAL GOVERNMENT OFFICERS; PROVIDING PUBLIC ACCESS TO CERTAIN INFORMATION.

Form CIQ: This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. This questionnaire shall be filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code. A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

Bidders are responsible for filing Conflict of Interest form "CIQ" in accordance with the above referenced statute. Failure to do so is a class C Misdemeanor. Contracts or Purchase Orders awarded to a vendor that has violated this law is subject to termination at such time that the violation is discovered with no recourse to the City of Midland. The bidder will be subsequently removed from the bidders list for a minimum of one year.

When there is no known conflict of interest as defined by the statute, it is not necessary to file/submit the Form CIQ. The form must be submitted if a conflict is subsequently discovered.

By submitting a response to this request, vendor represents that it complies with the requirements of Chapter 176 of the Texas Local Government Code.

For a current list of the local government officers go to: http://www.midlandtexas.gov/

Upon completion of the form, sign and submit with bid or mail to:

City of Midland
Attn: City Secretary
PO Box 1152
Midland, Texas 79702

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY
CERTIFICATION OF FILING

Certificate Number:
2020-685755

Date Filed:
11/03/2020

Date Acknowledged:

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.
JD King
Seminole, TX United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.
City of Midland

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.
BPU18-04
construction services

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary
JD King	Seminole, TX United States	X	

5 Check only if there is NO Interested Party. ☐

6 UNSWORN DECLARATION

My name is Chad King, and my date of birth is 8-10-75.

My address is 134 CR 4104 C (street), Seminole (city), TX (state), 79360 (zip code), Gaines (country).

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Gaines County, State of Texas, on the 3 day of 11 (month), 2020 (year).

Signature of authorized agent of contracting business entity
(Declarant)

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY
Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 _____ _____

Signature of vendor doing business with the governmental entity Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

Consideration of Location of Bidder's Principal Place of Business
For Bids of $50,000 up to $100,000 for Services and $500,000 for Commodities
Affidavit of Eligibility

Pursuant to Texas Local Government Code 271.9051, in purchasing real property, personal property that is not affixed to real property, or services, if the City receives one or more bids from a bidder whose principal place of business is in the City of Midland and whose bid is within five percent (5%) of the lowest bid price received by the City from a bidder who is not a resident of the City of Midland, the City may enter into a contract with:

(1) the lowest bidder; or

(2) the bidder whose principal place of business is in the City of Midland if the City Council determines, in writing, that the local bidder offers the City the best combination of contract price and additional economic development opportunities for the City of Midland created by the contract award, including the employment of residents of the City of Midland and increased tax revenues to the City of Midland.

In order to receive consideration, bidders must submit this affidavit to:

Erika Martinez
Purchasing Manager
City of Midland
300 N. Loraine St.,
PO BOX 1152
Midland, TX 79702-1152

Complete all areas below. Incomplete affidavits may be rejected.

Local Business Name: _____

Local Address (must be within the City limits): _____

1. Is the above address the principal place of business for the business named above? ☐ Yes ☐ No
2. How many residents of the City of Midland are employed at the above business location? _____
3. Year your business was established in the City of Midland: _____
4. If you collect sales tax for ANY class of customer, provide the following Reseller information:

   Reseller Permit Number: _____

   Company Name and Address (as it appears on permit):

   _____

   _____

   _____

5. Does your business have more than one office in the State of Texas? ☐ Yes ☐ No
   If Yes, identify the office location considered as the point-of sale for the purpose of sales tax calculation:

   _____

   _____

6. Was the local business required to pay business and/or real property tax for the most recent tax year?

   ☐ Yes ☐ No

   If Yes, did the local business pay any of this tax to the City of Midland? ☐ Yes ☐ No

Under penalty of perjury, the undersigned states that the foregoing statements are true and correct. It is further acknowledged that any person, firm, corporation or entity intentionally submitting false information to the City in an attempt to qualify for eligibility shall be prohibited from bidding on City of Midland products and services for a period of one (1) year.

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

TECHNICAL SPECIFICATIONS

FOR: "A" Street Mill And Inlay Paving Project

All construction for this project must conform to the City of Midland "STANDARD SPECIFICATIONS" issued by the Engineering Services Department which are herein made a part of these specifications by reference.

The bidder/contractor is to pay particular attention to the following items in the "STANDARD SPECIFICATIONS" for this project.

1) Preparation of Right of Way
2) Excavation, Embankment and Preparation of Subgrade
3) Concrete Curb and Gutter, Sidewalks, Driveways, Valley Gutters, Center Drains and Rip Rap
4) Concrete Structures
5) Flexible Base, Caliche
6) Bituminous Prime
7) Bituminous Tack
8) Hot Mix Asphaltic Concrete
9) Double Course Asphalt Surface Treatment
10) Preparation of Asphaltic Concrete Surface for Overlay or Seal Coat
11) Seal Coat
12) Asphalt –Rubber Seal Coat
13) Polymer Modified Slurry
14) PVC Pipe Casings
15) Water Line Specifications
16) Gravity Flow Sewers for Waste Water and Storm Water

The "STANDARD SPECIFICATIONS" are available from the Department of Engineering Services, City Hall, 300 North Loraine Street, Suite 510, Midland, Texas.

GENERAL CONDITIONS AND PROVISIONS

1. DEFINITIONS

The following terms as used in this contract shall be defined and interpreted as follows:

(a) "Contract" or "This Contract" or "Agreement": The particular Contract executed by the Contractor and the Owner of which these general conditions are integral parts.

(b) "Contractor": The person, firm or corporation to whom this Contract is awarded by the Owner and who is a party thereto.

(c) "Owner", "City", or pronouns instead: The entity that is a party to this Contract, contracting under the official name of the City of Midland, Texas or the City Council of the City of Midland.

(d) The words "as directed", "as required", "as permitted", "acceptable to", "satisfactory", and the words of like import, shall mean that the direction, requirement or permission of the Engineer is intended.

(e) "Engineer": The word "Engineer" used in these specifications or in this Contract means the duly authorized representative or agent of the Owner supervising the performance of the Contract and representing the Owner in his Contractual relations and negotiations with the Contractor during the period of construction. The Engineer will be represented by assistants and inspectors authorized to act for him. On all questions concerning the acceptability of material or equipment, the classifications of material, the execution of the work, conflicting interest of Contractors performing related work and the determination of costs, the decision of the Engineer shall be final, but shall not relieve the Contractor of his responsibility for completion of the entire work in a good and workmanlike manner and in full compliance with the plans and specifications.

Inspectors are required to see that all the provisions of the Contract specifications are faithfully adhered to. Any inspector may, if authorized by the Engineer, stop the work entirely if there is not sufficient quantity of suitable and approved material on the ground to carry it on properly, or for any other good and sufficient cause. Any work done in the absence of an inspector may be ordered opened up for thorough examination, and must be rebuilt or replaced at the Contractors sole expense if found to be deficient or not in accordance with the plans and specifications. But no approval by an inspector shall be construed as an acceptance of defective or improper work or material, which must be rebuilt or properly replaced whenever discovered. Inspectors have not the power to give orders or directions under any possible circumstances, except as herein defined and provided, and on authority of the Engineer

(f) "Subcontractor": Any person, firm or corporation other than an employee of the contractor, supplying, for and under agreement either with the Contractor or any subcontractor of the Contractor, labor or material, or both, at the site of the project in connection with this Contract.

(g) "Project": The structure or improvement to be constructed in whole or in part through the performance of this Contract.

(h) "Work on the Project": Such work as is performed or ordinarily would be performed at the site of the project.

(i) "Surety": Any firm or corporation executing a Surety Bond or Bonds payable to the Owner securing the performance of the Contract either in whole or in part.

(j) Whenever certain articles are specifically mentioned, by brand name or name of the manufacturer, such materials shall be taken as standard and guide for quality, operation, capacity, etc. The term "or equal" shall mean that articles of equal characteristics as required, but of different brand or manufacturer, may be substituted and accepted, subject in all instances to the approval of the Engineer.

(k) "Special Provisions", "Special Conditions", "Project Specific Specification" or "Job Specific Specifications" are included as amendment of and/or additions to the General Conditions and/or Standard Specifications for the particular project in which they are included and will take precedence over the General Conditions and Standard Specifications only in so far as the amendments and/or additions. All other provisions in the General Conditions and/or Standard Specifications will not be affected.

(l) "Drawings" "Contract Drawings", "Plans" "Detail Drawings" "Detail Sheets" or "Plans and Details" refers to the set of drawings which show the details for the construction and related work anticipated on this project and upon which bids are being solicited.

2. CONFLICT OF PROVISIONS

Unless it is specifically provided otherwise, any provision in any other part of this Contract which may be in conflict or inconsistent with any provision in the General Conditions and Provisions shall be void to the extent only of such conflict or inconsistency.

3. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall have charge of and shall be responsible for the entire work under this Contract until its completion and acceptance by the city. A competent superintendent, foreman or other representative, invested with sufficient authority to conduct the work properly, shall be maintained on the work at all times.

It is expressly agreed and understood that no decision of the Engineer or any certificate issued nor payment made to the Contractor nor partial or entire use or occupancy of the work by the Owner, shall be an acceptance of any work or materials not in accordance with this Contract, nor constitute a waiver of the Contractor's responsibility to perform the entire work in a good and workmanlike manner and in accordance with the plans and specifications.

4. TIME ELEMENT

The work shall be commenced and finished within the time set out in the Form of Contract.

The time of completion of this Contract is an essential element and consideration. Since, therefore, time is of the essence thereof, and in the event of delay in the completion of the entire work required hereunder beyond the period prescribed, or beyond the period for which time may be extended by authority of the Owner for good cause shown, the Owner shall be paid damages for such delay. Inasmuch as the amount of such damages is difficult to ascertain, it is hereby stipulated and agreed that such damages shall be liquidated and the Owner shall be paid damages at the rate as set forth in the Special Provisions, said damages to be paid to the Owner for each and every day that the Contractor be in default in completing the entire work required under this Contract. The Owner shall have the right to deduct such amounts from any monies due, or which may become due, under

this Contract. In the event that no amount for such damages is shown in the Special Provisions of these specifications, it is agreed that the amount of damages shall be Five Hundred dollars ($500.00) per day.

If during the progress of the work weather conditions, or other circumstances beyond the control of the Contractor should prevail to the extent that the work cannot be prosecuted and completed within the time specified in the Contract, the Contractor shall file with the Engineer within one week of the occurrence of such delay a request for a credit on the time of completion. Unless the Contractor files such request, the liquidated damages specified above will be enforced.

5. PAYMENT TO CONTRACTOR

ESTIMATED QUANTITIES:

This Contract, including the specifications, plans and estimate, is intended to show clearly all work to be done and material to be furnished hereunder. Where the estimated quantities are shown for the various classes of work to be done and material to be furnished under this Contract, they are approximate and are to be used only as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under this Contract may differ somewhat from these estimates, and that where the basis for payment under this Contract is the unit price method, payment shall be for the actual amount of such work done and the material furnished.

Where payment is based on the unit price method, the Contractor agrees that he will make no claim for damages, anticipated profits or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually furnished under this Contract and the estimated quantities contemplated and contained in the proposal provided, however, that in case the actual quantity of any major item should become as much as twenty percent (20%) more than, or twenty percent (20%) less than the estimated or contemplated quantity for such items, then either party of this agreement, upon demand, shall be entitled to a revised consideration upon the portion of the work above or below twenty percent (20%) of the estimated quantity.

A "Major Item" shall be construed to be any individual item incurred in the proposal that has a total cost equal to or greater than five percent (5%) of the total Contract cost, computed on the basis of the proposal quantities and the Contract unit price.

Any revised consideration is to be determined by agreement between the parties, otherwise by the terms of this Contract, as provided under "Extra Work".

PAYMENT; RETAINAGE:

On or before the 1st day of each month the Contractor shall prepare an itemized statement showing the total value of the work completed by the Contractor up to and including the 25th day of the preceding month; said statement shall also include the value of all sound materials delivered on the site of the work that are to be fabricated into the work. NO ESTIMATE WILL BE MADE ON UNCOMPLETED PORTIONS OF THE WORK.

After all work is completed by Contractor, including all Change Orders altering the original scope and amount of the contract are completed, and the City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, the City may thereafter issue payment to Contractor in the amount of the contract and all Change Orders. The City shall be the final judge of when the

work is completed by Contractor. The City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to the City's requirements.

The City may make periodic payments to Contractor; provided, however, such periodic payments may only be made pursuant to this section, and only after all work and all Change Orders are completed by Contractor and approved by the City. The approval shall be in the City's sole discretion. Requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the City or the City's representative, the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

FINAL COMPLETION AND ACCEPTANCE:

Within ten (10) days after the Contractor has given the Engineer written notice that the work has been completed, or substantially completed, the Engineer and the Owner shall inspect the work and within said time, if the work be found to be completed or substantially completed in accordance with the Contract documents, the Engineer shall issue to the Owner and the Contractor his Certificate of Completion.

FINAL PAYMENT:

Upon the issuance of the Certificate of Completion, the Engineer shall proceed to make final measurements and prepare final statement of the value of all work performed and materials furnished under the terms of the Contract and shall certify same to the Owner, who shall pay to the Contractor the balance due the Contractor under the terms of this Contract, provided he has fully performed his obligations under the terms of this Contract. Notwithstanding any provision of these Contract Documents to the contrary, it is expressly understood and agreed by the parties hereto that neither the certificate of acceptance, nor the final or any other payment hereunder, nor any partial or total occupancy or possession of the project by the Owner, shall relieve the Contractor of his responsibility for completion of the entire project in a good and workmanlike manner and a full compliance with the plans and specifications and the fulfillment of any warranties which may be required in the Contract Documents.

6. OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

In addition to the amount which the Owner may otherwise retain under the Contract, the Owner may withhold a sufficient amount or amounts of any payment or payment otherwise due to the Contractor, as in this judgment may be necessary to cover:

(a) Payments which may be past due and payable for just claims against the Contractor or any subcontractor for labor or materials furnished for the performance of this Contract.

(b) For defective work not remedied.

(c) For failure of the Contractor to make proper payments to his subcontractors.

7. CERTIFICATE OF PAYMENT

Contractor shall, prior to issuance of final payment pursuant to the terms herein stated, provide proof satisfactory to the owner that all debts, bills and expenses incurred by the Contractor, his agents, employees or subcontractors employed by him, for labor, wages, materials and other purposes, in the furtherance of this

project, have been paid and satisfied in full. Satisfactory proof shall consist of an executed Certificate of Payment.

8. EXTRA, ADDITIONAL OR OMITTED WORK PAYMENT

The Owner, upon proper action by its governing body, may require changes in this Contract, or additions to, or deductions from the work to be performed or the materials to be furnished pursuant to this Contract. No employee, agent or representative of the Owner, with the exception of the governing body authorized to award this Contract, has any power to approve any change in this Contract and it is the responsibility of the Contractor before proceeding with any change to satisfy himself that the change has been properly authorized on behalf of the Owner. No charge for any extra work or other change in the Contract will be allowed unless the extra work or change has been authorized in writing by the Owner, or its duly authorized representative, and the price therefore is stated in such written authority.

Adjustments, if any, in the amounts to be paid the Contractor where such adjustments are made by reason of additions to or deductions from the quantities of units or items bid upon in the proposal schedules, shall be paid for in accordance with the provisions of the Specifications, at the unit and/or lump sum prices bid in such proposal schedules.

Adjustments, if any, in the amounts to be paid the Contractor where such adjustments are made by reason of additions of items not appearing in the proposal schedules, or addition of work of such a nature that unit and/or lumps sum prices contained in the proposal schedules cannot reasonably or equitably be applied to provide proper payment therefore, the payment to the Contractor for such work shall be determined by one or more of the following methods:

(a) By an acceptable lump sum proposal from the Contractor.

(b) By unit prices contained in the Contractor's proposal and incorporated in the Contract or fixed by subsequent agreement between the Owner and the Contractor.

(c) By a cost method pursuant to which the Contractor shall be paid the costs of the change or addition. He shall be required to keep and present in such form as the Owner may direct, a correct account of the cost of the change or addition, together with all vouchers therefore. The cost may include an allowance for overhead and profit not to exceed fifteen percent (15%) of the net cost.

In computing the cost, there shall be considered reasonable and proper net expenditures for labor, materials, power tools and equipment, pro rata charges for foremen, deductions for social security, old age and unemployment benefits and workmen's compensation insurance and surety bond premium. In computing cost of machinery and equipment involved in additional work, the amount to be paid shall be not more than one hundred percent (100%) of the latest schedule of "Equipment Ownership Expense" adopted by Associated General Contractors of America. No overhead and profit shall be allowed on the deductions for Social Security, old age and unemployment benefits. All other expenditures shall be treated as overhead costs.

No extra work shall be performed or change made unless in pursuance of a written order from the Owner stating that the extra work or change is authorized and no claim for an addition to the Contract sum shall be valid unless so ordered; provided, however, that nothing in this Article shall excuse the Contractor from proceeding with the prosecution of the work so changed.

The Contractor shall, when required by the Owner, furnish an itemized breakdown of the quantities and prices used in computing the value of any change, addition or deduction that might be ordered.

If the Contractor should claim that any instruction, request, drawing, specification, action, condition, omission, default, or other situation obligated or may obligate the Owner to pay additional compensation to the Contract, or constitutes a waiver of any provision in the Contract, he shall notify the Owner in writing of such claim within ten (10) days from the date he has actual or constructive notice of the factual basis supporting the claim. The Contractor's failure to notify the Owner within such ten (10) days period shall be deemed a waiver and relinquishment of any such claim against the Owner. The procedure for consideration of such claims shall be as stated in this Article.

9. ASSIGNMENT OF CONTRACT

The Contractor shall not assign this Contract or any part thereof, nor any monies due or to become due thereunder without the prior written consent of the Owner. No assignment of this Contract shall be valid unless it shall contain a provision that the funds to be paid to the assignee under the assignment are subject to a prior lien for services rendered or material supplied for performance of the work called for under this Contract in favor of all persons, firms, or corporations rendering such services or supplying such materials.

10. SUBCONTRACTORS

Specialty subcontractors may be utilized for the performance of such parts of the work under this Contract as, under normal practices, are performed by Specialty subcontractors, unless the Owner determines that the Contractor has heretofore customarily performed such specialty work with his own organization and is equipped to do so, or unless the Owner determines that performance of the specialty work by Specialty subcontractors will result in increased costs or inordinate delays.

The Contractor shall not subcontract any work to be performed or any materials to be furnished in the performance of this Contract without the prior written consent of the Owner. If the Contractor shall subcontract any part of this Contract, the Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractor and of the persons either directly or indirectly employed by the subcontractor as he is for the acts and omissions of persons directly employed by himself. Nothing contained in this Contract shall create any Contractual relations between any subcontractor and the Owner. The Contractor shall ensure that the sub contractor has the insurance coverage required by this contract.

The Owner's consent to or approval of any subcontract under this Contract shall not in any way relieve the Contractor of his obligations under this Contract and no such consent or approval shall be deemed to waive any provisions of this Contract.

11. SUSPENSION OF WORK

Pending settlement of disputes on any point of controversy, the Engineer may suspend action on all or any part of the work. The Contractor shall not be entitled to any claim for loss or damage by reason of such, nor shall he be entitled to extension of time, although such extension of time may be granted by the Engineer if he deems it in the interest of the work.

12. RIGHT OF OWNER TO TERMINATE CONTRACT

If, in the opinion of the Engineer, the Contractor shall be improperly performing the work under this Contract, or shall neglect or refuse to take out or rebuild such work as shall have been rejected by the Engineer as being defective or unsuitable, or if, any time, the Engineer shall be of the opinion that the work is unnecessarily delayed and will not be finished within the prescribed time, or if the Contractor shall abandon the work, or shall neglect or refuse to comply with the instructions of the Engineer relative thereto, or shall fail in any manner to comply with the Specifications or Stipulations herein contained, the Engineer shall notify the Contractor to that effect in writing, and if the Contractor shall not within five (5) days thereafter take such measures as will, in the judgment of the Engineer, insure the satisfactory performance or construction of the work, the City may annul and cancel the Contract, in which event it shall notify the Contractor to discontinue all work under this Contract, and the Contractor shall immediately respect such notice and stop work and cease to have any rights to the possession of the ground and shall forfeit his Contract. Such annulment shall not entitle the Contractor to any claim for damages on account thereof, nor shall it affect the right of the City of Midland to recover damages on account of such failure. The City Council may thereupon advertise and re-let a new Contract for the uncompleted work without further ordinance, in the same manner as was followed in the letting of this Contract, and any excess of cost arising there from over and above what would have resulted from the prices set forth in this Contract will be charged against the Contractor and his surety or sureties hereto, who shall be liable therefore.

13. RIGHT OF CONTRACTOR TO TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of three (3) months, through no act or fault of the Contractor or of anyone employed by him, or if the City should fail to make payment to the Contractor within thirty (30) days after such payment is due, as set out in the Contract, then the Contractor may, upon seven (7) days written notice to the City and the Engineer, stop work or terminate his Contract and recover from the City payment for all work executed and for any loss sustained upon any plant or materials and reasonable profit and damages.

14. INCIDENTAL WORK

Any and all minor details of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of and included with the work for which the prices are named in the Contract Documents. The Contractor will not be entitled to any extra or additional compensation therefore, unless specifically stated otherwise.

15. PERMITS – COMPLIANCE WITH LAW

The Contractor shall, at his expense, obtain all permits and licenses necessary for the performance of this Contract, and give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations governing the Contractor's performance of the Contract.

Portions of this contract qualify for exemption pursuant to the provisions of the Texas Limited Sales, Excise and Use Tax Act. The Contractor shall obtain a sales tax exemption certificate from the City. All labor performed on the project and all materials incorporated into the project qualify for such tax exemption. However, equipment and parts for equipment purchased to be used on the project, but are not incorporated into the project; do not qualify for said tax exemption. Contractor shall issue a resale certificate in lieu of paying such sales tax for all

materials incorporated into the project. Further Contractor shall separate the charges for materials incorporated into the project from the charges for labor.

16. INSPECTION BY OWNER

The Owner and its representatives shall at all times have access to all parts of the work and to the shops wherein the work is in preparation for the purpose of inspection, and the Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

The Owner shall have the right to reject materials and workmanship which are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. If the Contractor does not correct such rejected work within a reasonable time, fixed by written notice, the Owner may correct same and charge the expense to the Contractor. No inspector shall have the power to waive the obligation resting upon the Contractor to furnish good material or do work as herein prescribed, and any failure or omission of any inspector or the Engineer to condemn any defective material or work shall not release the Contractor from the obligation to at once tear out, remove and properly rebuild the same at any time upon discovery of the defect and upon receipt of notice of the Engineer to do so.

Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out any portion thereof, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any respect due to the fault of the Contractor or his subcontractor, he shall defray all the expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and materials necessarily involved in such examination and replacement, plus fifteen percent (15%) for overhead and profit, shall be allowed the Contractor.

Where the Specifications require work to be specifically tested or approved, it shall not be tested or covered up without timely notice to the Owner of its readiness for inspection and without the approval or consent thereto by the Owner. Should any such work be covered up without such notice, approval or consent, it must, if required by the Owner, be uncovered for examination at the Contractor's expense.

17. PATENTS

The Contractor shall hold and save the Owner and its officers, agents, servants, and employees harmless from liability of any nature or kind, including all costs and legal expenses, for or on account of, any patented or unpatented invention, process, article or appliance, manufactured for or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract.

18. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement or arbitration, if such other Contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

The Contractor must ascertain to his own satisfaction the scope of the project and the nature of any other Contracts that have been or may be awarded by the Owner in the prosecution of the project to the end that the Contractor may perform this Contract in the light of such other Contract, if any.

Nothing herein contained shall be interpreted as granting the Contractor exclusive occupancy of the site of the project. The Contractor shall not cause any unnecessary hindrance or delay to any other Contractor working on the project. If the performance of any Contract for the project is likely to be interfered with by the simultaneous execution of some other Contract or Contracts, the Owner shall decide which Contractor shall cease work temporarily and which shall continue, or whether the work under the Contracts can be coordinated so that the Contractors may proceed simultaneously. The Owner shall not be responsible for any damages suffered or extra costs incurred by the Contractor, resulting directly or indirectly from the award or performance or attempted performance of any other Contract or Contracts on the project, or caused by any decision or omission of the Owner respective to the order of precedence in the performance of Contracts.

19. NOTICE AND SERVICE THEREOF

Any notice from one party to another under the Contract shall be in writing and shall be dated and signed by the party giving such notice or by duly authorized representative of such party. Any such notice shall not be effective for any purpose whatsoever unless served in the following manner; namely, if the notice is given to the Owner, (a) by personal delivery thereof to the individual duly authorized to direct and supervise the project of the Owner, or (b) by depositing the same in the United States Mail, enclosed in a sealed envelope, addressed to the City of Midland, 300 North Loraine Street, Midland, Texas, 79701, postage prepaid and certified; or if the notice is given to the contractor (a) by personal delivery thereof to the project superintendent or other person authorized to act for the contractor, or (b) by depositing the same in the United States Mail, enclosed in a sealed envelope, addressed to the Contractor at his regular place of business or at such other address as may have been established for the conduct of the work under this Contract, postage prepaid and certified; or (c) if the notice is given to the Surety or any other person by personal delivery to such Surety or other person, or by depositing the same in the United States Mail, enclosed in a sealed envelope addressed to such Surety or other person, at the address of such surety or other person last communicated by him to the party giving the notice, postage prepaid and certified.

20. QUALITY OF MATERIALS AND WORKMANSHIP

It is the intention of this Contract to have only first class materials and the best workmanship throughout, and the methods and appliances adopted by the Contractor must be such as will secure a satisfactory quality of work and will enable him to complete the work in the time agreed upon. If at any time such methods and appliances appear inadequate, the Engineer may order the Contractor to improve their character or increase their efficiency, and the Contractor must conform to such order; but the failure of the Engineer to order such improvement of methods or increase of efficiency will not relieve the Contractor from his obligations to perform good work or finish it in the time agreed upon. The Contractor shall submit samples or specimens of any and all materials proposed to be used in the work when required to do so by the Engineer. All materials must be of specified quality and fully equal to approved samples. All work must be done and completed in a thorough and workmanlike manner. All materials furnished and all work done must be satisfactory to the Engineer and will be subject to rigid inspection, and if not in accordance with the Specifications in the opinion of the Engineer, shall be made to conform thereto.

It is understood that except as otherwise specifically stated in the Contract, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence of temporary

construction of every nature, and all other services and facilities required for the completion of the Contract within the specified time.

21. SPECIAL METHODS

The Engineer may consent to special methods for carrying out the work in difficult cases, but the Contractor will not be relieved of responsibility for the result. The Contractor shall be responsible for the result of all work performed by him whether directed by the Engineer or not.

22. REMOVAL OR REPLACEMENT OF WORK DONE WITHOUT LINES OR GRADES

Any work done without lines or grades given by the Engineer or under his direction or without the supervision of an inspector, may be ordered removed and replaced by the Engineer at the Contractor's expense.

23. COVERING WORK

No work shall be covered until it has been examined and approved by the Engineer.

24. UNFAVORABLE WEATHER

During unfavorable weather and other adverse conditions, only such portions of the work may be done which will not be damaged thereby, unless by special means or precautions approved by the Engineer.

25. ALL WORK SUBJECT TO FINAL INSPECTION

Failure to neglect on the part of the Engineer or his inspectors to condemn or reject bad or inferior work or materials shall not be construed to imply his acceptance of such work or materials if it becomes evident at any time prior to the final acceptance of the work and the release of the Contractor.

26. PUBLIC CONVENIENCE

When materials for construction are brought on the work site they shall be neatly piled so as to cause as little obstruction to travel as possible, and so that they may be conveniently inspected.

No material or other obstruction shall be placed within five (5) feet of fire hydrants, which must at all times be readily accessible to the fire department, nor shall any material be piled within two (2) feet of any trees.

The Contractor shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the Contract and shall be responsible for the proper care and protection of all materials delivered and work performed until completion, and final acceptance by the Owner.

The Contractor shall provide such heat, covering and enclosures as are necessary to protect all work and materials against damage by weather conditions.

The Contractor shall take adequate precautions to protect existing sidewalks, curbs, pavement, utilities, adjoining property, and structures, and avoid damage thereto, and he shall at his own expense completely repair any damage thereto caused by his operations.

If required by the Engineer, the Contractor shall shore up, brace, underpin, and protect as may be necessary, all foundations, and other parts of all existing structures adjacent and adjoining the site of the Project, which are in any way affected by the excavations or other operations connected with the completion of the work under this Contract. Whenever any notice is required to be given by the Owner or the Contractor to any adjoining or adjacent landowner or other party before commencement of any work under this Contract, such notice shall be given by the Contractor. The Contractor shall indemnify the Owner and save it harmless from any damages on account of settlement or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

During the progress of the work the convenience of the public and of the residents along streets must be provided as far as practicable. Convenient access to driveways, houses and buildings along streets must be maintained whenever possible.

Temporary approaches and crossings of streets and sidewalks must be provided and kept in good condition whenever practicable.

The Contractor shall provide and maintain such fences, barriers, "Street Closed" signs, red lights and watchmen as may be necessary to prevent avoidable accidents to residents and to the public.

The Contractor alone shall be held responsible for all injuries to persons, and for all damages to property of the City or others, caused by or resulting from the negligence of himself, his employees or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. He must restore all injured public or private property to a condition as good as it was when he entered upon the work, purchasing new materials to replace all that which is injured or destroyed during the course of the work.

In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner is authorized to act at his discretion to prevent such threatened loss or injury and he shall so act.

27. TRAFFIC CONTROL

It is the policy of the City of Midland to keep at least two travel lanes open to traffic at all times and where possible to have three travel lanes between 7:30 a.m. and 9:00 a.m. and 4 p.m. and 6 p.m. (Two (2) lanes in the direction of peak travel).

At least 48 hours before beginning work the contractor shall present a traffic control and/or barricade plan prepared as per the approved Barricading Standards to the Traffic Engineering Division for review and approval. When approved and barricades are in place, they shall be inspected by the Traffic Engineering Division prior to beginning work.

Traffic control signs, such as stop signs, yield signs, etc., are placed in various intersections for the safety and protection of the traveling public. The contractor shall not move, alter or damage said signs for any reason. If said signs must be removed for construction purposes, contractor shall notify the City of Midland, Traffic Division Operations Superintendent at least 48 hours (not including weekends) before construction activities are scheduled to begin. All construction barricading, warning signs, and other construction traffic control devices shall be in place and shall be in accordance with the Texas Manual on Uniform Traffic Control Devices and approved Barricading Standards included in plans before traffic signs can be removed. The contractor shall notify the Traffic Division Operations Superintendent at least 72 hours (not including weekends) before

scheduled removal of construction barricades, warning signs, and traffic control devices. But in all cases the contractor shall not remove said barricades, warning signs, and traffic control devices until the City of Midland's Traffic Department has replaced stop signs, yield signs, etc., in their proper location. The Contractor shall notify Traffic Engineering Division at least 24 hours in advance of any Traffic Signal modification due to construction (i.e. eliminating left turn phases). Notice shall also be given to the Traffic Engineering Division at least 24 hours prior to removing barricades at signalized intersections.

28. PROTECTION OF NEW WORK

All new work shall be carefully protected by the Contractor, and any work injured from any cause before the completion of the whole project must be rebuilt by the Contractor at his own expense.

29. MONUMENTS OR STAKES

The Contractor must carefully protect from disturbance or injury all monuments, stakes and bench marks, of City County, State or Federal Government and shall not excavate nearer than five (5) feet to any of them without the permission of the Engineer, or until they have been removed, witnessed or otherwise disposed of by the Engineer.

30. USE OF COMPLETED PORTIONS

The City shall have the right to take possession of and use any completed or partially completed portions of the work notwithstanding the time for completing the entire work on such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of, or delays the work, the Contractor shall be entitled to such extra compensation or extension of time, or both as the Engineer may determine.

The Owner, in taking possession of completed portions, shall agree to accept the decision of the Engineer on matters relating to responsibility for damages that may occur to any portions of the work during the period of possession preceding acceptance and final payment.

31. USE OF PREMISES

The Contractor shall confine his apparatus, storage of materials and construction operations to such limits as may be directed by the Owner, and shall not unreasonably encumber the premises with his materials.

The Contractor shall enforce any instructions of the Owner regarding advertising, fires, danger signals, barricades and smoking, and shall require all persons employed on the work to comply with all building, post or institutional regulations while on the premises.

32. SAFETY RESTRICTIONS

The following procedures will be followed regarding the subject item on this contract:

A warning sign painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

Equipment that may be operated within ten feet of high voltage lines shall have an insulating cage type of guard about the boom or arm, except back hoes or dippers, and insulator links on the lift hook connections.

When necessary to work within six feet of high voltage electric lines, notification shall be given to the power company who will erect temporary mechanical barriers, de – energize the line, or raise or lower the line. The notifying department

The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

No person shall work within six feet of high voltage line without precautions having been taken and protection provided as outlined in Paragraph (3) above.

33. INSURANCE REQUIREMENTS AND WORKERS COMPENSATION

INSURANCE REQUIREMENTS

Contractor shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
— Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
— Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit -
	Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on an occurrence basis. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Business Automobile Liability insurance provided by Contractor shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the

work that is the subject of this Contract. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Workers' Compensation coverage provided by Contractor shall inure to the benefit of employees injured during the course and scope of their employment by Contractor pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of the City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of the City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name the City as an additional insured on a claims occurred basis. City shall be provided the notice by Contractor's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Contractor shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Contractor shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of the City. The City shall not be required to provide any insurance whatsoever pursuant to this Contract.

The Contractor certifies that the certificate of insurance provided as required herein complies with the requirements of Senate Bill 425, passed during the 82nd regular session of the Texas Legislature, and effective January 1, 2012. The Contractor shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of the Contractor.

34. INDEMNIFICATION

INDEMNITY: THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE OWNER AND ALL OF THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE CONTRACTOR, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS

CONTRACT, AND CONTRACTOR WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE OWNER AND ALL OF THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE OWNER, THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH THE CONTRACTOR OR THE CONTRACTOR'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND CONTRACTOR WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

THE CONTRACTOR AGREES THAT HE WILL INDEMNIFY AND SAVE THE OWNER HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS, ALL SUPPLIES, INCLUDING COMMISSARY INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN OWNER SO DESIRES, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. THE CONTRACTOR, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS THE OWNER AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ARISING FROM ANY ACT OF THE CONTRACTOR OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

35. RELEASE

NOTWITHSTANDING ANY OTHER PROVISION, CONTRACTOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES OWNER, OWNER'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH CONTRACTOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR OWNER'S NEGLIGENCE.

36. INDEPENDENT CONTRACTOR

It is expressly understood and agreed that Contractor shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the Owner; that Contractor shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondent superior shall not apply as between Owner and Contractor, its officers, agents, employees, contractors and subcontractors; and

that nothing herein shall be construed as creating a partnership or joint enterprise between Owner and Contractor. No person performing any of the work and services described hereunder by Contractor shall be considered an officer, agent, servant or employee of the Owner. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Contractor shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The Owner does not have the power to direct the order in which the work is done. The Owner shall not have the right to control the means, methods or details of the Contractor's work. Contractor shall assume exclusive responsibility for the work. Contractor is entirely free to do the work in its own way.

37. QUALIFICATIONS FOR EMPLOYMENT

Preference shall be given to qualified local residents in the employment of laborers and mechanics for work on the Project under this Contract. No person under the age of sixteen (16) years shall be employed on the project under this Contract. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health or safety of others shall be employed on the Project under this Contract: Provided, that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. No person currently serving sentence in a penal or correctional institution and no inmate of an institution for mentally defective shall be employed on the project under this contract.

38. PAYROLLS OF CONTRACTOR AND SUBCONTRACTORS

The Contractor and each of his subcontractors shall prepare payrolls for the workers on the Project. Not later than the seventh (7th) day following the payment of wages, the Contractor shall transmit to the Owner, if requested, a certified legible copy and two confirmed copies of such payroll.

Such copies of payrolls shall be accompanied by substantial proof that all bills for services rendered and materials supplied have been duly paid and by such other data as the Owner may require.

39. POSTING WAGE RATES

The Contractor shall post at appropriate conspicuous points at the site of the Project a schedule showing the wage rates for the various classes of laborers and mechanics to be engaged in work on the Project under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

40. PAYMENT OF EMPLOYEES

The Contractor shall post at appropriate conspicuous points at the site of the Project a schedule showing the wage rates for the various classes of laborers and mechanics to be engaged in work on the Project under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

41. WAGE UNDERPAYMENT AND ADJUSTMENTS

The Contractor agrees that, in case of underpayment of wages to any worker on the project under this Contract by the Contractor or any subcontractor, the Owner shall withhold from the Contractor out of payments due, an amount sufficient to pay such worker the difference between the wages required to be paid under this Contract and the wages actually paid such worker for the total number of hours worked and that the Owner may disburse such amount so withheld by it for and on account of the Contractor to the employee to whom such amount is due. The Contractor further agrees that the amounts to be withheld pursuant to this Article may be in addition to other amounts that may be retained by the Owner pursuant to other provisions of this Contract.

42. COMPUTATION OF WAGES ON 8 – HOUR DAY

The wages of each laborer and mechanic engaged in work on the project under this Contract shall be computed on a basis of eight (8) hours per day, eight (8) hours continuous employment except for lunch periods, constituting a day's work.

Legal holiday work shall be paid for at the regular governing per diem wage rates.

Work in excess of 40 hours per week shall be paid for at 1 ½ times the basic rate of pay.

43. OVERTIME WORK AND WORK ON SUNDAYS AND LEGAL HOLIDAYS

The Contractor will not be permitted to work on Sundays or legal holidays except in an emergency and then only upon written permission of the Engineer.

Any work necessary to be performed after regular working hours and when permitted on Sundays or legal holidays, shall be performed without additional expense to the Owner.

No work on any Contract item will be permitted before daylight or later than one hour after sundown.

44. CONTRACT SECURITY

The Contractor shall furnish a performance bond and payment bond in an amount equal to one hundred percent (l00%) of the amount of the Contract as security for the faithful performance of the Contract, including the payment of all persons performing labor on the project and furnishing of materials in connection with this Contract. All Bonds must be executed in five (5) original counterparts by a corporate surety authorized to do business in the State of Texas. Bonds executed by individuals or any other than recognized and authorized corporate surety companies will not be acceptable.

45. DELAYS

The Contractor shall receive no compensation for delays or hindrances to the work, except when, in the judgment of the Engineer, direct or unavoidable extra cost to the Contractor is caused by such hindrances or delays. When such extra compensation is claimed, a written statement thereof shall be presented by the Contractor, as provided in Paragraph 18 hereof. Such claim, if found correct, will be approved, and the decision of the Engineer whether extra cost has been incurred and the amount thereof, shall be final. If delays are caused by specific orders to stop work, given by the Engineer, or by the performance of extra work, or by unforeseen causes beyond the control of the Contractor, or by the failure of the Owner to provide materials or necessary instructions for carrying on the work, or to provide the necessary right-of-way or site for installation,

then delay will entitle the Contractor to an equivalent extension of time. Application for extension of time must be approved by the Owner and, shall not release the Sureties from their obligations, which shall remain in full force until the discharge of the Contract.

LATE COMPLETION; LIQUIDATED DAMAGES:

It is hereby understood and mutually agreed, by and between Contractor and the City, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "Notice to Proceed." Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between Contractor and the City, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

In the event Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the City, then Contractor and Contractor's surety, if any, shall be liable for and does hereby agree, as a part consideration for the awarding of this contract, to pay to the City $500.00, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that Contractor shall be in default after the time stipulated in the contract for completing the work. Further, the City shall have the right to cancel this contract for such delay. In the event the City cancels this contract pursuant to the terms of this section, the City shall pay to Contractor only those monies deemed appropriate by the City, in its sole discretion, to compensate Contractor for any work actually performed, less any liquidated damages Contractor owes the City.

The said amount is fixed and agreed upon by and between Contractor and the City because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would in such event sustain, and said amount is agreed to be the amount of damages which the City would sustain and said amount shall be retained from time to time by the City from current periodical estimates.

It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that Contractor shall not be charged with liquidated damages or any excess cost when the City determines, in its sole discretion, that Contractor is without fault and Contractor's reasons for the time extension are acceptable to the City. Provided, further, that Contractor shall not be charged with liquidated damages of any excess cost when the delay in completion of the work is due:

a. To any preference, priority or allocation order duly issued by the Government;

b. To unforeseeable cause beyond the control and without the fault or negligence of Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the City, acts of another contractor in the performance of a contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

c. To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article.

Provided, further, that Contractor shall, within ten (10) calendar days from the beginning of such delay, unless the City shall, in its sole discretion grant a further period of time prior to the date of final settlement of the contract, notify the City, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify Contractor within a reasonable time of its decision in the matter.

CONTRACTOR AGREES THAT THE PAYMENT OF SUCH LIQUIDATED DAMAGES MAY BE RECOVERED BY THE CITY FROM RETAINAGE HELD BY THE CITY. NOTWITHSTANDING ANY OTHER PROVISION HEREOF, CONTRACTOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER ARISING FROM THE CITY WITHHOLDING PAYMENT FROM CONTRACTOR AS LIQUIDATED DAMAGES FOR CONTRACTOR'S FAILURE TO COMPLETE THE WORK WITHIN THE TIME SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE.

CONTRACTOR SHALL RECEIVE NO FINANCIAL COMPENSATION FOR DELAY OR HINDRANCE TO THE WORK. IN NO EVENT SHALL THE CITY BE LIABLE TO CONTRACTOR OR ANY SUBCONTRACTOR OR SUPPLIER, ANY OTHER PERSON OR ANY SURETY FOR OR ANY EMPLOYEE OR AGENT OF ANY OF THEM, FOR ANY DAMAGES ARISING OUT OF OR ASSOCIATED WITH ANY DELAY OR HINDRANCE TO THE WORK, REGARDLESS OF THE SOURCE OF THE DELAY OR HINDRANCE, INCLUDING EVENTS OF FORCE MAJEURE, AND EVEN IF SUCH DELAY OR HINDRANCE RESULTS FROM, ARISES OUT OF OR IS DUE, IN WHOLE OR IN PART, TO THE NEGLIGENCE OF THE CITY. CONTRACTOR'S SOLE REMEDY IN ANY SUCH CASE SHALL BE AN EXTENSION OF TIME.

46. ERRORS AND OMISSIONS

The Contractor will not be permitted to take advantage of any error or omission in these specifications. Suitable instructions will be given by the Engineer when such error or omission is discovered.

47. SPECIFICATIONS AND DRAWINGS

The Contractor shall keep on the work a copy of the Specifications and Drawings, and shall at all times give the Engineer access thereto. Any drawings or plans listed in the detailed specifications shall be regarded as part thereof and of the Contract. Anything mentioned in these specifications and not mentioned or shown in the drawings, or shown in the drawings and not mentioned in these specifications, shall be done as though shown or mentioned in both. The Engineer will furnish from time to time, such detailed drawings, plans, profiles and information as he may consider necessary for the Contractor's guidance.

In the event of any discrepancy between the plans and these specifications, the decisions of the Engineer will be decisive thereon. The written dimensions on the plans are to be taken as correct, but the Contractor is required to check carefully all dimensions before beginning work thereon. Should any errors or omissions be discovered, the Engineer's attention shall be called to the same, and the proper corrections made. All notes on the plans shall be carefully observed by the Contractor and are a part of the Contract.

48. CONSTRUCTION STAKING

The Engineer will furnish a complete set of plans and profiles and set control stakes at fifty foot (50') intervals along the entire length of the project and at such control points he deems necessary for proper execution of the work. The Contractor will thereafter be required to lay out the work accurately and furnish at his own expense, all lines, levels, and dimensions necessary to the proper and correct execution of the entire work and be responsible for any errors resulting from his own work.

The Contractor shall give the Engineer at least 36 hours notice in writing before requiring stakes to be set on any new portion of the work, and he shall state clearly in such notice the exact locality or localities where such stakes are needed for immediate use.

The Contractor must satisfy himself, before commencing work, as to the meaning or correctness of all stakes or marks, and no claim will be entertained by the Owner for or on account of any alleged inaccuracies, or for the alterations subsequently rendered necessary on account of such alleged inaccuracies unless the Contractor notifies the Engineer thereof in writing before commencing to work thereon.

The Contractor will at all times conduct the work in such a manner as to prevent damage to construction stakes set by the Engineer. When construction stakes are damaged to such extent that they must be reset, as a result of carelessness or negligence on the part of the Contractor or his workmen, the costs thereof shall be kept by the Engineer and shall be deducted from the moneys due or to become due the Contractor under the terms of his contract.

Benchmark and survey stakes shall be preserved by the Contractor, and in case of their destruction or removal by him or his employees, they will be replaced by the Engineer at the Contractor's expense.

49. SANITATION

The Contractor shall provide suitable drinking water receptacles or containers equipped with dust-tight covers and spigots or faucets. A supply of sanitary paper drinking cups shall be kept on hand for general use near the drinking water containers. The use of common drinking cups or tin cups will not be permitted.

The Contractor shall furnish "Porta-Johns" or other approved sanitary facilities for use by all workers on the Project. Such facilities shall be placed and kept in close proximity of the site where work is being performed. Such facilities shall be properly serviced and maintained.

The Engineer may establish such other sanitary rules and regulations as may seem necessary and desirable to the safe prosecution of the work, such rules and regulations to apply to all forces employed under this Contract, and if, the Contractor fails to observe and enforce these rules, the Engineer may enforce them at the expense of the Contractor.

50. WATER FOR CONSTRUCTION

The Contractor may obtain all water necessary for construction purposes from the Municipal Waterworks System at the regular customer service rate, but the Contractor must make all necessary arrangements with the Director of Utilities for necessary connections and meters. The Contractor must make his own provisions and provide such equipment as is necessary for conveying water from point of service to point of use. No extra compensation will be allowed and the Contractor shall anticipate the expense connected herewith and absorb said expense in the prices bid for the various bid items.

51. SEQUENCE AND SPEED OF WORK

The Engineer shall direct the order and sequence of the work. If at any time before the commencement or during the progress of the work, the materials and appliances used appear to the Engineer as insufficient and improper for securing the quality of work required or the required rate of progress, he may order the Contractor to increase their efficiency or to improve their character and the Contractor shall conform to such order. The

failure of the Engineer to demand any increase of such efficiency or improvement shall not release the Contractor from his obligations to secure the quality of work or the rate of progress specified.

52. INSPECTION AND TESTING OF MATERIAL

The sampling and testing of materials used or proposed to be used in the construction of this project will be made by the Engineer, his designated representative or certified testing laboratory personnel in accordance with methods prescribed by the American Society of Testing Materials and/or the American Association of State Highway Officials, with subsequent approved revisions made prior to the date of the Proposal. The selection of the method of test shall be designated by the Engineer. The Contractor shall bear the cost of all tests required before a material or a method is approved for use on the job, unless the Owner specifically agrees to bear the cost of these tests.

All tests required by the Owner after materials and/or methods have been approved and after they have been incorporated or used in the job will be paid for by the Owner, except if the Owner's tests reveal non-conformance with the specifications, subsequent tests on that part of the work required to determine if the replaced or reworked material meets the specifications, will be paid for by the Contractor. The City will pay only one time for any required testing.

The following is a summary of test required for the approval of materials or methods:

Material	**Test**
Subgrade	Maximum density, optimum moisture
Caliche Base:	Maximum density, optimum moisture, hardness, gradation, liquid limit, plasticity index, Texas Triaxial Classification
Aggregates for hot-mix:	Gradation, unit weight, abrasion, soundness, liquid limit, plasticity index, density
Asphalt, emulsions and tars:	Certified plant test and certificates of compliance with each shipment
Hot- Mix asphaltic concrete:	Design mix, swell test, stripping test
Portland cement concrete pavement:	Design mix with test cylinders

Any materials shipped by the Contractor from the factory prior to having satisfactorily passed such testing and inspection by the Owner's representative or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated in the work.

The Owner may, at its discretion, approve materials and/or methods for use on this project without testing when they are from sources previously tested and approved for City of Midland projects.

53. CONSTRUCTION SCHEDULE

It shall be the responsibility of the Contractor to furnish the Construction Engineer prior to construction a schedule out – lining the anticipated time each phase of construction will begin and be completed, including sufficient time being allowed for clean – up.

54. PROFILES AND ELEVATIONS

Profiles and elevations of the ground are shown on the plans hereto attached. These profiles and elevations are believed to be reasonably correct, but are not guaranteed to be absolutely so, and are represented only as an approximation. Elevations are referred to datum given by the Engineer.

55. CLEANUP

During the progress of the work, the Contractor shall maintain the work area in a reasonably clean and safe condition. Dirt, debris, excess excavation and other objectionable materials shall be removed from the site and disposed of on a daily basis.

After completion of all the work contemplated to be done in accordance with the detailed plans and these specifications, the premises and area along the entire line of the work shall be thoroughly cleaned up and all remaining structural materials, excess or surplus excavation and debris of any nature shall be removed and disposed of in a satisfactory manner and as directed by the Engineer. The site of all work shall appear neat and finished. All portions of the project when completed shall be ready for use or occupancy.

No compensation or payment shall be made for any cleanup work. The price for such cleanup work shall be absorbed in the items covered in the proposal.

56. GUARANTEE

The contractor shall and hereby does guarantee: (1) all work performed by him directly and all work performed by his subcontractors; (2) that all material specified; and (3) that any defect due to improper workmanship or material discovered and made known to him within one year (1) f the date of final acceptance of the improvements shall be repaired, replaced, corrected or otherwise made good by him without additional expense to the Owner. The Contractor shall, in case of work performed by his subcontractors and where guarantees are required, secure guarantees from said subcontractors and deliver copies of same to the Engineer upon completion of the work.

57. WAIVER OF ATTORNEY FEES:

BY EXECUTING THIS CONTRACT, CONTRACTOR AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE CONTRACTOR SPECIFICALLY AGREES THAT IF THE CONTRACTOR BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE CONTRACTOR AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH CONTRACTOR MIGHT OTHERWISE BE ENTITLED.

CONTRACTOR AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE CONTRACTOR ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE CONTRACTOR FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN

THE OWNER AND THE CONTRACTOR. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE CONTRACTOR AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

58. GOVERNING LAW AND VENUE

This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way that would direct application of the laws of another jurisdiction.

59. SOVEREIGN IMMUNITY

By executing this Contract, the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

60. NO THIRD – PARTY BENEFICIARY

The City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

61. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES

As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this agreement, Contractor or his legal representative, shall give the City Manager or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one hundred and twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Contractor will settle, the physical and mailing addresses of Contractor at the time and date the claim was presented and the physical and mailing addresses of Contractor for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Contractor relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Contractor that Contractor's notice is insufficient. City reserves the right to request additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Contractor's failure to comply with the requirements herein shall perpetually bar Contractor's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Contractor agrees that the requirements of this entire Agreement are reasonable.

62. ASSIGNMENT

Contractor shall not, either directly or indirectly, assign all or any part of this contract or any interest, right or privilege herein, without the prior written consent of the owner. The issue on whether or not to grant consent to an assignment is in the sole discretion of the owner.

63. FEDERAL WAGE REQUIREMENTS

If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

64. PROMPT PAY ACT

The owner and contractor agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

Updated September 2014

SPECIAL PROVISIONS

ATTENTION: All Bidders are directed to pay special attention to the NOTICE TO BIDDERS section of the bid packet. The Coronavirus (COVID-19) pandemic has resulted in several changes to the City of Midland's normal bid process, and bidders have sole responsibility for complying with the current bid process requirements. Bidders also have sole responsibility for verifying that any bid submitted is completed correctly and includes all of the required documentation, including addendums.

1. SCOPE OF WORK:

Included in this Project will be "A" Street Mill And Inlay Paving Project to be performed as outlined in the Plans and Specifications, which are necessary to satisfactorily complete the work.

The project will include the removal, replacement, and installation of existing and proposed paving and sidewalk infrastructure and appurtenances including all necessary mobilization, saw-cutting, pavement removal, milling, excavation, backfill, compaction, form work, pavement placement, inlay, sidewalk placement, joint sealing, as well as erosion control, traffic control, stabilization, utility cover adjustments, coordination with City of Midland staff and organizations such as TxDOT, OSHA, franchise utilities, etc. as needed, One Call (Texas 811) notifications for pending work, notifications to adjacent property owners as directed by City of Midland staff, and all other work to be performed as outlined in the Construction Drawings and Specifications, to satisfactorily complete the work.

The Owner reserves the right to abandon, without obligation to the Contractor, any part of the project, or the entire project, at any time before the Contractor begins any construction work authorized by the Owner.

Standard Specifications for Construction of the City of Midland will govern all construction, except as modified by these Special Provisions.

2. ORDER OF PRECEDENCE:

The Special Provisions take precedence over the General Conditions in this bid packet anywhere these two sections are not in agreement.

The Special Provisions take precedence over the City of Midland Specifications in this bid packet anywhere these two sections are not in agreement.

The Contractor is to bid the quantities in the Proposal section of the bid packet even if there is a discrepancy between the Proposal quantities and those noted or measured in the construction drawing set.

In the construction drawing set any written or noted dimension takes precedence over dimensions measured based on the drawing scale unless otherwise directed by the Engineer.

Any changes or revisions made as part of an Addendum for this project take precedence over the original bid packet and construction drawing set where the documents are in conflict.

3. EXAMINATION OF SITE:

Prospective bidders are to make a careful examination of the entire site of the project and are to make such explorations as may be necessary to determine the subsoil and/or water conditions to be encountered; improvements and obstructions which may be encountered; methods of providing ingress-egress to private as well as public property; methods of handling traffic during construction and maintenance of the entire project as well as any section thereof, protection of all existing structures both above and below ground; and how the plans fit the proposed project and especially if any discrepancies exist.

4. PAYMENT:

Payment and retainage (five percent, 5%) shall be per the General Conditions.

Payment will be made for material installed, not for material delivery.

5. SAFETY REQUIREMENTS:

It is the responsibility of the Contractor to follow and comply at all times with Occupational Safety and Health Administration (OSHA) and all other applicable safety regulations and requirements throughout the course of the project's work.

6. SAFETY RESTRICTIONS – WORK NEAR HIGH VOLTAGE LINES:

The following procedure will be followed regarding the subject item on this contract:

1) A warning sign painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

   "**WARNING – UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES"**

2) Equipment that may be operated within ten feet of high voltage lines shall have an insulation cage-type of guard about the boom or arm, except back hoes or dippers, and insulator links on the lift hook connections.

3) When necessary to work within six feet of high voltage electric lines, notification shall be given to the power company of who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

4) The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

5) No person shall work within six feet of a high voltage line without protection having been taken as outlined in Paragraph (3).

7. TRAFFIC CONTROL:

All proposed traffic control shall be approved by the City where applicable. All traffic control plans must be submitted to and approved by the Traffic Operations Division no less than two (2) business days prior to starting the construction work. Traffic control for each phase of work must be approved prior to starting that work.

Generic traffic control plans or typical details may be submitted for shoulder work on any class of roadway, or for work on local or collector streets that does not require the closure of any travel lanes (i.e., all lanes are open to traffic on striped roadways, or adequate width remains available for two-way traffic on unstriped roadways). Once a generic traffic control plan or typical detail for a certain type of setup has been approved one time, the Contractor shall only be responsible for notifying the Traffic Operations Division of the location, type of setup, and dates on which they intend to utilize the pre-approved traffic control for the duration of the contract. No additional plan submittals will be required in these cases, except that the City reserves the right to suspend this exception at its discretion. For any work not fitting the above exception, or in the event that the exception is suspended by the City, a site-specific traffic control plan will be required for each work location and time period.

1. All temporary traffic control shall be in general conformance with the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD) (latest edition as adopted by the Texas Department of Transportation), except as specifically directed by the City Engineer or City Traffic Engineer.
2. All temporary traffic control shall be designed, installed, and maintained by competent and qualified personnel with adequate experience in traffic control.
3. All temporary traffic control involving multiple lane closures or traffic shifts, full closures of collector or arterial streets, traffic control extending through a railroad crossing, or any setup reasonably determined by the City to be "complex", shall be implemented only by a contractor with specific experience and expertise in the field of traffic control (i.e., a qualified "barricade company").
4. A Traffic Control Plan (TCP) shall be submitted to the Engineering Services Department, Traffic Operations Division, in advance of any work in the right-of-way that impacts traffic. No work shall occur until an approved TCP has been returned to the Contractor.
5. A copy of the approved TCP shall be kept in the possession of the person responsible for supervising the traffic control at all times while working in the right-of-way. The approved TCP shall be presented to City staff or law enforcement upon demand at any time.
6. Depending on site conditions and the nature of the work, temporary traffic control may be approved by the City for either of the following:
    a. All Times – All traffic control, including closures, may remain in place 24 hours per day until expiration of the approved TCP.
    b. Off-Peak Only – Lane or road closures are NOT permitted from 6:00-9:00 AM and 4:00-7:00 PM on weekdays (Monday through Friday). Other traffic control not related to lane or road closures may remain in place 24 hours per day until expiration of the approved TCP.
7. The contractor setting the temporary traffic control shall be responsible for the maintenance and upkeep of all signs, barricades, and other devices, at all times.
    a. All temporary traffic control setups shall be maintained at least one time per day, including weekends and holidays.
    b. More frequent maintenance shall be performed as needed, with particular emphasis to following up after severe weather events or during times of high winds.
    c. Maintenance shall include:
        i. Verifying and correcting the location and orientation of all signs, barricades, and other devices;
        ii. Keeping signs and reflective areas of barricades and other devices clean and free of dirt buildup so as to maintain appropriate visibility and legibility; and

iii. Ensuring the proper location, orientation, and operation of arrow boards or message boards, if present.

8. Arrow boards shall be required for lane closures under the following conditions:
    a. On roadways with a posted speed limit of 55 MPH or greater, for closures lasting more than one (1) hour;
    b. On roadways with a posted speed limit of 45 MPH or greater, for closures lasting more than four (4) hours;
    c. On any roadway if lanes will remain open to traffic travelling in the same direction on both sides of a closed lane during any overnight hours (from 7:00 PM to 6:00 AM); and

At other times as shown on the approved TCP, or as otherwise directed by the City.

8. DETOURS:

The Contractor is to prosecute his work in such a manner as to create a minimum of interruption to traffic and pedestrian facilities and to the flow of vehicular and pedestrian traffic within the project area.

9. PROPERTY AND RIGHT-OF-WAY ACCESS:

Access to adjacent property must be maintained at all times unless otherwise directed by the Engineer. If the contractor will not be working in an area for a period of one week or more, special care is to be taken to address any unsafe conditions such as excavated areas or obstructions outside the worked area that could be tripping hazards, etc.

10. CONSTRUCTION SCHEDULE:

This project will have a ninety (90) day lead time before any construction activity is allowed to occur, and the lead time will begin on the date that the project is awarded. If field conditions allow the lead time may be shortened to allow for an earlier construction start date, but Bidders are directed to assume the full ninety (90) day lead time will be enforced for the purposes of this bid. The lead time will not count against the total calendar days given for construction of this project.

It is the responsibility of the Contractor to furnish the Construction Engineer, prior to construction, with a schedule outlining the anticipated time each phase of construction will begin and be completed, including sufficient time being allowed for clean-up.

11. CONSTRUCTION STAKING:

It is the responsibility of the Contractor to provide the project construction staking at fifty foot (50') intervals along the entire length of the project as well as at such control points as the Contractor deems necessary for proper execution of the work. Construction staking is to include grading and cuts as well as horizontal alignments and construction control points. Cut sheets are to be provided to the Engineer by the Contractor for review and approval.

12. SURVEY:

The Contractor is to provide GPS survey shots for all meters replaced to the City of Midland with each completed work order submittal. Survey data is to be shot in Texas Central Zone with 1983 NAD at 1.0' accuracy or better. Survey data is to be provided in Excel csv. file format with all rounding functions turned off.

13. CONSTRUCTION MATERIALS:

The Contractor is to only provide new materials for permanent installation in any and all parts of this project, and all such materials must comply with the General Conditions, the Bid Packet Specifications, and all applicable City of Midland Standards and Specifications.

Concrete is only to be placed when the ambient temperature is between 40 degrees and 95 degrees Fahrenheit and the ambient temperature in the shade is higher than 40 degrees Fahrenheit or is 40 degrees Fahrenheit and rising.

All concrete pavement joints are to be sealed with Texas Department of Transportation (TxDOT) DMS-6310 SL-2 sealant, an American Society for Testing and Materials (ASTM) D 1190 Hot-Applied Single Component Joint Sealant, or a City of Midland approved equal. This will not apply to curb or sidewalk joints.

No construction materials are to be placed or installed during rain events unless they are necessary to resolve an emergency situation or to facilitate the project site erosion control measures.

14. EROSION CONTROL:

Erosion control is the responsibility of the Contractor and erosion control measures are to be implemented so as to prevent sediment erosion from wind, rain, and other elements from the project site. Should the Owner feel that supplementary erosion control measures are required in addition to those implemented by the Contractor then the Contractor will include additional erosion control measures within reason to the Owner's satisfaction and/or TCEQ requirements.

Reasonable erosion control measures include but are not limited to: construction entrance(s), concrete washout(s), perimeter silt fence or fiber wattle, rock rip-rap dams for concentrated runoff control, gutter and inlet protection measures such as sand bags, and stabilization of the construction area surfaces when construction work is not actively occurring by means of vegetative cover or seeded erosion control blankets.

Supplemental erosion control measures are ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes.

Site cleanup work is to be done for this project as soon as possible as per the General Conditions and will be ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes. Site cleanup is to take place throughout the project's construction as needed to maintain a clean and professional looking work area. No more than three calendar days are to elapse after completion of construction before the final roadway and right-of-way cleanup has been completed to the satisfaction of the Engineer.

15. WASTE MATERIAL:

Excess material from excavation and other construction or demolition activity will become the property of the Contractor. Excess excavation will be disposed of at locations secured by the Contractor and if necessary, approved by the Engineer. No material is to be placed on private property or City property without the approval

of the Engineer and the property owner. Removal of excess material, excavation, and waste material are ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes.

Excess concrete material must be washed out in a concrete washout within the project's job site area, or else any and all other concrete material washout must occur away from the job site area in the Contractor's or concrete Supplier's own operation yards or properties. Under no circumstances are concrete trucks allowed to washout in any job site excavations, channels, public right-of-way, or on private property.

Existing fire hydrants indicated for removal as part of the project are to be returned to the City of Midland by the Contractor and remain City property. This is ancillary to the project and will not be paid as a separate item.

16. TESTING:

It is the Contractor's responsibility to perform all required testing for any and all materials and workmanship performed or installed as part of the project's work. The cost of all such testing is to be borne solely by the Contractor unless required by the Engineer for work or materials that had previously been tested and approved and had not experienced any change in condition since that time as a result of the Contractor's work or actions; or unless additional testing outside of the project scope is performed at the request of the Engineer.

Required testing includes:

Concrete Pavement – A Slump Test is required for every cylinder set (3 test cylinders), and no less than 1 cylinder set per day when concrete is placed. Test results are to be given to the engineer upon completion of each test, with 1 cylinder set for:

A. Every 50 cubic yards of concrete placed for concrete pavement between street intersections.

B. Every 50 cubic yards of concrete placed for concrete pavement at a street intersection.

C. Every 2 sets of fillets and valley gutters at street approaches. (1 set = 2 fillets and 1 valley gutter)

D. Every 4 alley approaches or driveway approaches.

E. There will be no testing for curb, ramps, and sidewalks.

Asphalt Hot-Mix Pavement – A Nuclear Gauge Density Test is required for either each day that asphalt hot-mix is placed or for every 250 linear feet of asphalt hot-mix pass, whichever results in more frequent testing. The laboratory density limits will be a minimum limit of 96%, a maximum limit of 98%, and an optimum limit of 97%. The acceptable field density range for construction of this project is 93% - 98% with a target density of 95%. Test results are to be given to the Engineer upon completion of each test.

17. COMPLIANCE:

The said Contractor further agrees to comply with all applicable provisions of the laws and building and construction codes of the City of Midland and the State of Texas, and with any regulations for the protection of workers which may be promulgated by the Government, and will protect such work with all necessary lights, barriers, safeguards, and warnings as provided for in said specifications and the Ordinance regulations.

Any work performed as part of this project on any public utility infrastructure must be performed by a qualified Contractor possessing either an active Water Operator D license, an active Wastewater D license, or an active Class 1 Collections license.

18. PERSONNEL:

It is the Contractor's responsibility to have a supervising representative of the Contractor on the construction site any time that construction work is taking place. The Contractor's representative must be on the Contractor's direct payroll. Sub-contractors or paid consultants will not satisfy this requirement.

It is also the Contractor's responsibility to provide the City with a reliable contact for issue escalation coordination. Such contacts would include the Contractor's site foreman, the Contractor's construction project manager, etc.

19. INTENT OF THE PROPOSAL:

The intent of the proposal is to determine the lowest responsible bidder based on the total of the quantities and unit prices. Once the lowest responsible bidder is selected, the project will be awarded based on the terms and requirements of the contract outlined in the bid packet and construction drawings.

20. CONTRACT DEADLINE:

The deadline for substantial completion of this project is _120_ calendar days total starting from the Notice to Proceed date.

Extensions of the project deadline may be requested by the Contractor for documented excepting conditions such as weather days, delays due to conflicts with existing franchise lines, etc. which are reasonably beyond the Contractor's control. Any and all deadline extensions must be submitted by the Contractor in writing to Engineer for review, and the approval or denial of the request rests solely with the Engineer.

Unless specifically granted in writing by the Engineer, there will be no suspension of project time between phases of construction.

21. WARRANTY PERIOD:

There is a one (1) year calendar warranty period on this project for all work performed or materials installed effective immediately upon acceptance of the improvements by the Owner. The warranty period will be based on the acceptance date of the project as a whole, and not any individual phases of the project.

22. BID PACKET COMPLETION ITEMS OF NOTE:

Bidders must be willing to sign the Contract as is if a bid is submitted. Revisions, alterations, deletions, additions, or any other changes of any kind by the bidder to the bid packet or other bid documents (such as the construction drawing set, addendums, etc.) will result in the bid submittal being deemed 'Non-Responsive' and the bid will not be accepted.

Bidders are reminded to make sure that the Conflict of Interest forms are completed if applicable before submitting a bid.

All bid items in the Proposal section must be completed for a bid submittal to be considered complete. Any bid item left blank or that the bidder indicates they chose to not provide a bid for will be considered incomplete, and the entire bid submittal will also be deemed incomplete, the bid submittal will be deemed 'Non-Responsive', and the bid will not be accepted. Bidders bear sole responsibility for making sure that the Proposal is complete and in accordance with the instructions provided to bidders in the bid packet.

All acknowledgement forms for all addendums that are issued during the bid process for this project must be filled out and be included with any bid submittal for that bid submittal to be considered complete. Any bid submittal lacking these completed addendum acknowledgement forms will be deemed 'Non-Responsive' and the bid will not be accepted. Bidders bear sole responsibility for making sure that they have obtained all addendums issued prior to submitting their bid.

PROPOSAL

TO: Honorable Mayor and City Council
City of Midland
Midland, Texas

Gentlemen: The undersigned bidder, having examined the drawings, specifications and contract documents, the location of the proposed work, and being fully advised as to the extent and character of the work, proposes to furnish all material, equipment, and to perform all labor and work necessary for the completion of the construction of the work described by and in accordance with the attached drawings, specifications, and contract, for the following prices, to wit:

Project Name: "A" Street Mill And Inlay Paving Project

Project Number: BPU18-03

Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	4 MO	Mobilization, furnished, installed, complete and in place, for the sum of: twenty three thousand six hundred eighty three dollars and twenty four cents per month. (Pay Note M1)	$ 23,683.24	$ 94,732.96
2)	4 MO	Erosion/Sediment Control, furnished, installed, complete and in place, for the sum of: seven thousand six hundred seventy fixe dollars and twelve cents per month. (Pay Note M2)	$ 7,675.12	$ 30,700.48
3)	4 MO	Traffic Control, furnished, installed, complete and in place, for the sum of: eight thousand five hundred dollars and sero cents per month. (Pay Note M3)	$ 8,500.00	$ 34,000.00
4)	4 MO	Job Site Safety, furnished, installed, complete and in place, for the sum of: one thousand seven hundred fifty dollars and zero cents per month. (Pay Note M4)	$ 1,750.00	$ 7,000.00
5)	N/A	Material Mark-up, complete and in place, for the sum of: fifteen percent. (Pay Note M5)	% 15	$ N/A

Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
6)	N/A	Labor Mark-up (Regular Work Hours), complete and in place, for the sum of: fifteen percent. (Pay Note M6)	% 15	$ N/A
7)	N/A	Equipment Rental Mark-up (Non-Standard Equipment Only), complete and in place, for the sum of: fifteen percent. (Pay Note M7)	% 15	$ N/A
Total Miscellaneous Items 1-7		$ 166,433.44		

Demolition Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	3,799 SY	8" Milling Unclassified Asphalt Pavement, complete and in place, for the sum of: three dollars and ten cents per square yard. (Pay Note D1)	$ 3.10	$ 11,776.90
2)	2,862 SY	7" Milling Unclassified Asphalt Pavement, complete and in place, for the sum of: two dollars and ninety five cents per square yard. (Pay Note D1)	$ 2.95	$ 8,442.90
3)	26,030 SY	5" Milling Unclassified Asphalt Pavement, complete and in place, for the sum of: two dollars and seventy cents per square yard. (Pay Note D1)	$ 2.70	$ 70,281.00
4)	1,050 LF	Removal & Disposal of Existing Concrete Curb & Gutter, complete and in place, for the sum of: three dollars and forty cents per linear foot. (Pay Note D2)	$ 3.40	$ 3,570.00
5)	50 SY	Removal & Disposal of Existing Concrete Sidewalk & Ramps, complete and in place, for the sum of: five dollars and eighty cents per square yard. (Pay Note D3)	$ 5.80	$ 290.00
6)	60 SY	Removal & Disposal of Existing Miscellaneous Concrete, complete and in place, for the sum of: one hundred seventy dollars and ninety cents per square yard. (Pay Note D4)	$ 170.90	$ 10,254.00
Total Demolition Items 1-6		$ 92,837.90		

Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	3,280 SY	8" Continuously Reinforced Concrete Pavement, furnished, installed, complete and in place, for the sum of: eighty six dollars and zero cents per square yard. (Pay Note P1)	$ 86.00	$ 282,080.00
2)	700 SY	7" Continuously Reinforced Concrete Pavement, furnished, installed, complete and in place, for the sum of: eighty six dollars and zero cents per square yard. (Pay Note P1)	$ 86.00	$ 60,200.00
3)	2,830 TON	2" Type D HMAC Asphalt Pavement Surface Course (PG70-22, 110 LBS / SY @ 1" Thick), furnished, installed, complete and in place, for the sum of: ninety six dollars and zero cents per ton. (Pay Note P2)	$ 96.00	$ 271,680.00
4)	4,240 TON	3" Type C HMAC Asphalt Pavement Surface Course (PG64-22, 110 LBS / SY @ 1" Thick), furnished, installed, complete and in place, for the sum of: one hundred twelve dollars and zero cents per ton. (Pay Note P3)	$ 112.00	$ 474,880.00
5)	490 SY	Concrete-Asphalt Pavement Transition Sleeper Slab, furnished, installed, complete and in place, for the sum of: eighty four dollars and twenty cents per square yard. (Pay Note P4)	$ 84.20	$ 41,258.00
6)	5,140 GAL	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY), furnished, installed, complete and in place, for the sum of: four dollars and twenty eight cents per gallon. (Pay Note P5)	$ 4.28	$ 21,999.20
7)	2,570 GAL	Tack Coat (MC-30 or AEP, 0.10 Gal / SY), furnished, installed, complete and in place, for the sum of: four dollars and twenty eight cents per gallon. (Pay Note P6)	$ 4.28	$ 10,999.60

Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
8)	340 SY	11" Concrete Median, furnished, installed, complete and in place, for the sum of: fifty eight dollars and zero cents per square yard. (Pay Note P7)	$ 58.00	$ 19,720.00
9)	260 SY	11" Concrete Directional Island, furnished, installed, complete and in place, for the sum of: fifty eight dollars and zero cents per square yard. (Pay Note P8)	$ 58.00	$ 15,080.00
10)	101 SY	8" Concrete Fillet, furnished, installed, complete and in place, for the sum of: seventy eight dollars and twenty cents per square yard. (Pay Note P9)	$ 78.20	$ 7,898.20
11)	540 SY	7" Concrete Fillet, furnished, installed, complete and in place, for the sum of: eighty six dollars and twenty cents per square yard. (Pay Note P9)	$ 86.20	$ 46,548.00
12)	158 SY	8" Concrete Valley Gutter, furnished, installed, complete and in place, for the sum of: seventy eight dollars and twenty cents per square yard. (Pay Note P10)	$ 78.20	$ 12,355.60
13)	1,282 SY	7" Concrete Valley Gutter, furnished, installed, complete and in place, for the sum of: sixty one dollars and six cents per square yard. (Pay Note P10)	$ 61.06	$ 78,278.92
14)	370 SY	6" Concrete Alley Approach, furnished, installed, complete and in place, for the sum of: seventy four dollars and twenty cents per square yard. (Pay Note P11)	$ 74.20	$ 27,454.00
15)	590 LF	Type A Concrete Curb & Gutter, furnished, installed, complete and in place, for the sum of: nineteen dollars and ten cents per linear foot. (Pay Note P12)	$ 19.10	$ 11,269.00

Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
16)	510 LF	Type D Concrete Curb & Gutter, furnished, installed, complete and in place, for the sum of: nineteen dollars and ten cents per linear foot. (Pay Note P12)	$ 19.10	$ 9,741.00
17)	11 LF	Type I Concrete Curb & Gutter, furnished, installed, complete and in place, for the sum of: twenty six dollars and twenty cents per linear foot. (Pay Note P12)	$ 26.20	$ 288.20
18)	570 SY	Concrete Pedestrian Access Ramp, furnished, installed, complete and in place, for the sum of: one hundred six dollars and twenty cents per square yard. (Pay Note P13)	$ 106.20	$ 60,534.00
19)	1,150 SY	4" Concrete Sidewalk, furnished, installed, complete and in place, for the sum of: fifty four dollars and three cents per square yard. (Pay Note P14)	$ 54.03	$ 62,134.50
20)	4 EA	Storm Inlet Ring & Cover Adjustment, furnished, installed, complete and in place, for the sum of: one thousand one hundred thirty three dollars and zero cents per each. (Pay Note P15)	$ 1,133.00	$ 4,532.00
21)	13 EA	Manhole Ring & Cover Adjustment, furnished, installed, complete and in place, for the sum of: one thousand one hundred thirty three dollars and zero cents per each. (Pay Note P15)	$ 1,133.00	$ 14,729.00
22)	66 EA	Water Valve Box Ring & Cover Adjustment, furnished, installed, complete and in place, for the sum of: three hundred sixty five dollars and zero cents per each. (Pay Note P15)	$ 365.00	$ 24,090.00
23)	115 SY	Flowable Fill / 2-Sack Backfill, furnished, installed, complete and in place, for the sum of: one hundred nineteen dollars and twenty five cents per square yard. (Pay Note P16)	$ 119.25	$ 13,713.75

Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
Total Paving Items 1-23		$ 1,446,636.05		

Traffic Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	11 EA	Ground Box (Type C) (per TxDOT Item 624-6007), complete, for the sum of: two thousand and nine dollars and eighty seven cents per each. (Pay Note T1)	$ 2,009.87	$ 22,108.57
2)	10 EA	Remove Ground Box (per TxDOT Item 624-6028), complete, for the sum of: three hundred thirty four dollars and ninety eight cents per each. (Pay Note T1)	$ 334.98	$ 3,349.80
3)	1,770 LF	Conduit (2", PVC, Schedule 80, Trenched) (per TxDOT Item 618-6046), complete, for the sum of: eighty dollars and thirty nine cents per linear foot. (Pay Note T1)	$ 80.39	$ 142,290.30
4)	477 LF	Electrical Conductor (6 AWG, Bare) (per TxDOT Item 620-6009), complete, for the sum of: four dollars and two cents per linear foot. (Pay Note T1)	$ 4.02	$ 1,917.54
5)	3 EA	Remove Small Sign Assembly (per TxDOT Item 644-6076), complete, for the sum of: three hundred thirty four dollars and ninety eight cents per each. (Pay Note T1)	$ 334.98	$ 1,004.94
6)	6 EA	Install Highway Traffic Signal (System) (per TxDOT Item 680-6003), complete, for the sum of: three thousand three hundred forty nine dollars and seventy eight cents per each. (Pay Note T1)	$ 3,349.78	$ 20,098.68
7)	477 LF	Traffic Signal Cable (Type A, 14 AWG, 3 conductor) (per TxDOT Item 684-6029), complete, for the sum of: four dollars and two cents per linear foot. (Pay Note T1)	$ 4.02	$ 1,917.54
8)	6 EA	Pedestrian Pole Assembly (per TxDOT Item 687-6001), complete, for the sum of: two thousand four hundred eleven dollars and eighty five cents per each. (Pay Note T1)	$ 2,411.85	$ 14,471.10

Traffic Items				
Item No.	Quantity	Description	Unit Price	Total Amount
9)	1 EA	Remove Pedestrian Pole Assembly (per TxDOT Item 687-6005), complete, for the sum of: three hundred thirty four dollars and ninety seven cents per each. (Pay Note T1)	$ 334.97	$ 334.97
10)	37 EA	Pedestrian Detection Push Button (Standard) (per TxDOT Item 688-6002), complete, for the sum of: three hundred thirty four dollars and ninety eight cents per each. (Pay Note T1, T2)	$ 334.98	$ 12,394.26
11)	14 EA	Pedestrian Signal Section (LED, Countdown) (per TxDOT Item 682-6018), complete, for the sum of: nine hundred thirty seven dollars and ninety four cents per each. (Pay Note T1)	$ 937.94	$ 13,131.16
12)	2 EA	Remove Pedestrian Signal LED Traffic Signal Lamp Unit (per TxDOT Item 690-6094), complete, for the sum of: one hundred thirty four dollars and zero cents per each. (Pay Note T1)	$ 134.00	$ 268.00
13)	41 LF	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Solid, 100 mil) (per TxDOT Item 666), complete, for the sum of: zero dollars and fifty nine cents per linear foot. (Pay Note T1)	$ 0.59	$ 24.19
14)	1,319 LF	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Broken, 100 mil) (per TxDOT Item 666), complete, for the sum of: zero dollars and fifty nine cents per linear foot. (Pay Note T1)	$ 0.59	$ 778.21
15)	1,541 LF	Retroreflectorized Pavement Markings (Type I, White, 8 inch, Solid, 100 mil) (per TxDOT Item 666), complete, for the sum of: zero dollars and fifty nine cents per linear foot. (Pay Note T1)	$ 0.59	$ 909.19

Traffic Items				
Item No.	Quantity	Description	Unit Price	Total Amount
16)	2,033 LF	Retroreflectorized Pavement Markings (Type I, White, 24 inch, Solid, 100 mil) (per TxDOT Item 666), complete, for the sum of: seven dollars and thirty seven cents per linear foot. (Pay Note T1)	$ 7.37	$ 14,983.21
17)	6,520 LF	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Solid, 100 mil) (per TxDOT Item 666), complete, for the sum of: zero dollars and fifty nine cents per linear foot. (Pay Note T1)	$ 0.59	$ 3,846.80
18)	863 LF	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Broken, 100 mil) (per TxDOT Item 666), complete, for the sum of: zero dollars and fifty nine cents per linear foot. (Pay Note T1)	$ 0.59	$ 509.17
19)	19 EA	Retroreflectorized Pavement Markings (Type I, White, Arrow, 100 mil) (per TxDOT Item 666), complete, for the sum of: four hundred ten dollars and zero cents per each. (Pay Note T1)	$ 410.00	$ 7,790.00
20)	34 EA	Retroreflectorized Pavement Markings (Type I, White, 18 inch, Yield Triangle, 100 mil) (per TxDOT Item 666 or 668), complete, for the sum of: thirty seven dollars and fifty two cents per each. (Pay Note T1)	$ 37.52	$ 1,275.68
21)	430 LF	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Solid, 2 coats) (per TxDOT Item 666), complete, for the sum of: zero dollars and seventy four cents per linear foot. (Pay Note T1)	$ 0.74	$ 318.20

Traffic Items				
Item No.	Quantity	Description	Unit Price	Total Amount
22)	41 LF	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Broken, 2 coats) (per TxDOT Item 666), complete, for the sum of: zero dollars and seventy eight cents per linear foot. (Pay Note T1)	$ 0.78	$ 31.98
23)	168 LF	Retroreflectorized Pavement Markings (Type II, White, 8 inch, Solid, 2 coats) (per TxDOT Item 666), complete, for the sum of: one dollars and twenty one cents per linear foot. (Pay Note T1)	$ 1.21	$ 203.28
24)	328 LF	Retroreflectorized Pavement Markings (Type II, White, 24 inch, Solid, 2 coats) (per TxDOT Item 666), complete, for the sum of: four dollars and two cents per linear foot. (Pay Note T1)	$ 4.02	$ 1,318.56
25)	623 EA	Retroreflectorized Pavement Markings (Type II, Yellow, 4 inch, Solid, 2 coats) (per TxDOT Item 666), complete, for the sum of: zero dollars and seventy four cents per each. (Pay Note T1)	$ 0.74	$ 461.02
26)	6 EA	Retroreflectorized Pavement Markings (Type II, White, Arrow, 2 coats) (per TxDOT Item 666), complete, for the sum of: one hundred seven dollars and nineteen cents per each. (Pay Note T1)	$ 107.19	$ 643.14
Total Traffic Items 1-26		$ 266,379.49		

Price For:	
1. Miscellaneous Items	$ 166,433.44
2. Demolition Items	$ 92,837.90
3. Paving Items	$ 1,446,636.05
4. Traffic Items	$ 266,379.49
Total Price	$ 2,108,890.70

In addition to providing the individual prices for the items above, Contract shall write the total bid amount in the sum of

two million one hundred eight thousand eight hundred ninety dollars

and seventy cents total.

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the contract documents pertaining to the work covered by the above bid. The selected contractor will receive written notice to proceed.

Bidder agrees to substantially complete all work within 120 calendar days after receipt of notice to proceed.

PUBLIC INFORMATION

To the extent that Bidder is submitting a bid for a contract described by Section 552.371 of the Texas Government Code, Bidder agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this bid, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

Enclosed herewith in this proposal is a cashier's check, cash or bid bond on a form approved by the City Attorney, for

one hundred five thousand four hundred forty four dollars

and fifty four cents total. ($ 105,444.54)

which it is agreed shall be collected and retained by the owner as liquidated damages in the event this proposal is accepted by the Owner within thirty days (30) after the date advertised for the reception of bids and the undersigned fails to execute the contract and required bonds with the owner, under the conditions thereof, within (15) days after the date said proposal is accepted; otherwise said check or bond shall be returned to the undersigned on demand.

CD King Construction dba JD King

Name of Contractor

Chad King

Submitted By | Print Name and Title

PO Box 1254

Mailing Address

Seminole | TX | 79360

City | State | Zip

PAY NOTES

"A" Street Mill And Inlay Paving Project

Bid Item		Pay Quantity Note
Miscellaneous Items		
1	Mobilization	M1
2	Erosion/Sediment Control	M2
3	Traffic Control	M3
4	Job Site Safety	M4
5	Material Mark-up	M5
6	Labor Mark-up	M6
7	Equipment Rental Markup	M7
Demolition Items		
1	8" Milling Unclassified Asphalt Pavement	D1
2	7" Milling Unclassified Asphalt Pavement	D1
3	5" Milling Unclassified Asphalt Pavement	D1
4	Removal & Disposal of Existing Concrete Curb & Gutter	D2
5	Removal & Disposal of Existing Concrete Sidewalk & Ramps	D3
6	Removal & Disposal of Existing Miscellaneous Concrete	D4
Paving Items		
1	8" Continuously Reinforced Concrete Pavement	P1
2	7" Continuously Reinforced Concrete Pavement	P1
3	2" Type D HMAC Asphalt Pavement Surface Course (PG70-22, 110 LBS / SY @ 1" Thick)	P2
4	3" Type C HMAC Asphalt Pavement Surface Course (PG64-22, 110 LBS / SY @ 1" Thick)	P3
5	Concrete-Asphalt Pavement Transition Sleeper Slab	P4
6	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	P5
7	Tack Coat (MC-30 or AEP, 0.10 Gal / SY)	P6
8	11" Concrete Median	P7
9	11" Concrete Directional Island	P8
10	8" Concrete Fillet	P9
11	7" Concrete Fillet	P9
12	8" Concrete Valley Gutter	P10
13	7" Concrete Valley Gutter	P10
14	6" Concrete Alley Approach	P11
15	Type A Concrete Curb & Gutter	P12
16	Type D Concrete Curb & Gutter	P12
17	Type I Concrete Curb & Gutter	P12
18	Concrete Pedestrian Access Ramp	P13
19	4" Concrete Sidewalk	P14
20	Storm Inlet Ring & Cover Adjustment	P15
21	Manhole Ring & Cover Adjustment	P15
22	Water Valve Box Ring & Cover Adjustment	P15
23	Flowable Fill / 2-Sack Backfill	P16

Traffic Items

1	Ground Box (Type C) (per TxDOT Item 624-6007)	T1
2	Remove Ground Box (per TxDOT Item 624-6028)	T1
3	Conduit (2", PVC, Schedule 80, Trenched) (per TxDOT Item 618-6046)	T1
4	Electrical Conductor (6 AWG, Bare) (per TxDOT Item 620-6009)	T1
5	Remove Small Sign Assembly (per TxDOT Item 644-6076)	T1
6	Install Highway Traffic Signal (System) (per TxDOT Item 680-6003)	T1
7	Traffic Signal Cable (Type A, 14 AWG, 3 conductor) (per TxDOT Item 684-6029)	T1
8	Pedestrian Pole Assembly (per TxDOT Item 687-6001)	T1
9	Remove Pedestrian Pole Assembly (per TxDOT Item 687-6005)	T1
10	Pedestrian Detection Push Button (Standard) (per TxDOT Item 688-6002)	T1, T2
11	Pedestrian Signal Section (LED, Countdown) (per TxDOT Item 682-6018)	T1
12	Remove Pedestrian Signal LED Traffic Signal Lamp Unit (per TxDOT Item 690-6094)	T1
13	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Solid, 100 mil) (per TxDOT Item 666)	T1
14	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Broken, 100 mil) (per TxDOT Item 666)	T1
15	Retroreflectorized Pavement Markings (Type I, White, 8 inch, Solid, 100 mil) (per TxDOT Item 666)	T1
16	Retroreflectorized Pavement Markings (Type I, White, 24 inch, Solid, 100 mil) (per TxDOT Item 666)	T1
17	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Solid, 100 mil) (per TxDOT Item 666)	T1
18	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Broken, 100 mil) (per TxDOT Item 666)	T1
19	Retroreflectorized Pavement Markings (Type I, White, Arrow, 100 mil) (per TxDOT Item 666)	T1
20	Retroreflectorized Pavement Markings (Type I, White, 18 inch, Yield Triangle, 100 mil) (per TxDOT Item 666 or 668)	T1
21	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Solid, 2 coats) (per TxDOT Item 666)	T1
22	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Broken, 2 coats) (per TxDOT Item 666)	T1
23	Retroreflectorized Pavement Markings (Type II, White, 8 inch, Solid, 2 coats) (per TxDOT Item 666)	T1
24	Retroreflectorized Pavement Markings (Type II, White, 24 inch, Solid, 2 coats) (per TxDOT Item 666)	T1
25	Retroreflectorized Pavement Markings (Type II, Yellow, 4 inch, Solid, 2 coats) (per TxDOT Item 666)	T1
26	Retroreflectorized Pavement Markings (Type II, White, Arrow, 2 coats) (per TxDOT Item 666)	T1

PAY QUANTITY NOTES

M1 Includes the necessary equipment, labor, materials, and incidentals for all Mobilization to the job site complete and in place. Measurement and payment to be made per month.

M2 Includes the necessary equipment, labor, materials, and incidentals to implement the Erosion Control Plan per the construction drawings and City of Midland standards and specifications. Measurement and payment to be made per month.

M3 Includes the necessary equipment, labor, materials, and incidentals to implement the Traffic Control per the approved Traffic Control Plan. Any required traffic control devices are to meet the City of Midland Traffic Division Standards. Measurement and payment to be made per month.

M4 Includes the necessary equipment, labor, materials, and incidentals to implement Job Site Safety and to provide a safe work environment for the project work area (including all personal protection equipment, trench safety, etc.) per the construction drawings and in compliance with all applicable Federal, State, and Local requirements or regulations including those of OSHA and the City of Midland. JOB SITE SAFETY IS THE RESPONSABILITY OF THE CONTRACTOR. Measurement and payment to be made per month.

M5 Includes the Material Mark-up for materials and material sizes (pipe, valve, manhole, etc.) required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of the material in question plus the set percent increase established by this bid item. The Contractor must provide a copy of the invoice for the material cost from the supplier to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any material. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

M6 Includes the Labor Mark-up (Regular Work Hours) for labor required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of labor in question plus the set percent increase established by this bid item. The Contractor must provide a typical hourly pay rate for work crews prior to the percent increase along with the number of workers on the crew and the number of hours worked by the crew for the project in question to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any labor. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

M7 Includes the Equipment Rental Mark-up (non-standard equipment only) required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of the equipment rental in question plus the set percent increase established by this bid item. The Contractor must provide a copy of the invoice for the rented equipment from the equipment supplier to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any rented equipment. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

D1 Includes the necessary equipment, labor, materials, and incidentals for Milling Unclassified Asphalt Pavement per the construction drawings and City of Midland standards and specifications, including all appurtenances. Pavement material is to be removed in its entirety at the indicated depth. No additional compensation will be made for increased pavement depth removal. Pavement edges are to be clean, straight, and clearly defined edges free of breaks. Measurement and payment to be made per square yard measured along the ground surface.

D2 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Concrete Curb & Gutter per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per linear foot measured along the back of curb.

D3 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Concrete Sidewalk & Ramps per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

D4 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Miscellaneous Concrete per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P1 Includes the necessary equipment, labor, materials, and incidentals for placement of Continuously Reinforced Concrete Pavement per the construction drawings and City of Midland standards and specifications, including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P2 Includes the necessary equipment, labor, materials, and incidentals for the placement of Type "D" HMAC Asphalt Pavement Surface Course (PG 70-22, 110 LBS / SY at 1" thick) per the construction drawings and City of Midland standards and specifications, including all placement, compaction, and appurtenances. Measurement and payment to be made per ton of material placed.

P3 Includes the necessary equipment, labor, materials, and incidentals for the placement of Type "C" HMAC Asphalt Pavement Surface Course (PG 64-22, 110 LBS / SY at 1" thick) per the construction drawings and City of Midland standards and specifications, including all placement, compaction, and appurtenances. Measurement and payment to be made per ton of material placed.

P4 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete-Asphalt Pavement Transition Sleeper Slab per the construction drawings and City of Midland standards and specifications, including all forming, reinforcement, placement, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P5 Includes the necessary equipment, labor, materials, and incidentals for application of Bituminous Prime Coat (MC-30, or AEP, 0.20 GAL / SY) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per gallon of material applied at the designated rate.

P6 Includes the necessary equipment, labor, materials, and incidentals for application of Tack Coat (MC-30 or AEP, 0.10 GAL / SY) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per gallon of material applied at the designated rate.

P7 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Median per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P8 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Directional Island per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P9 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Fillet per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Curb section is formed and poured monolithically with fillet and is not a separate bid item. Measurement and payment to be made per square yard measured along the ground surface.

P10 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Valley Gutter per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P11 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Alley Approach per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Pedestrian access ramps at the alley approach are considered part of the approach and are not a separate bid item. Measurement and payment to be made per square yard measured along the ground surface.

P12 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Curb & Gutter per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, finishing, and appurtenances. Measurement and payment to be made per linear foot measured along the back-of-curb.

P13 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Pedestrian Access Ramp per the construction drawings and City of Midland standards and specifications, including all forming, reinforcement, placement, jointing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P14 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Sidewalk per the construction drawings and City of Midland standards and specifications, including all forming, reinforcement, placement, jointing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P15 Includes the necessary equipment, labor, materials, and incidentals for Ring & Cover Adjustment per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. This includes a minimum 1.0' wide concrete collar whose width is measured from the outer edge of the cover to the outer edge of the concrete ring. Measurement and payment to be made per each adjustment made.

P16 Includes the necessary equipment, labor, materials, and incidentals for installation of Flowable Fill / 2-Sack Backfill (Portland Cement 2 Sack = 188 LBS/CY) per the construction drawings and City of Midland standards and specifications, including all reinforcement, placement, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

T1 Includes the necessary equipment, labor, materials, and incidentals to perform the work for the pay item per the construction drawings and the most recent Texas Department of Transportation (TxDOT) standards and specifications, including all appurtenances. Measurement and payment to be made as per the TxDOT-specified method of measurement for the unit listed herein.

T2 City to provide APS 4-wire system. Contractor to install under this pay item.

BID BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

SURETY NO Bid Bond

KNOW ALL MEN BY THESE PRESENTS, THAT CD King Construction, LLC dba JD King (Hereinafter called the Principal), as Principal, and Merchants National Bonding, Inc. (Hereinafter called the Surety, as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of Five Percent of the Total Amount Bid---------- Dollars ($ 5% T.A.B.---------) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid or Proposal to enter into a certain written contract for the construction of "A" Street Mill and Inlay Paving Project.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully, enter into such written Contract, then this obligation shall be void; otherwise to remain in full force and effect.

IT IS EXPRESSLY UNDERSTOOD AND AGREE that if said Principal should withdraw its Bid anytime after such Bid is opened and before official rejection to such Bid or, if successful in securing the award thereof, said Principal should fail to enter into the Contract and furnish satisfactory Performance Bond and Payment Bond, the Obligee, in either of such events, shall be entitled and is hereby given the right to collect the full amount of this Bid Bond as liquidated damage.

PROVIDED, further that if any legal action be filed upon this Bond venue shall lie in Midland County, Texas.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this 11th day of November, 2020.

CD King Construction, LLC dba JD King

Principal

By _____

Address 1300 SW 2nd St.

Seminole, TX 79360

Merchants National Bonding, Inc.

Surety

By _____

Payton Blanchard, Attorney-in-Fact

Address P.O. Box 14498

Des Moines, IA 50306

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

Form Revised October 2020



MERCHANTS BONDING COMPANY™

POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations of the State of Iowa (herein collectively called the "Companies") do hereby make, constitute and appoint, individually,

Allison C Lueck; Cadda E Eary; Donna Martinez; Gwendolyn Johnston; H E Wilkins; James R Reid; Jessica Turner; Katie Rogers; Kay Blair; Lindsay Senior Gingras; Marie Reyna; Minnie Ortiz; Payton Blanchard; Ralph E French; Sandra Fuller; Shane Smith; Shawn Blacklock; Sherri Collins; Tina LaValley; Tracy L Miller; William Blanchard; William Mitchell Jennings

their true and lawful Attorney(s)-in-Fact, to sign its name as surety(ies) and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

This Power-of-Attorney is granted and is signed and sealed by facsimile under and by authority of the following By-Laws adopted by the Board of Directors of Merchants Bonding Company (Mutual) on April 23, 2011 and amended August 14, 2015 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 16, 2015.

"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof."

"The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and aut hority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.

In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner-Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 9th day of September , 2020 .

MERCHANTS NATIONAL BONDING INC. INCORPORATED -o- 2003

MERCHANTS BONDING COMPANY (MUTUAL) INCORPORATED -o- 1933

MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.

By Larry Taylor
President

STATE OF IOWA
COUNTY OF DALLAS ss.
On this 9th day of September 2020 , before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument are the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.

NOTARIAL SEAL IOWA

POLLY MASON
Commission Number 750576
My Commission Expires
January 07, 2023

Polly Mason
Notary Public

(Expiration of notary's commission does not invalidate this instrument)

I, William Warner, Jr., Secretary of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 11th day of November, 2020.

MERCHANTS NATIONAL BONDING INC. INCORPORATED -o- 2003

MERCHANTS BONDING COMPANY (MUTUAL) INCORPORATED -o- 1933

William Warner Jr.
Secretary

POA 0018 (1/20)



MERCHANTS BONDING COMPANY™
MERCHANTS BONDING COMPANY (MUTUAL) P.O. BOX 14498, DES MOINES, IOWA 50306-3498
PHONE: (800) 678-8171 FAX: (515) 243-3854

IMPORTANT NOTICE

To obtain information or make a complaint:

You may contact your insurance agent at the telephone number provided by your insurance agent.

You may call Merchants Bonding Company (Mutual) toll-free telephone number for information or to make a complaint at:

1-800-678-8171

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights or complaints at:

1-800-252-3439

You may write the Texas Department of Insurance at:

P. O. Box 149104
Austin, TX 78714-9104
Fax: (512) 490-1007
Web: www.tdi.texas.gov
E-mail: ConsumerProtection@tdi.texas.gov

PREMIUM AND CLAIM DISPUTES: Should you have a dispute concerning your premium or about a claim you should contact the agent first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

ATTACH THIS NOTICE TO YOUR POLICY: This notice is for information only and does not become a part or condition of the attached document.

CONTRACT

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

THIS CONTRACT, made and entered into this 16th day of December, 20 20, by and between the City of Midland of the County of Midland and State of Texas, acting through its Mayor thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and CD King Construction, LLC dba JD King of the City Seminole, County of Gaines, State of Texas, Party of the Second Part, herein-after termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the first Part (OWNER), and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follows: "A" Street Mill And Inlay Paving Project together with appurtenances and incidentals.

Conditions of the Contract and at his (or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendent, labor, insurance and other accessories and services necessary to complete the said construction in accordance with the conditions and prices stated in the Proposal attached hereto, and in accordance with the Notice to the Contractors, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore as prepared by Engineering and Transportation Department of the City of Midland, Texas, herein entitled the ENGINEER, together with the CONTRACTOR'S written Proposal, the General Conditions of the Contract, and the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire Contract.

The CONTRACTOR hereby agrees to commence work within fifteen (15) calendar days after the written notice to do so and to substantially complete the same within 120 calendar days after receipt of notice to proceed, subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this Contract, such payments to be subject to the General and Special Conditions of the Contract.

The SUM TOTAL of this Contract shall be: $2,108,890.70.

INSURANCE

Contractor shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):		
	— Personal Injury:	$1,000,000.00 per person
		$1,000,000.00 per occurrence
	— Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:		$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:		Statutory limits
Employers' Liability:		$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on an occurrence basis. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Business Automobile Liability insurance provided by Contractor shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. The insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Workers' Compensation coverage provided by Contractor shall inure to the benefit of employees injured during the course and scope of their employment by Contractor pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of the City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of the City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name the City as an additional insured on a claims occurred basis. City shall be provided the notice by Contractor's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Contractor shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Contractor shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of the City. The City shall not be required to provide any insurance whatsoever pursuant to this Contract.

The Contractor certifies that the certificate of insurance provided as required herein complies with the requirements of Senate Bill 425, passed during the 82nd regular session of the Texas Legislature, and effective January 1, 2012. The Contractor shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of the Contractor.

WAIVER OF ATTORNEY FEES

WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, CONTRACTOR AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE CONTRACTOR SPECIFICALLY AGREES THAT IF THE CONTRACTOR BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMEDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE CONTRACTOR AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH CONTRACTOR MIGHT OTHERWISE BE ENTITLED.

CONTRACTOR AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE CONTRACTOR ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE CONTRACTOR FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE OWNER AND THE CONTRACTOR. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE CONTRACTOR AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

SOVEREIGN IMMUNITY

By executing this Contract, the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

GOVERNING LAW AND VENUE

This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas.

COMPLIANCE – Contractor agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Contractor agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

VERIFICATION

To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Contractor hereby verifies that Contractor does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code

section 2270.002 does not apply to this Contract, such verification is not required, and Contractor shall be deemed to have not made such verification.

RECORDS RETENTION AND PRODUCTION OF INFORMATION

To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Contractor shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to the City of Midland for the duration of the contract, (2) promptly provide to the City of Midland any contracting information related to the Contract that is in the custody or possession of Contractor on request of the City of Midland, and (3) on completion of the Contract, either (i) provide at no cost to the City of Midland all contracting information related to the Contract that is in the custody or possession of Contractor, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to the City of Midland.

PUBLIC INFORMATION

To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Contractor agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Parties of the First Part (Owner)

By: _____
Patrick Payton, Mayor

ATTEST:

_____
Amy Turner, City Secretary

APPROVED ONLY AS TO FORM:

By: _____
John Ohnemiller, City Attorney

By: _____
Party of the Second Part (CONTRACTOR)

By: _____
Title

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, on this _____ day of _____, 20__ personally appeared _____, an officer of CD King Construction, LLC dba JD King, known to me to be the person and official whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as an act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this _____ day of _____, 20_____

_____
Notary Public

Form Revised October 2020

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of ___"A" Street Mill And Inlay Paving Project_____ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for "A" Street Mill And Inlay Paving Project, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

CERTIFICATE OF PAYMENT

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

"A" Street Mill And Inlay Paving Project

The undersigned states that all debts, bills, and expenses that were incurred by the undersigned, his agents, or subcontractors employed by him, for labor, wages, materials and other purposes furnished for the above project have been paid and satisfied in full.

The undersigned, as general contractor for the above described project agrees to indemnify, hold harmless and defend the City, its officers, agents, and employees, from and against all claims and suits for damages, expenses, including court costs and attorney fees, arising out of or resulting from the undersigned contractor, his agents or subcontractors employed by him for expenses, warranties for items furnished, or labor performed and for any party that has supplied materials in connection with the repair or construction of the above referenced premises.

The undersigned contractor agrees to waive any and all claims it may have against the City, associated with, resulting from or arising out of the work performed at the above premises.

Further, the undersigned states that all labor performed by the undersigned, his agents, and subcontractors employed by him, has been completed in the usual and customary workmanlike manner and all work performed is accompanied with the usual and appropriate warranties for such work or repair, absent any disclaimer previously approved by the City of Midland.

I, the undersigned, release and relinquish unto the City of Midland, and their assigns the above described lien upon the above referenced property and hereby certify that all debts, bills, and expenses incurred by the undersigned, his agents, or subcontractors employed by him in connection with work done at the above

premises have been fully paid, in exchange for payment in full to be made by the City of Midland for the performance on the above described premises.

WITNESS MY HAND on this _____ day of _____, 20_____.

_____
Signature

_____
Typed or Printed Name

_____
Title

_____
Name of Company

SUBSCRIBED AND SWORN to before me on the _____ day of _____, 20_____.

_____
Notary Public, State of Texas

_____
Typed or printed name

_____
My Commission expires:

Form Revised April 2020

City of Midland Specifications

PREPARATION OF RIGHT OF WAY

1. GENERAL

Includes the preparation of right-of-way for construction by clearing, grubbing, removing and disposing of all obstructions and objectionable material from the right-of-way and designated easements, which is not specifically provided for on the plans.

Obstructions and objectionable material refer to all objects or material that do not meet the quality of standards for the courses of pavement to be constructed or which protrude into the excavation for slopes.

Measurement and Payment - Measurement and payment will be at the units and prices for the applicable bid item in the proposal.

When no specific bid items are included in the bid proposal for work specified under this section this work shall be considered as incidental to other items of work and the cost shall be included in the bid for these items. No separate payment will be made.

2. CONSTRUCTION METHODS

Removal - Obstructions and objectionable material to be removed by blading, plowing, bulldozing, or other methods approved in writing by the Engineer. The use of explosives will not be permitted. Solid objects must be removed to a depth of at least one (1) foot below the finished slope or subgrade elevation. Hollow objects must be removed entirely.

Disposal - Material to be removed from the right-of-way becomes the property of the Contractor. If disposal areas are available, they will be indicated on the plans.

Preservation of Trees and Shrubs - Trees and shrubs to be preserved in the right of way are shown on the plans and must be protected from injury during construction.

Removal of Concrete - Cut concrete at the right-of-way line straight and vertical by sawing or other approved methods prior to the removal of concrete in the right-of-way.

EXCAVATION, EMBANKMENT AND PREPARATION OF SUBGRADE 1
1. GENERAL 2
2. CONSTRUCTION METHODS 2

EXCAVATION, EMBANKMENT AND PREPARATION OF SUBGRADE

1. GENERAL

Includes the excavation, embankment and preparation of subgrade determined by the lines, grades and sections shown on the plans and in accordance with the provisions of the specifications.

Excavation - Includes excavation to planned grade, disposal of the material, removal of unsuitable subgrade material and borrow material when required in the construction. All excavation to be classified as common.

Embankment - Consists of excavated or borrow materials placed and compacted in horizontal layers in accordance with the specifications.

Subgrade - The upper eight inches (8") of embankment or the upper eight inches (8") below the roadway excavation finished grade. The subgrade shall extend from six inches (6") back of curb to six inches (6") back of curb where curb and gutter is to be constructed.

Measurement and Payment - Measurement and payment to be at the units and prices for the applicable bid items in the proposal.

2. CONSTRUCTION METHODS

Excavation - Made at the location and to the lines and grades shown on the plans in areas previously prepared in accordance with provisions of Section 2A. Dispose of excess material not required in the embankment and material that is unsuitable for subgrade. Excavation tolerance to be plus or minus 1/10 foot from the plan grade.

The area between the curb and property line shall be excavated or filled, whichever is necessary, to curb height at back of curb and finished to a straight even surface to the property line. The minimum elevation at the property line shall be the elevation of the top of the curb. The maximum elevation at the property line shall be equal to a rise of 1/4 inch per foot from the back of the curb to the property line.

During the excavation of this project, it will be required that all parkways be excavated and shaped at the same time the roadway is excavated. Excess excavation will be disposed of at locations approved by the Engineer.

Embankment shall be constructed at the locations and to the lines and grades shown on the plans in areas previously prepared in accordance with Section 2A of these specifications. Top eight inches (8") of natural ground to be compacted

to embankment density requirements. Embankment shall be constructed from suitable material obtained from the excavation or borrow free of roots, rocks in excess of three inches (3"), debris and other objectionable material. Excavation deficiencies shall be supplemented from a borrow source approved by the Engineer. Embankment shall be constructed in uniform horizontal layers not to exceed eight inches (8") of loose depth and compact with suitable equipment to a minimum of ninety percent (90%) AASHTO T180. The materials shall be processed by aeration or watering to bring the material to the approximate optimum moisture. Dry layers will not be permitted. Soft spots that develop in the embankment shall be removed and replaced with suitable material. No payment will be made for removal of soft spots. Tolerance for embankment grading shall be one-half foot (1/2) plus or minus the plan grade.

Preparation of Subgrade - Eight inches (8") of the upper portion of the embankment or excavation shall be shaped and compacted to a minimum density of 95 percent (95%) AASHTO T180 and finished within a tolerance of one-half inch (1/2") in ten feet (10'). The finished subgrade shall be protected and maintained in a satisfactory condition until covered by succeeding construction.

Compaction Tests - Field density tests will be made by the Owner or by a laboratory selected by the Owner. The Contractor shall notify the Engineer when compaction has been achieved. The Contractor shall allow 24 hours for scheduling of test. Prior to the taking of subgrade density test, the entire subgrade will be tested by proof-rolling using a pneumatic roller weighing not less than 50,000 lbs. gross with tire pressure being not less than 110 psi. Any soft spots, pumping, or other evidence of weakness shall be remedied before density tests are made. Proof rolling shall be in the presence of the Engineer or his duly authorized representative.

The City will pay the cost of initial density tests made on the subgrade. If the subgrade fails to meet the density requirements on the first test, the contractor will be required to have subsequent density tests made by the commercial lab selected by owner. The cost of all subsequent density tests will be born by the contractor.

08/07

CONCRETE CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS,

VALLEY GUTTERS, CENTER DRAINS AND RIP RAP

1. GENERAL

Includes the construction of concrete curb and gutter, sidewalks, driveways, valley gutters, center drains and rip rap in accordance with lines, grades and the sections shown on the plans and constructed in full compliance with provisions of the specifications.

A proven performance record by the Texas Highway Department shall be supplied by material producers for all materials supplied by them.

2. MATERIALS

Concrete - All concrete other than rip rap shall be Class "A" concrete in accordance with Texas Highway Department specifications Item No. 421. Concrete for rip rap shall be the class as shown on the plans and detail drawings. When no concrete class is shown the plans concrete for rip rap shall be Class "B" concrete.

Concrete batch designs shall be furnished for each project and shall include all classes of concrete proposed for use on the project.

Reinforcing Steel - Reinforcing steel shall be deformed bars or wire mesh fabric conforming to the requirements of "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" Item No. 440 and shall be of the sizes and grades as shown on the plans.

The contractor, at his option, may use fiber reinforcing in lieu of the wire mesh for all concrete slab on grade. When fiber reinforcing is used, it shall be "Fiber Mesh" or "Caprolan RC" or approved equal. The material and rate of application shall be approved by the Engineer prior to its use.

Expansion Joints - Bituminous pre-molded joint filler shall be composed of top grade fiber, treated by special impregnation system with water repellent bituminous materials. It shall be a non-extruding type, resilient, expanding on release of compression, preventing open joint crevices. The pre-molded joint filler shall be of such character, that it will not be deformed by handling during hot weather, nor shall it become brittle in cold weather. It shall be free from visible external defects such as holes, ragged or untrue edges, breaks, cracks or tears. It may be covered on both sides with paper to facilitate handling.

The joint filler shall be accurately cut to the dimensions and shapes required. It shall be of the thickness required by the plans, or as specified elsewhere.

3. CONSTRUCTION METHODS

GENERAL

No concrete shall be placed when, in the Engineers opinion, weather or other conditions would be detrimental to the structure placed. No concrete shall be placed on grade when the ground temperature is 35^{o} F or lower. Concrete may be placed when the ground temperature is rising from 35^{o} F. Concrete placed in cold weather shall be protected from freezing for 72 hours after being placed.

CURB AND GUTTER

EXCAVATION AND SUBGRADE - Excavation for curb, gutter, and combined curb and gutter shall be done with the subgrade excavation for the street. Street subgrade shall extend from six inches (6") back of curb to (6") back of curb and shall be compacted for a full width to a minimum of 95% AASHTO T180-61. Where subgrade is more than three inches (3") below bottom of curb, fill shall be compacted caliche base constructed from six inches (6") back of curb to six inches (6") back of curb as specified for base course.

Whenever subgrade or base is dry or dusty, it shall be thoroughly moistened, not made muddy, before the concrete is placed.

Forms - Forms shall be of steel, of a type to be approved by the Engineer, except that curves may be formed with wood sections built up or laminated, upon prior approval by the Engineer.

The forms shall be attached securely to stakes, shall be set true to line and grade, and braced sufficiently to remain true during the placing and tamping of the concrete. Forms shall be thoroughly cleaned and oiled before each use.

Curves - All changes in direction of the curbs shall be by means of true circular curves of the radii as shown on the plans.

Expansion Joints - Expansion joints shall be placed between curb and gutter sections at the tangent points of all curves, at each side of the inlet boxes, drives, alleyways, and at intervals of not more than forty feet (40') in straight runs. The expansion material shall be pre-molded three-fourths inch (3/4") in thickness, and shall conform to the requirements of expansion material as specified herein. It shall be cut to the full size and shape or the cross section of the curb and gutter, less one-half inch (1/2") from the finished surface thereof. The edges of sections against the joint shall be finished with an edging tool and the joint raked clean of concrete.

Finishing - There shall be provided on the job a metal screed or mule designed to give proper shape to the curb and gutter. It shall be bent to the exact shape of the finished curb and gutter and the forward edge turned up slightly to prevent disturbing the mortar. It shall be designed to ride on the forms and when properly manipulated shall leave the curb and gutter in its proper shaped condition. An "S" trowel shall be used to finish the surface and minor imperfections shall be corrected with a mason's trowel. Care shall be taken to finish

the gutter flow line to a true, uniform grade. All edges shall be finished with an edging tool, and joints marked with a jointer. Joint marks shall coincide with actual joints and shall be straight and true.

Curing - The completed curb and gutter, shall be cured in accordance with the requirements of the item "Membrane Curing", Texas Highway Department Item 531.

DRIVEWAYS AND ALLEY RETURNS

Driveways and alley returns shall be constructed of Class "A" concrete to the lines and grades as shown on the plans and detail sheets. All driveways and alley returns shall be reinforced as shown on the detail drawings.

Excavation and Subgrade - Excavation shall be accomplished in the same manner as for streets and curbs. The subgrade for all driveways and alley returns shall be compacted to 95% modified proctor density for 8 inches depth.

Driveways for single family residences and property used for two family residential purposes (duplexes) may be placed on the compacted subgrade. All other driveways shall be considered as commercial driveways and shall be constructed on 6 inches compacted flexible base.

Flexible Base - Commercial driveways and alley returns shall be constructed on 6 inches of flexible base conforming to Section 2-C- Flexible Base, Caliche.

Forms - Forms shall be constructed of steel or, when approved by the engineer, wood conforming to the requirements for curb and gutter forms.

Expansion Joints - Expansion joints shall be placed at the ends of abutting curb and gutter at the end of radii for all driveways and alley returns. In addition, expansion joints shall be placed at the ends of abutting sidewalk sections and at any point where the driveway or alley return abuts another concrete structure. Expansion joint material shall be pre-molded three fourths inch (3/4") in thickness, cut to the shape and dimensions required and shall extend the full depth of the concrete.

Finishing - Shaping and finishing of driveways and alley returns shall be accomplished by using a screed to shape the driveway or alley return to the lines and grade required. Finishing shall be accomplished by use of wooden floats and stiff bristled brushes or brooms. The last finish shall be by brushing or brooming in
A direction transverse to the direction of traffic.

During the entire finishing process care shall be taken to maintain the true gutter invert in line with the street curb and gutter.

Curing - Finished driveways and alley returns shall be cured in accordance with the requirements "membrane curing" "Texas Department of Highways and Public Transportation, 1982 Standard Specifications for Highways, Streets and Bridges", Item Number 531.

CONCRETE VALLEY GUTTERS, CENTER DRAINS AND DRAINWAYS

Concrete slab type street drainage structures with or without curbs, shall be constructed of Class "A" concrete to the lines and grades as shown on the plans and detail sheets or as may be established in the field by the engineer.

Subgrade excavation preparation and compaction and flexible base shall be the same as specified for street construction. All drainage structures within the roadway shall be constructed on a flexible caliche base so that the thickness of the concrete slab plus base is equal to the thickness of the hot mix asphaltic concrete surface plus base.

Forms - Forms shall be as specified for curb and gutter.

Reinforcing - All slab type drainage structures shall be reinforced as shown on the plans and detail drawings. Care shall be taken to maintain all reinforcing in good condition and at its proper location within the slab.

Expansion Joints - Expansion joint material shall be as specified for curb and gutter and for driveways and alley returns.

Expansion joints for valley gutter shall be placed at the ends of radii and at the juncture between the fillet and the cross valley as shown on the detail sheet.

For center drains, expansion joints shall be placed at the ends of widened or transition sections and at each end of a section containing a manhole or other structure and at intervals of sixty feet (60') measured along the center line of the drain.

Additional expansion joints shall be placed where drainage slabs abut backs of curbs, sidewalks and at contact points with other concrete structures.

Contraction Joints - Contraction joints shall be spaced at 15' intervals along the center line of center drains. These contraction joints shall be saw cut 3/8" wide minimum and 1/4 the depth of the slab using an approved concrete saw.

Saw cut contraction joints shall be made after the concrete has set sufficiently to prevent excessive raveling during sawing and shall be completed before the concrete is 48 hours old.

Finishing - Finishing shall be the same as for alley returns and driveways with the last finishing operation for structures subject to vehicular traffic being by broom or stiff brush in a direction transverse to the direction of traffic.

Curing - Curing shall be the same as for curb and gutter and driveways and alley returns.

SIDEWALKS

Sidewalks shall be constructed of Class A" concrete to the lines and grades as shown on the plans and detail drawings or as may be established in the field by the engineer. Sidewalks shall be constructed parallel to the back of the curb and on a grade parallel to

the top of curb grade. The minimum thickness for any sidewalk is 4 inches. The minimum width of any sidewalk is 4 feet.

Excavation and Subgrade - Excavation for sidewalk shall be made with street excavation where applicable. Care shall be exercised in excavating for sidewalks. Any over excavation or any fill required for sidewalk must be brought to grade in lifts not to exceed two inches (2") and thoroughly tamped. Subgrade for sidewalks shall be compacted to at least the density of the adjacent soil or to 85% modified proctor whichever is greater.

When a sidewalk is to be constructed on an embankment the fill must extend at least 3 feet beyond the edge of the sidewalk.

If the subgrade is dry or dusty it must be thoroughly moistened but not made muddy before concrete is placed.

Forms - Forms for sidewalks may be either steel or wood. Forms must be in good shape and true to line and grade. If nominal 2" x 4" lumber is used the subgrade must be finished one half inch (1/2") below the bottom of the form to provide the required 4 inch thickness.

Expansion Joints - Expansion joint material shall be pre-molded conforming to these specifications and shall be one half inch (1/2") thick. The expansion joint shall extend the full depth of the sidewalk.

Expansion joints shall be placed at points where the sidewalk contacts the back of curb, at all junctures between sidewalks all directions, and at all points where the sidewalk abuts a driveway, alley return or other concrete structure including fence foundations.

Transverse expansion joints shall be constructed in the sidewalk at intervals not exceeding twenty eight feet (28') as measured along the centerline of the walk except for sidewalks that are constructed wider than four feet (4') in which case expansion joints may be placed at intervals that are multiples of the width but not exceeding thirty feet (30').

Contraction Joints - Contraction joints consisting of trowel cuts one and one half inches (1-1/2") deep shall be spaced at four foot (4') intervals along the sidewalk. Contraction joints shall be edged using an edging tool with a 1/4 inch or 3/8 inch radius.

For sidewalks wider than four feet (4') contraction joints may be placed at intervals equal to the width of the walk up to but not exceeding ten feet (10').

Finishing - Sidewalks shall be "struck off" with a screed to provide an even surface and float finished using a wooden float.

The final finish on the sidewalk shall be accomplished by brooming or brushing using a stiff bristled brush or broom with the final strokes being in the transverse direction.

Curing - Curing shall be as specified for curb and gutter and driveways and alley returns.

CONCRETE RIP RAP

Concrete rip rap shall be constructed of concrete of the class and to the line and grades as shown on the plans.

Excavation and Subgrade - Care shall be taken not to over excavate for rip rap. The subgrade for rip rap shall be compacted to at least the density of the adjacent undisturbed soil or 85% modified proctor whichever is higher.

Forms - Forms, where required, may be either steel or wood. Forms must be in good condition and true to line and grade.

Expansion Joints - Expansion joints, where required, will meet the requirements of expansion joints materials as specified herein and will be placed as shown on the plans or directed by the engineer.

Finishing - Finishing shall be by screed and wooden float to produce true uniform surface.

Curing - Curing shall be as specified for other concrete herein.

Slope Paving - Slope paving may be required behind the curb or behind sidewalks where street paving requires deeper cuts in developed areas. Slope paving shall be constructed of Class "A" concrete and shall be constructed to the lines and grades as shown on the plans or as established in the field. Slope pavement shall be four inches (4") thick and shall be constructed in accord with the specifications for sidewalks.

When no slope grade is given on the plans the slope gradient shall be l:l.

Unless listed separately on the bid proposal, slope pavement shall be measured and paid for as sidewalk.

4. BACKFILL AND CLEANUP

GENERAL

Backfill and clean up are an integral part of the various items covered by this specification and must be completed for each item before that item will be considered for payment.

CONCRETE STRUCTURES WITHIN THE PAVED AREA OF STREETS

Backfill and clean up for concrete structures within the paved areas of streets, alleys, etc. shall receive special attention to assure the integrity of the street pavement.

Structures constructed in previously paved areas shall have sufficient surface removed along with base and subgrade where necessary to set full face forms for the concrete. As soon as the forms are removed all loose material shall be removed from the form trench and the trench filled to the base level with Portland cement stabilized backfill material

consisting of two (2) sacks Portland cement to one (l) cubic yard of caliche base material or one (l) cubic yard "blow sand". When the cement stabilized backfill has cured the pavement edge shall be saw cut to provide true and straight lines and the pavement restored to its original or revised grade using Hot mix asphaltic concrete conforming to the requirements of Section 2-F of these specifications.

For structures constructed on previously prepared subgrade or base course, clean up and backfill shall be considered complete when the subgrade or base course has been made ready to receive the next course.

When a structure is constructed on a finished base course and it is necessary to remove base material to set forms, backfill and cleanup shall be as described for previously paved areas and shall be considered complete when the base course is made ready to receive the surface course or courses.

BACKFILL BEHIND CURBS AND ALONG SIDEWALKS

Backfill behind curbs and along sidewalks that is to be grassed shall be made using good top soil. Top soil shall be free of caliche, rocks, clods, lumps, debris and other objectionable material. This backfill shall be compacted to at least the density of undisturbed adjacent soil but not less than 85% modified proctor.

Backfill behind curbs and along sidewalks that is to receive paving shall be constructed to conform to the base and subgrade of the adjacent paving and shall be compacted to 95% modified proctor. Or the contractor may elect to backfill to the top of the base with two (2) sack cement stabilized backfill.

In undeveloped areas and in areas where no sidewalks exist the contractor shall slope from the back of the curb to a maximum height of 1/4 inch per foot rise from the top of the curb to the property line on a straight line grade. The minimum elevation at the property lines shall be top of curb elevation.

In deeper cut areas slope paving may be required. When slope paving is required it shall be constructed to the lines and grades shown on the plans. Backfill and shaping beyond the slope paving shall be in accord with the applicable portions of this specification.

CONCRETE CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS....1

VALLEY GUTTERS, CENTER DRAINS AND RIP RAP....1

1. GENERAL....1
2. MATERIALS....1
3. CONSTRUCTION METHODS....2

GENERAL....2
CURB AND GUTTER....2
DRIVEWAYS AND ALLEY RETURNS....3
CONCRETE VALLEY GUTTERS, CENTER DRAINS AND DRAINWAYS....4
SIDEWALKS....4
CONCRETE RIP RAP....6

4. BACKFILL AND CLEANUP....6

GENERAL....6
CONCRETE STRUCTURES WITHIN THE PAVED AREA OF STREETS....6
BACKFILL BEHIND CURBS AND ALONG SIDEWALKS....7

Updated 3/06

CONCRETE STRUCTURES

1. GENERAL

This specification covers concrete structures including but not limited to junction boxes, culverts, head walls, cast in place manholes, valve vaults, meter vaults and retaining walls.

2. MATERIALS

CONCRETE

Concrete for cast in place manholes, junction boxes, storm sewer inlet boxes, valve vaults and direct traffic culvert and bridge decks shall be a modified class "C" concrete using a minimum of 6 sacks cement per cubic yard with a maximum water content of 5 gallons per sack of cement and producing a concrete with 4000 psi 28 day compressive strength.

Concrete for other structures shall be class "A" as specified in "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" item number 421. Concrete for riprap shall be class "B".

Reinforcing steel shall conform to the requirements of item number 440 or "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" and shall be of the sizes and grades as shown on the plans.

3. CONSTRUCTION

Construction of concrete structures shall be in accordance with the provisions of item 420 "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges".

FLEXIBLE BASE, CALICHE 1
1. GENERAL 2
2. MATERIALS 2
3. CONSTRUCTION 3
4. TESTING 3

FLEXIBLE BASE, CALICHE

1. GENERAL

This item consists of the construction of a caliche flexible base course to the lines, grades and thickness shown on the plans and in accordance with the provisions of the specifications.

Qualification of Material Source - There will be no designated material sources, but the source proposed by the Contractor must be approved by the Engineer. The contractor shall furnish evidence of capability to crush and screen the material with suitable equipment.

Measurement and Payment - Measurement and payment to be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Material from the approved source shall meet the following requirements when tested in accordance with the referenced testing standards:

Gradation - Tested by ASTM C 136-67 to meet the following gradation limits:

Sieve Size	Percent Passing
1-3/4"	100.0
7/8"	65-90
3/8"	50-70
No. 4	30-60
No. 40	15-35

Liquid Limit and Plasticity Index **-** Tested by ASTM D423-66 and D 424-59.

Liquid Limit - 30.0 Maximum
Plasticity Index - 10.0 Maximum
Triaxial Classification - Tested by Texas Highway Department Method TEX 117-E, Part II - minimum class 3.0.

Source Quality Control - The contractor shall exercise caution in the operation of the material source to prevent the inclusion of inferior materials.

3. CONSTRUCTION

A. The subgrade shall be finished true to the lines and grades as shown on the plans or as established by the Engineer and finished within specified tolerances and properly maintained to prevent drying and/or loosening of the surface.

No base material may be dumped on any subgrade until it has been tested and approved by the Engineer.

B. Flexible caliche base material shall be placed in uniform courses and processed to provide a uniformly mixed base course of the proper moisture content for compaction. The processing and compaction procedure used shall provide a uniform base course compacted to ninety-five percent (95%) modified proctor density (YACHT T180) minimum. The minimum thickness of any one compacted course shall be three inches (3"). The maximum thickness of any one compacted course shall be eight inches (8").

Any soft or segregated spots that appear in the base shall be removed, replaced or reprocessed and recompacted prior to final finishing of the base. The finished base shall conform to the lines and grades as shown on the plans or established by the Engineer. Finished tolerances shall not exceed one half inch (1/2") in ten feet (10').

The finished base shall be primed as soon after finishing as practical and shall be protected until the hot mix asphaltic concrete surface is applied. In no case will prime be applied until the finished base has been approved by the Engineer.

4. TESTING

A. All test for approval of the source shall be performed by a commercial lab selected by the owner and shall be paid for by the contractor.

B. Gradation and soil constants tests (ASTM C-136, D423 and D424) and THD Triaxial Test (THD TEX117-E Part II) will be performed for source approval. Should the appearance, workability or other visual checks indicate a possible change in the material being furnished, the Engineer may require the contractor to retest the material for source approval.

C. Field quality control test will consist of the finish tolerance test and density test.

The finish tolerance test will be performed by the contractor at his expense using a 10' rolling straight edge. This test shall be performed at the direction of the Engineer or his representative. When required, the test shall consist of checking one path in each lane with the rolling straight edge.

Density test will be made by the City or a commercial laboratory chosen by the City using Troxler 3411-B nuclear density gauges or approved equal at the minimum rate of one test for each 1000 square yards of base. In no case shall less than three tests be run on any one area processed as a unit. The City will bear the cost of the first test or set of tests only. If the base fails the first test the contractor, at his own expense, will be required to have all subsequent tests performed by the commercial laboratory chosen by the city.

8/07

BITUMINOUS PRIME

1. GENERAL

This item consists of the application of a bituminous prime coat to the finished caliche base in accordance with the provisions of the Specifications.

Qualification of Material Source - Material shall be supplied by a producer with a proven performance record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment will be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Cut-back asphalt grade MC-30, Texas Highway Department Item 300.

Source Quality Control - Certificates of compliance to be furnished by the producer to the Engineer.

3. CONSTRUCTION METHODS

Condition of Base - The surface of the base shall be tightly compacted to the line and grade shown on the plans and within the tolerances of the specifications. The surface shall be clean and the base shall contain sufficient moisture to assure the proper penetration of the prime.

The prime shall be applied with an approved distributor to the surface of the base at a rate of between 0.15 and 0.40 gallon per square yard. The application rate shall be varied to meet field conditions and to obtain uniform coverage, and adequate penetration. Properly applied prime coat should penetrate from 3/8" to 1/2" into the base and should cure in approximately 72 hours with ambient temperatures at or near 70 degrees F. The prime shall be applied at a temperature within the range of temperatures recommended in Item 300 of Texas Highway Department Standard Specifications. The temperature shall be varied within this range to provide a viscosity that will assure even spreading and penetration of the base. Air Temperatures at the time of application shall be above 50'F.

BITUMINOUS TACK

1. GENERAL

This item consists of the application of a bituminous tack coat to the primed base or existing asphaltic concrete or Portland cement concrete pavement in accordance with the provisions of the specification.

Qualification of Material Source - Material shall be supplied by producer with a proven performance record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment will be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Cut-back asphalt grade RC-250, Texas Highway Department Item 300.

3. CONSTRUCTION METHODS

Conditions of Surface - Prior to application of tack to the base course the prime must be completely penetrated into the base and the surface cleaned of foreign objects.

The tack shall be applied with an approved distributor at a rate of between 0.05 and 0.10 gallons per square yard. The temperature of application shall be within the range recommended by the Texas Highway Department in Item 300. The surface temperature to which tack is being applied shall be above 50 degrees F. at the time of application.

When the asphaltic concrete surface is being placed on primed caliche base, use of the tack coat may be waived by the Engineer if the contractor can show that adequate adhesion of the surface being placed to the base course is achieved without it.

Tack coat shall be placed on all asphaltic concrete or portland cement concrete surfaces on which an additional course of asphaltic concrete surfacing is to be placed. The tack coat shall be rolled with a pneumatic roller to assure even distribution over the entire surface and to achieve proper penetration into and adhesion to the surface being overlayed.

HOT MIX ASPHALTIC CONCRETE

I. GENERAL

Includes the construction of the hot mix asphaltic concrete surface in accordance with lines, grades and the sections shown on the plans and with the provisions of the specifications.

Qualification of Material Sources - Producers of oil asphaltic concrete mixture to have a proven record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment to be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Oil Asphalt - Oil asphalt grade AC-l0 or AC-20, Texas Highway Department Item 300. When no asphalt grade is shown on the plans, and unless directed otherwise by the Engineer, asphalt for this project shall be grade AC-10.

Coarse Aggregate - Crushed stone or crushed gravel with a minimum of 75 percent of the aggregates having two or more crushed faces. Additional requirements:

(a) Los Angeles Abrasion: ASTM C l3l, Wear not to exceed 40.

(b) Decantation: Maximum 2.0 percent by weight

Fine Aggregates - Natural sand and screenings crushed from the same or similar material meeting the requirements of the course aggregates. Additional requirements.

(a) Plasticity Index: Maximum of 6.

(b) Sand Equivalents: Minimum of 50 for each individual fine aggregate.

Paving Mixtures - The paving mixture(s) shall be as shown on the plans and details. If no mixtures are shown on the plans surface or wearing courses up to l-3/4 inches thick shall be Type D, base courses up to 2 inches thick shall be Type C and base courses over 2 inches thick shall be Type B or Type A.

(a) Gradation: The master gradations for the paving mixtures are:

TYPE "A" (Coarse Graded Base Course):	Percent Aggregate by weight or volume
Passing 2" sieve	100
Passing l-3/4" sieve	95 to 100
Passing l-3/4" sieve, retained on 7/8" sieve	16 to 42
Passing 7/8" sieve, retained on 3/8" sieve	16 to 42
Passing 3/8" sieve, retained on No. 4 sieve	10 to 26
Passing No. 4 sieve, retained on No. l0 sieve	5 to 21
Total retained on No. l0 sieve	68 to 84
Passing No. l0 sieve, retained on No. 40 sieve	5 to 21
Passing No. 40 sieve, retained on No. 80 sieve	3 to 16
Passing No. 80 sieve, retained on No. 200 sieve	2 to 16
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

TYPE "B" (Fine graded Base or Leveling-up course)	Percent Aggregate by Weight or Volume
Passing l" sieve	100
Passing 78" sieve	95 to 100
Passing 7/8" sieve, retained on 3/8" sieve	21 to 53
Passing 3/8" sieve, retained on No. 4 sieve	11 to 42
Passing No. 4 sieve, retained on No. l0 sieve	5 to 26
Total retained on No. l0 sieve	58 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 21
Passing No. 80 sieve, retained on No. 200 sieve	3 to 21
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

Type "C" (Coarse Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing 7/8" sieve	100
Passing 5/8" sieve	95 to 100
Passing 5/8" sieve, retained on 3/8" sieve	16 to 42
Passing No. 4 sieve, retained on No. l0 sieve	11 to 37
Total retained on No. l0 sieve	54 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 27
Passing No. 80 sieve, retained on No. 200 Sieve	3 to 27
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

TYPE "D" (Fine Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing l/2" sieve	100
Passing 3/8" sieve	85 to 100
Passing 3/8" sieve, retained on 4" sieve	21 to 53
Passing No. 4 sieve, retained on No. l0 sieve	54 to 74
Total retained on No. l0 sieve	54 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 27
Passing No. 80 sieve, retained on No. 200 sieve	3 to 27
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 4 to 8 percent of the mixture by weight.

TYPE "F" (Fine Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing 3/8" sieve	100
Passing No. 4 sieve	95 to 100
Passing No. 4 sieve, retained on No. l0 sieve	58 to 73
Passing No. l0 sieve, retained on No. 40 sieve	6 to 26
Passing No. 40 sieve, retained on No. 80 sieve	3 to 13
Passing No. 80 sieve, retained on No. 200 sieve	2 to 11
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 6.5 percent of the mixture by weight.

(b) Tolerances: Deviations from job mix formula limited to:

(l) Sizes larger than the l0 sieve- Plus or Minus 4 percent.

(2) No. l0 sieve and smaller - Plus or Minus 3 percent.

(3) The deviation from the job mix formula shall be further limited in that the total deviation from the job mix formula between any two adjacent aggregate grades shall not exceed the allowable deviation for either one.

(4) Asphalt - Plus or Minus 0.3 percent.

(c) Density - The mixture shall be designed to produce an acceptable mixture within tolerance, at or near optimum density. The mixture molded in the laboratory should have the following percent of maximum theoretical density:

Minimum	Maximum	Optimum
96	98	97

(d) Stability: Minimum of 35 Hveem

Source Quality Control - Paving mixture and plant tests to be performed by laboratory selected and paid by the Owner, except as noted.

Job Mix Formula - The contractor shall submit a job mix formula, prepared by laboratory chosen by the owner, at least l0 days in advance of laying operations to allow time for review by the engineer. Substitution of one or more materials will require a new job mix formula and must be approved by the engineer.

The design of job mix formula whether for original submittal or revisions shall be paid for by the contractor.

Plant Tests - Check of raw material uniformity, quality and flow, hot bin gradations, temperature of mixture, mixture tests for density, stability and percent asphalt and other necessary tests to be performed bythe laboratory selected by the owner for each day's production.

Oil Asphalt - Producer to furnish certificates of compliance to the Engineer.

3. CONSTRUCTION METHODS

A. GENERAL

Condition of Base - The surface of the base shall be tight and free of debris. The prime coat shall be uniformly distributed, well penetrated and completely cured prior to application of the tack coat. If the mixture will adhere to the surface of the base without the application of a tack coat, the tack coat can be eliminated. If the surface of the base is one half (l/2") inch or more lower than the proposed bottom of the asphaltic concrete it shall be corrected by placing and compacting a level up course of the asphaltic concrete before the mat is placed on it.

Stockpiling, Storage, Batching and Mixing - Shall meet the requirements of Item 340, "Texas Highway Department l982 Standard Specifications for Road and Bridge Construction.

Weather Limitations - Shall be the requirements of Item 340,"Texas Highway Department l982 Standard Specifications for Road and Bridge Construction." With the added provision that no asphaltic concrete shall be placed when the surface on which the mat is to be placed is below 50 degrees F.

Thickness - Shall be as shown on plans. Unless shown otherwise on the plans, the maximum compacted thickness of any one course of asphaltic concrete shall be two and one-half (2-l/2) times the maximum aggregate size of the mixture being placed. The minimum shall be one (l) inch or one and one fourth (1-1/4) times the maximum particle size which ever is greater.

B. PLACING

Placing of Asphaltic Concrete shall be accomplished using an approved self propelled spreading and finishing machine with a heated vibrating screed capable of producing a surface that will meet the requirements of the typical cross section and the surface test, and when the mixture is dumped directly into the finishing machine shall have adequate power to propel the delivery vehicles in a satisfactory manner. The finishing machine shall be equipped with a flexible spring and/or hydraulic type hitch sufficient in design and capacity to maintain contact between the rear wheels of the hauling equipment and the pusher rollers of the finishing machine while the mixture is being unloaded.

The use of any vehicle which requires dumping directly into the finishing machine and which the finishing machine cannot push or propel in such a manner as to obtain the desired lines and grades without resorting to hand finishing will not be allowed. Vehicles dumping directly or indirectly into the finishing machine shall be so designed and equipped that unloading into the finishing machine can be mechanically and/or automatically operated in such a manner that overloading the finishing machine being used cannot occur and the required lines and grades shall be obtained without resorting to hand finishing.

Automatic screed controls will be required and shall meet the requirements item, 528 "automatic screed controls for asphaltic concrete spreading and finishing machines "Texas Department of Highways and Public Transportation 1982 Specifications for Construction of Highways, Streets and Bridges".

The screed shall be ski controlled using a ski of not less than l8' in length. Curb shoe control will not be allowed.

The spreading and finishing machine shall be maintained in good working order and operated by competent trained personnel.

The Engineer may require the contractor to place a test strip to prove the capability of the machine and the competency of the operating personnel to produce a satisfactory finished surface.

In dips and on curved surfaces where the ski control cannot be used, the surface will be controlled using a l0' straight edge.

Fillet areas, turn outs and other areas not accessible to the spreading machine may be hand laid provided a satisfactory surface is produced.

C. COMPACTION AND FINISHING

Compaction Requirements - The asphaltic concrete surface shall be compacted so that the compacted mixture will contain not more than seven percent (7%) nor less than three percent (3%) air voids.

The surface of the pavement, after compaction, shall be smooth and true to the established line, grade and cross section, and when tested with a l0 foot rolling straightedge, except as provided herein, the maximum deviation shall not exceed l/8 inch in l0 feet, and any surface not meeting this requirement shall be corrected as directed by the engineer.

Raking and Leveling - Minor leveling may be accomplished using asphalt rakes prior to compacting the surface. The surface shall be leveled by loosening the surface of the asphaltic concrete using an asphalt rake then adding or removing material and smoothing the surface. Any large aggregate worked to the surface in this process shall be removed before compaction. The large aggregate shall not be spread over the new asphaltic concrete surface.

Edges and joints with compacted asphalt or concrete gutters shall be carefully squared and excess material removed before compaction. Care shall be taken to see that NO excess material laps over onto the surface of existing asphaltic concrete paving or concrete gutters. Large aggregate worked to the surface in this process shall be removed. It shall not be spread over the new asphaltic concrete surface.

Rolling - In general rolling shall conform to the requirements of item 340 of the Texas Department of Highways and Transportation 1982 Specifications for Construction of Highways, Streets an Bridges except as modified herein.

It shall be the responsibility of the contractor to have rolling equipment available on the job to properly compact the paving mixture in place as required without delay to the lay down operation. Rollers provided shall meet the qualifications for their type as follows:

PNEUMATIC TIRE ROLLERS: The rollers shall be acceptable medium pneumatic tire rollers conforming to the requirements of the item, "Rolling (pneumatic tire)", Type B, unless otherwise specified on plans.

TWO AXLE TANDEM ROLLER: This roller shall be an acceptable power driven tandem roller weighing not less than 8 tons.

THREE WHEEL ROLLER: This roller shall be an acceptable power driven three wheel roller weighing not less than l0 tons.

THREE AXLE TANDEM ROLLER: This roller shall be an acceptable power driven three axle roller weighing not less than l0 tons.

Vibrating rollers will not be used without prior written approval of the engineer. Written approval will be granted only upon demonstration by the contractor that the roller and operator can produce a satisfactory surface within the tolerances of these specifications. Only the operator or operators thus approved will be allowed to operate the vibrating roller on this project.

Areas not accessible to standard rollers shall be compacted using trench rollers, impact tampers, hand tamps or other approved means that will produce the density and surface required.

JOINTS- Shall be carefully rolled to provide compaction of the asphalt against the existing surface or face of the concrete gutter. Joints between concrete gutters and Hot Mix Asphaltic Concrete shall be placed so that the HMAC will be approximately l/2 inch higher than the concrete when compaction is completed. At transverse joints such as valley gutters and fillet areas where finishing asphalt paving 1/2 inch above the edge of concrete will adversely affect ride quality the asphalt shall be finished 1/4 inch above the edge of the concrete.

Transverse joints shall be rolled in the transverse direction with the first pass extending approximately six (6") inches onto the new asphalt each additional pass shall extend approximately twelve (12") inches further onto the new asphalt until the full width of the roller is on the new asphalt. Longitudinal rolling may begin then.

All transverse joints shall be checked with a l0" straight edge while the material is

still hot enough to roll. Any corrections shall be made by loosening the material using an asphalt rake and adding or removing material and recompacting the surface. The surface shall be rechecked and when the joint is acceptable the asphalt spreading machine may proceed with the pass.

Final or finish rolling shall be accomplished using a two axle tandem roller to remove roller marks. This rolling shall be accomplished after the surface has cooled sufficient to minimize further marking but before it is too cool to respond to rolling.

STRAIGHTEDGES AND TEMPLATES - The contractor shall provide acceptable l0 foot straightedge for surface testing. Satisfactory templates shall be provided as required by the Engineer.

4. FIELD QUALITY CONTROL

Test Lots - Field Quality Control Tests shall be made by lot with a lot being the amount of contiguous surface laid in one day. No lot shall exceed l0,000 S.Y. If a days laying exceeds l0,000 S.Y., that days laying shall be divided into two approximately equal lots. The same lot divisions shall be used for all Quality Control Tests. Each separate block or combination of contingeous (blocks) of paving shall be considered as a separate lot even though they may be placed in a single day and do not comprise l0,000 S.Y. of surface.

Surface Tests - Surface tolerance tests will be performed in both longitudinal and transverse directions. The test for longitudinal surface tolerance will be performed with a ten-foot rolling straightedge furnished by the contractor, and calibrated and used in accordance with the manufacturer's recommendation or other approved method.

The maximum allowable deviation in surface shall be 1/8 inch in 10 feet. Tests for longitudinal surface tolerance will be performed by the contractor, accompanied by the engineer within 24 hours of the completion of a lot. One path in each lane for the length of the entire lot will be tested. The location of the test path (Distance from centerline or pavement edge) will be determined by the engineer through the use of random numbers. Any deviations in the surface finish of a roadway wearing course which exceeds l/4 inch must be corrected. After corrections have been made, the entire lot must meet the l/8 inch surface tolerance.

Thin course "scab on" patching will NOT be permitted. Corrections may be made by planning, milling and patching or by removing and replacing affected surface area.

When milling and patching is used to correct surface defects the minimum depth of removal shall be l".

For milling and patching or surface removal the area removed or milled shall be sufficiently large to avoid the appearance of patching.

When planning is used to correct defects the thickness of the remaining paving shall meet the thickness requirements as shown on the plans.

Surface tolerance test will be performed on the last or wearing course only.

Asphaltic concrete pavement constructed under these specifications that does not meet the surface tolerance requirements and is allowed to remain in place will be paid for at a reduced rate determined by multiplying the price bid for the wearing surface course by a surface tolerance quality factor. This rate shall apply to the entire lot.

Lower courses will not be affected by this quality factor but will be paid for at the price bid or such price as it may be affected by other quality factors.

The surface tolerance quality factor will be determined according to the following schedule:

Linear % of pavement exceeding 1/8 inch surface tolerance	Surface tolerance quality factor
0.0 to 1.0	1.0
1.1 to 1.5	0.9
1.6 to 2.5	0.8
over 2.5	0.5

Roadway surface requirements will not be applied for paved drives, aprons, turnouts, and other irregular sections, however, asphaltic concrete shall be placed in such a manner as to provide a neat and uniform appearance and shall be compacted by methods satisfactory to the engineer.

The contractor may request permission to reconstruct a portion of the pavement when, in his opinion, the surface tolerance quality factor can be improved. Upon approval of the engineer, the contractor shall take sufficient tests to isolate the portion or portions of pavement to be pre- constructed and remove and reconstruct the pavement. All costs in connection with this reconstruction are to be born by the contractor. The minimum width of this reconstruction shall be l/2 the street width unless approved otherwise in writing by the engineer. The portions reconstructed shall be re-tested and the surface tolerance quality factor recomputed using the new information along with the test from the area within the portion of the lot not reconstructed.

When other quality factor reductions are provided for on the plans or in the specifications the effect shall be cumulative ie: QFl x QF2 x QF3 x ....x QFn x unit price.

No payment will be made for pavement with a combined quality factor of less than 0.5.

Thickness Test - Thickness test will be made by the engineer on each course of asphaltic concrete laid. Test specimens shall be made by a commercial laboratory selected by the owner. Test specimens shall be cores having a minimum nominal diameter of 6". These cores shall be made in the presence of the inspector at locations designated by the inspector using an approved power operated coring machine.

For thickness and compaction test, each lot shall be divided into approximately equal sublots corresponding in width to each pass of the lay down machine and containing up to but not exceeding 2,000 square yards each. If a lot contains less than 2,000 square yards the engineer may, at his option, divide the lot into two equal sublots, or, if the contractor has a record of satisfactory workmanship, the engineer may waive tests on said lots.

The engineer will locate one test spot for each l,000 S.Y. and/or fraction thereof in each sub-lot using random numbers. If a spot thus located falls within one foot of a longitudinal joint or lip of gutter or within two feet of an unsupported edge or within l5 feet of the beginning or ending edge of a pass, the engineer will relocate the spot using random numbers. The commercial laboratory chosen by the owner will remove the test specimen from each designated spot, mark the specimen and the adjacent pavement for future reference and perform the required tests. Test specimens shall be removed with special caliper type tongs having circular jaws of the diameter of the specimen being removed. These jaws shall grip at least 1/2 of the circumference of the specimen. Screw drivers or other type of prying instruments shall not be used to remove the specimens.

The thickness of a specimen shall be determined by averaging four (4) measurements made at ninety degree (90) intervals around the specimen. Any thickness less than design thickness shall be considered as deficient.

For hot mix asphaltic concrete pavement less than 2 inches thick the maximum allowable deficiency in any one test specimen is l/8 inch provided that no more than twenty five percent (25%) of the specimens tested show a deficiency. For pavement in excess of 2 inches in thickness the maximum allowable deficiency in any one specimen shall be l/8 inch plus l/l6 inch for each additional inch of thickness provided that no more than twenty five percent (25%) of the test specimens show a deficiency.

When a test specimen has a greater deficiency and less than (25%) of the test specimens show a deficiency the contractor shall, at his own expense, determine the extent of the deficiency and correct it by removing and replacing the surface. The minimum width for such correction will be the full width of the pass or passes of the lay down machine in which the deficiency occurs.

The minimum length of such correction shall be three times the width removed. When more than (25%) of the test specimens show a deficiency the surface may at

the engineers option be declared uniformly deficient and the contractor shall correct the deficiency by removing and reconstructing the surface or by constructing an overlay of not less than l inch thickness over the deficient area. The construction of an overlay will require milling at lip lines and dips.

The corrected surface shall meet all the requirements of these specifications.

Asphaltic concrete pavement constructed under these specifications that is less than design thickness, if allowed to remain in place, will be paid for at a reduced rate determined by multiplying the unit price bid in the bid proposal by a thickness quality factor. This rate shall apply to the entire lot in which the deficiency is found.

The thickness quality factor for hot mix asphaltic concrete pavement less than 2 inches in thickness shall be:

Thickness Deficiency	Quality Factor
Maximum l/8" for any one specimen with no more than 25% of the specimens showing a deficiency.	l.0
Pavement not meeting the 25% limitation with an average specimen deficiency up to l/8 inch.	0.75
Average specimen deficiency of l/8 inch to l/4 inch	.55
Average deficiency of more than l/4 inch	0.0

The thickness quality factor for hot mix asphaltic concrete more than 2 inches thick will be l.0 if the maximum deficiency for any one specimen is l/8 inch plus l/l6 inch for each additional inch of thickness over 2 inches and not more than twenty five percent (25%) of the test specimens in the lot are deficient. For thickness test that fall outside this area either by single specimen thickness deficiency or more than twenty five percent (25%) of the specimens showing deficiency the thickness quality factor shall be computed as follows:

$$\text{Thickness Quality Factor} = \frac{1}{\left(\frac{1}{\text{Thickness Ratio}}\right)^2}$$

The thickness ratio for a lot is the average specimen thickness for that lot, with no allowance for thickness in excess of design, divided by the design thickness. For determining the average specimen thickness, those specimens in excess of design thickness shall be considered at design thickness.

The minimum thickness quality factor for which payment will be allowed is .55. Any pavement with a thickness quality factor below .55 will be considered as having a thickness quality factor of 0. This shall apply only if the contractor requests, in writing, to have this paving remain in place and this request is approved in writing by the engineer.

When the deficient area is in a lower course of a multi-course paving structure the contractor may reduce or correct the deficiency by increasing the thickness of the subsequent course or courses as follows:

When subsequent course is	Maximum increase in course thickness
Type B	1/2"
Type C	3/8"
Type D	1/4"

When corrected in this manner the thickness quality factor shall be determined using the combined thickness of the corrected courses and shall apply to all unit prices applicable to this lot.

The contractor may request permission to reconstruct a portion of the pavement when, in his opinion, the thickness quality factor can be improved. Upon approval of the engineer, the contractor shall take sufficient tests to isolate the portion or portions of pavement to be reconstructed and remove and reconstruct the pavement. All cost in connection with this reconstruction are to be born by the contractor. The minimum width of this reconstruction shall be l/2 the street width unless approved otherwise in writing by the engineer. The portions reconstructed shall be retested and the thickness quality factor recomputed using the new information along with the test from the area within the portion of the lot not reconstructed.

When other quality factor reductions are provided for on the plans or in the specifications the effect shall be cumulative ie: QFl x QF2 x QF3 x....x QFn x unit price.

No payment will be made for pavement with a combined quality factor of less than 0.5.

Compaction Test: Compaction test will be made by the commercial laboratory chosen by the owner on the core samples removed from the paving for thickness testing.

The percent air voids will be calculated using maximum theoretical specific gravity of the mixture.

The contractor may attempt to correct deficiencies in compaction by additional pneumatic rolling upon written permission of the engineer. Requests for permission to conduct additional rolling shall be submitted, in writing, to the engineer no later than three days following notification of the deficiency by the commercial laboratory and the additional rolling shall be completed within ten (l0) days following said notification weather permitting.

In no case shall the additional rolling be delayed beyond thirty (30) days from the date the surface was laid. All cost for additional rolling and additional coring and testing of the re-rolled surface shall be born by the contractor.

Asphaltic concrete pavement not meeting this specification and that is allowed to remain in place shall be paid for at a reduced rate determined by multiplying the price bid in the bid proposal by a compaction quality factor determined according to the following schedule:

Percent air voids (average of all specimens for the lot)	Compaction Quality factor	
less than 3	0	
3.0 to 8.0	1.0	
8.1 to 9.0	0.9	
9.1 to 10.0	0.7	
10.1 to 11.0	0.5	and the engineer may require a chip seal to be applied at the contractor's expense
More than 11		0 and the engineer may require a chip seal to be applied at the contractor's expense.

NOTE: HMAC surfacing with between 11% and 15% air voids may, upon written request by the Contractor, be reviewed by the Engineer to determine if it may be left in place. The Engineer's review will consider the type of street and expected traffic conditions among other factors and a written determination will be issued. If the surface is allowed to remain in place, a chip seal will be required at the Contractor's expense. The quality factor for this paving will remain at 0.

The reduced rate shall apply to the entire lot.

The effect of compaction quality factors shall be cumulative and shall be applied as described for surface quality factors and thickness quality factors.

Cost for Field Quality Control - The surface tolerance test shall be made by the contractor at his expense.

The initial thickness and compaction test will be made at no cost to the contractor except for the cost of materials and labor to repair the holes left when cores are removed.

The cost of all thickness test to isolate a deficient area and the cost of retesting the corrected area shall be born by the contractor.

The cost of all retesting of compaction after additional rolling to correct compaction deficiencies shall be born by the contractor.

Areas reconstructed to remedy deficiencies shall meet all the requirements of these specifications and shall be tested in the same manner as original construction. The cost of all tests on reconstructed areas shall be born by the contractor.

5. ADDITIVES

Anti-stripping: An approved liquid anti-stripping agent shall be added to the asphalt used in the hot mix asphaltic concrete. The rate of application shall be in accordance with the manufacturer's recommendation. The minimum anti-stripping agent added shall be one-half (l/2) of l%.

The anti-stripping agent used shall have a proven record when used with similar aggregate and shall be approved by the engineer in writing prior to the date set for reception of bids.

DOUBLE COURSE ASPHALT SURFACE TREATMENT

1. SCOPE

The work to be done under this section consists of furnishing all labor, materials and equipment necessary to construct a Double Asphalt Surface Treatment on the prepared base course in accordance with the sections shown on the plans and as specified herein or as directed by the Engineer.

2. MATERIALS

2.1 Asphalt

The asphalt used shall be of the grade and type specified below. The material shall be homogeneous and free from water, shall not foam when heated to 347° F., and shall meet the following requirements.

Viscosity Grade AC-5
Texas Highway Department 1982 Specifications

Viscosity 140 F. Stokes	500 +/- 100	
	Min.	Max.
Viscosity 140 F. Stokes	1.4	--
Penetration 77° F. 100 g. 5 sec.	135	--
Flash Point C.O.C.F.	425	--
Solubility in trichlorethylene percent	99.0	--

Tests on residues from thin film oven test:

Viscosity 140 F. Stokes	--	1500
Ductility, 77° F. 5 cms per min. cms.	100	--

Spot Test – negative for all grades.

2.2 Aggregate

All aggregate shall be composed of sound and durable particles of crushed stone or crushed gravel. At least eighty-five percent (85%) of the particles of the aggregate retained on the No. 4 sieve shall have one or more crushed faces. Aggregate particles shall be free from organic matter, clay, loam, or pebbles coated therewith, and shall not contain more that (5%) of slate, shale, schist or soft particles of sandstone. The aggregates shall have a percent of wear of not more than thirty-five (35). (Los Angeles Abrasion Tests of Coarse Aggregate, AASHO Designation

T-96 as revised). Crushed limestone will not be acceptable for this project.

Double Asphalt Surface Treatment

No. 1 Aggregate – (Texas Highway Department 1982 Grade 3)	Retained on ¾" Sieve -	0% by weight
	Retained on 5/8" Sieve -	0 – 2% by weight
	Retained on ½" Sieve -	20, 35% by weight
	Retained on 3/8" Sieve -	85 – 100% by weight
	Retained on ¼" Sieve	95 – 100% by weight
	Retained on No. 10 Sieve-	99-100% by weight
No. 2 Aggregate - (Texas Highway Department 1982 Grade 5)	Retained on ½" Sieve -	0% by weight
	Retained on 3/8" Sieve -	0 – 5% by weight
	Retained on No. 4 Sieve -	40 – 85% by weight
	retained on No. 10 Sieve -	98 –100% by weight
	Retained on No. 20 Sieve-	99 100% by weight

3. CONSTRUCTION METHODS

3.1 Preparation of base

If the surface of the base course is not in proper condition for placement of surfacing, it shall first be brought true to the section and grade as established. The base shall be checked, and any deviation in excess of ¼-inch from grade or from true cross section shall be corrected by scarifying then adding or removing material, reshaping and re-compacting by sprinkling and rolling. No "scab" or "featheredge" patches will be permitted. After correction of any defects in the base, it shall be cleaned of dirt, dust, or other deleterious material by sweeping or other approved methods and primed.

The base course shall be primed with MC-30 Asphalt as directed by the Engineer. The asphalt used shall meet the 1982 Texas Highway Department Specifications Item 300.

The base course shall be checked at least 24 hours in advance of placing the surfacing and any defects shall be repaired and re-primed. Immediately prior to placing the surfacing, the base shall be cleaned of all dirt, dust, or other deleterious materials by sweeping with rotary and hand brooms or other approved methods.

Prime coats shall not be applied more than 7 days in advance of placing the surface course. Areas that have been primed longer than the time

specified above prior to placing the surface course shall be re-primed at the Contractor's expense.

3.2 Handling and Applying Asphalt

All storage tanks, piping, retorts, booster tanks, and distributors used in storing or handling asphalt shall be kept clean and in good operating condition at all times, and they shall be operated in such a manner that there will be no contamination of the asphalt with foreign material. Asphalt shall not be heated above 400° F. at any time, and when applied, it shall be at a temperature of not less than 300° F. and not more than 350° F. The Engineer will select the temperature of application, and the Contractor shall apply the asphalt at a temperature within 15° of the temperature selected. All asphalt material heated above 400° F. will be rejected. Re-circulating heating equipment shall be equipped with recording temperature gauges.

The prime coat shall not be applied when the air temperature is below 50° F. and falling or when in the opinion of the Engineer weather conditions are not suitable. Prime coat shall not be applied when the temperature of the surface on which it is to be applied is less than 40° F. The prime coat shall be applied at least 24 hours in advance of placing the surface course. Prime coat shall be applied with an approved distributor at a rate of 0.30 gallon per square yard, or as directed by the Engineer.

Double Asphalt Surface Treatment shall not be applied when the temperature of the surface on which it is to be placed is below 50° F. and is falling but may be applied when the air temperature is above 40° F. and rising. No asphalt shall be placed when general weather conditions, in the opinion of the engineer, are unsuitable. No double asphalt surface treatment shall be placed from September 30 to April 15.

Asphalt shall be applied on the clean surface by an approved type of self-propelled pressure distributor so operated as to distribute the material in the quantity specified, evenly and smoothly, under a pressure necessary for proper distribution. The Contractor shall provide necessary facilities for determining the temperature of the asphalt in all of the heating equipment and in the distributor, for determining the rate and pressure at which it is applied, and for securing uniformity at the junction of two distributor loads. The beginning and ending of each shot of asphalt shall start and stop on a strip of heavy craft paper of not less than thirty (30) inches in width.

In areas inaccessible to the distributor, asphalt shall be applied by means of a hose and spray nozzles attached to the distributor. Care shall be

taken during application of any asphalt to shield the curb and gutter from the asphalt spray; satisfactory means of handling this matter will be insisted upon.

3.3 Application of Aggregate

Immediately after making the first application of asphalt, the surface shall be covered with No. 1 aggregate. The aggregate shall be spread with an approved self-propelled continuous feet aggregate spreader box, or approved equal, at rates as specified below or as directed by the Engineer. If necessary to obtain uniform distribution of aggregates, hand brooming and hand spotting of aggregates will be required. After completion of placing the aggregates, all areas shall be bull-wheeled with a three- wheeled roller weighing not less than 8 tons followed immediately by two complete passes with an approved self propelled pneumatic roller.

The second application of asphalt shall then be made and the No. 2 aggregate shall be applied in the same manner as stated above for the No. 1 aggregate. The Contractor shall be responsible for the maintenance of the surface and the distribution of the excess aggregate until the work is accepted.

On the two successive days following completion of the work as specified above, all areas shall be rolled with at least four complete coverage's with a pneumatic roller. This rolling shall be done in the warm part of the day.

3.4 Rate of Application of Materials

The asphalt and aggregate shall be applied at the rates specified in the following schedule:

Double Asphalt Surface Treatment

Application	Aggregate Gal. Asphalt/Sq. Yd.	Aggregate Cu. Yd. To Sq. Yds.	Designation
First	0.30	1:70	No. 1
Second	0.40	1:110	No. 2

3.5 Cleanup

After completion of the asphalt surfacing, all debris resulting from the construction shall be cleaned up and removed from the site of the work to

an approved place of disposal. The ditches, shoulders and back slopes shall be bladed and graded to true grades and cross sections as shown on the plans. The entire premises of the work shall be left in a clean condition satisfactory to the Engineer, and all costs of cleanup shall be included in the contract unit prices for the items of work involved.

DOUBLE COURSE ASPHALT SURFACE TREATMENT 1
1. SCOPE 1
2. MATERIALS 1
2.1 Asphalt 1
Viscosity Grade AC-5 1
Texas Highway Department 1982 Specifications 1
Viscosity 140 F. Stokes 1.4 --..... 1
2.2 Aggregate 1
Double Asphalt Surface Treatment 2
3. CONSTRUCTION METHODS 2
3.1 Preparation of base 2
3.2 Handling and Applying Asphalt 3
3.3 Application of Aggregate 4
3.4 Rate of Application of Materials 4
Double Asphalt Surface Treatment 4
3.5 Cleanup 4

3/2006

PREPARATION OF ASPHALTIC CONCRETE SURFACE FOR OVERLAY OR SEAL COAT

1. GENERAL

This item includes patching, milling and incidentals to prepare the asphaltic concrete surface for tack coating and overlay or for application of a seal coat.

2. MATERIALS

a. Asphalt

Asphalt for hot mix asphaltic concrete shall be Grade ACl0 Texas Highway Department Item 300.

Asphaltic concrete shall be Type D or Type F Texas Highway Department Item 340 except when the overlay is the second phase of phased construction in which case the asphaltic concrete for full depth patching shall be the grade as shown on the plans.

b. Portland Cement Stabilized Base

Cement stabilized base shall conform to Texas Highway Department Item 274 and shall consist of caliche base materials described in Section 2-C of this specification. Stabilized using 2 sacks of Portland cement per cubic yard. Cement stabilized base may be blade mixed at or near the job site if the contractor can produce a uniformly mixed acceptable product by this method.

3. PATCHING

a. Patching Surface Raveling

Where, in the opinion of the engineer, surface raveling has caused sufficient loss of material to require patching, the contractor shall thoroughly clean the area to be patched by brooming, and/or compressed air nozzle. When the patched area is completely free of loose aggregate and other foreign matter the contractor shall lightly brush the area with emulsified asphalt type SS1 and apply Type F hot mix asphaltic concrete. The asphaltic concrete shall be raked using an asphalt rake and finished smooth a little higher than the existing surrounding surface and compacted using a steel wheel roller and/or a pneumatic roller. Rollers shall be sufficient size and weight to achieve

adequate compaction. Small areas may be compacted using vibrating plate compacters when approved by the Engineer.

b. Patching Deteriorated Surface

When, in the opinion of the engineer, the surface has deteriorated to a point where replacement is required the engineer shall mark the area to be removed and replaced. The contractor shall saw cut for the full depth of the asphaltic concrete and remove said pavement. The saw cut shall be rectangular in shape with the edges being parallel to and at 90` to the centerline of the street. The minimum width for any patch shall be one (l') foot. After the surface has been removed the base shall be carefully smoothed and all loose base material shall be removed. When needed the base shall be reprimed using a light shot of RC 250 or MC 30 asphalt. After the prime coat has penetrated the base material, the contractor shall apply tack coat to the sawed edges of the surface and place Type D asphaltic concrete to a sufficient depth above the existing surface to provide a compacted surface slightly higher than the adjacent surface. The patch shall be compacted to a density of 92% to 97% Rice density using steel wheel and or pneumatic rollers.

c. Patching Deteriorated Substructure

When the base and or subgrade have failed and are to be removed, the contractor shall remove the surface as specified for deteriorated surface patching. The weakened base shall be removed to a uniform depth to expose undamaged base or subgrade. The minimum depth of removal shall be six (6") inches. The base and subgrade thus removed shall be replaced with Portland cement stabilize base and compacted to 95% modified proctor density and finished at the level of the abutting base. The finished base shall be primed and the surface replaced as specified for patching deteriorated surface.

4. MILLING

Surface milling shall be accomplished using approved asphalt milling machines. The maximum depth of milling shall be one (l") inch.

Milling shall be as directed by the engineer to remove asphaltic concrete placed at valley gutters, gutters and at the ends of the first phase of phased construction for drainage and to remove the asphaltic concrete placed for a smooth connection between that phase and the existing paving. The Engineer may also direct milling to

remove ridges and ruts that have formed on the pavement surface.

The Contractor shall be responsible for controlling the milling operation so that only these areas which require milling are milled. No measurement or payment will be made for milling where only superficial surface marks are left and from which no material is removed. When milling is required to remove ridges and ruts the low areas between ridges and ruts will be considered as "milled surface" for payment.

If a smooth straight joint can not be made by milling the contractor may be required to saw cut a one (l") inch depth groove at the edge of the milled area and remove material between the saw cut and the milled area by hand. No separate payment will be made for this saw cut when required.

5. MEASUREMENT AND PAYMENT

a. Patching Surface Raveling

Measurement will be made of the actual square footage of surface area patched. Payment will be made at the price bid per square foot for patching surface raveling in the bid proposal.

b. Patching Deteriorated Surface

Measurement will be made of the square yards of street surface replaced.

Payment will be made for the actual number of square yards of street surface replaced at the price bid per square yard for patching deteriorated surface in the bid proposal.

c. Portland Cement Stabilized Base

Measurement will be made of the actual cubic yards of compacted cement stabilized base in place.

Payment will be made at the price per cubic yard bid for compacted in place Portland cement stabilized base in the bid proposal.

d. Saw Cutting

Measurement will be made of the actual length of full depth saw cut made as directed by the engineer. No measurement will be made of the sawing required to square up poor milling edges.

Payment will be made at the price per linear foot of full depth saw cutting for the actual number of feet of saw cut as measured above.

No payment will be made for saw cutting required to square up the edges left by improper, inadequate or poor quality milling.

e. Milling

Measurement will be made of the actual area milled. No measurement will be made of areas where milling leaves only superficial surface marks from which no material was removed.

Payment will be made for the actual number of square yards of surface milling as measured above at the unit price bid per square yard of surface milling in the bid proposal.

01/04

SEAL COAT

I. DESCRIPTION

This item shall consist of the application of liquid asphalt to the existing pavement surface followed by placement of cover aggregate and rolled to increase adhesion, together with other operations necessary to form a complete durable seal coat.

II. MATERIALS

A. Asphaltic Materials

The material shall be homogeneous, shall be free from water, shall not foam when heated to 347 degrees F and shall meet the following requirements:

		VISCOSITY GRADE	
TEST		AC-5 Min/Max	AC-10 Min/Max
Viscosity, 140 F stokes		500+100	1000+200
Viscosity, 275 stokes		1.4	1.9
Penetration, 77F, 100g, 5 sec.		135	85
Flash Point, C.O.C.F.		425	450
Solubility in trichlorethylene	%	99.0	99.0
Tests on residues from thin film oven test: Viscosity, 140 F stokes		1500	3000
Ductility, 77 F 5cms per min, cms		100	70
Spot Test		Negative for all grades	

B. Storage, Heating and Application Temperatures

Asphalt materials should be applied at the temperature which provides proper and uniform distribution and within practical limits avoiding higher temperatures than necessary. Satisfactory application usually should be obtained within the recommended ranges shown below. No material shall be heated above the following maximum temperatures:

Applications and Mixing

TYPE-GRADE	Recommended Range, F	Maximum Allowable, F	Heating and Storage Maximum, F
AC-5, 10	275-350	375	400

NOTE:Heating of asphalt materials (except emulsions) constitutes a fire hazard to various degrees. Proper precautions should be used in all cases and especially with RC cutbacks.

Warning to Contractors: Attention is called to the fact that asphaltic materials are very flammable. The utmost care shall be taken to prevent open flames from coming in contact with the asphaltic materials or the gases of same. The Contractor shall be responsible for damages from any fires or accidents which may result from heating the asphaltic materials.

C. Additives

1. Latex Additive: A minimum of two percent by weight latex additive (solids basis) shall be added to AC-5 asphalt when specified on the plans or in other specifications in the contract. The latex additive shall be governed by the following specifications:

The latex is to be an anionic emulsion of butadiene-styrene low-temperature copolymer in water, stabilized with fatty-acid soap so as to have good storage stability, and possessing the following properties:

Monomer ratio, B/S 70/30
Minimum solids content 67%
Solids content per gal @ 67% ..... 5.3 lbs
Coagulum on 80-mesh screen ..... 0.1% max

Type Anti-oxidant ..... staining
Mooney Viscosity of Polymer
(M/L4 @ 212 F) ....100 min
pH of Latex ..... 9.4 - 10.5
Surface Tension ..... 28-42 dynes/cm^2
Brookfield Viscosity
of Latex ..... 1200 ps max @ 67% solids

The finished latex-asphalt shall meet the following requirements:

Viscosity at 140 F, stokes ..... 1500 max
Ductility at 39.2F, 1cm per min, cm..... 100 min

2. Anti-stripping Agent. An approved liquid anti-stripping agent shall be added to the asphalt used on this project when called for on the plans or elsewhere in the specifications or bid proposal. The rate of application shall be in accordance with the manufacturers recommendations. The minimum anti-stripping agent added shall be one/half (1/2) of 1%. The anti-stripping agent shall be Permatac or approved equal.

D. Regular Aggregate

Regular aggregate shall be Type B Grade 4 or Grade 5 crushed gravel, or crushed stone as specified in Item 302 of the Texas State Department of Highways and Public Transportation (T.S.D.H.P.T.) 1982 Standard Specification for Construction of Highways, Streets, and Bridges with the following exceptions:

1. Limestone other than natural limestone rock asphalt will not be approved for use on this project.

2. Aggregate shall contain not more than 1% by weight of organic matter, clays, loam or pebbles coated therewith and shall contain not more than 5% by weight of any one of or combination of slate, shale, schist or soft particles of sandstone when tested in accordance with Test Method Tex-217-F.

3. Aggregate Gradation, expressed as a percentage of weight, shall be as follows:

Grade 4	Percent by Weight		
Retained on 5/8" sieve			0
Retained on 1/2" sieve	0	-	2
Retained on 3/8" sieve	5	-	35
Retained on No. 4 sieve	80	-	100
Retained on No. 10 sieve	98	-	100
Passing No. 200 sieve	0	-	0.5

Grade 5	Percent by Weight		
Retained on 1/2" sieve			0
Retained on 3/8" sieve	0	-	5
Retained on No. 4 sieve	40	-	85
Retained on No. 10 sieve	98	-	100
Retained on No. 20 sieve	99	-	100

When no aggregate grade is shown on the plans or called for elsewhere in the specifications or bid proposal, Grade 5 aggregate will be furnished.

4. The percent of wear, as determined by ASTM C-131, shall not exceed 25%.

5. The percent loss of the aggregate, as determined by ASTM C-88 using a magnesium sulfate solution and a four cycle test, shall not exceed 30%.

E. Precoated Aggregate

Precoated aggregate shall be Type PB Grade 4 or Grade 5 crushed gravel, or crushed stone as specified in Item 304 of the T.S.D.H.P.T. 1982 Standard Specification for Construction of Highways, Streets, and Bridges with the following exceptions:

1. Those exceptions listed in Paragraph II 2(B) above.

2. The precoated aggregate shall be coated with 1.0 to 2.0 per cent by weight of asphaltic cement of Grade AC-20.

F. Joint Paper

Paper used for starting and stopping asphalt application, as well as making fabricated paper discs to protect manhole covers and valve covers, shall be a non-absorbent, high grade 60# Kraft paper, 30" in width.

The contractor shall cover all manhole and valve box lids with paper discs, furnished by Contractor, immediately before application of asphalt and remove same immediately after application of rock.

G. Delivery Tickets

A legible copy of the delivery tickets for all materials to be used on this project shall be furnished to the City's representative at the time materials are delivered to the project stock pile and storage site.

III. CONSTRUCTION METHODS

A. Equipment

In general, all equipment used on this project shall be in good working order and in sufficient quantity to insure proper expedition of the seal operation.

1. Asphalt Handling Equipment

The asphalt distributor shall have been recently calibrated and the Engineer shall be furnished an accurate and satisfactory record of such calibration. The distributor shall be an approved type of self-propelled pressure distributor so operated as to distribute the material in the quantity specified, evenly and smoothly, under a pressure necessary for proper distribution. The Contractor shall provide all necessary facilities for determining the temperature of the asphaltic material in all of the heating equipment and in the distributor, for determining the rate at which asphalt is applied, and for securing uniformity at the junction of two distributor loads. All storage tanks, piping, retorts, booster tanks, and distributors used in storing or handling asphaltic material shall be kept clean and in good operating

condition at all times, and they shall be operated in such manner that there will be no contamination of the asphalt with foreign material. It shall be the responsibility of the Contractor to provide and maintain in good working order a recording thermometer at the storage heating unit at all times.

2. Drag Broom

A drag broom shall be required if the aggregate is not properly distributed. The drag broom shall be furnished at no additional cost to the City.

3. Pneumatic-tire Roller

Pneumatic-tire rollers shall be of the self-propelled type consisting of not less than 7 pneumatic-tired wheels, running on axles in such manner that the rear group of tires will not follow in the tracks of the forward group, and mounted on a rigid frame and provided with a loading platform or body suitable for ballast loading. The roller shall be not less that 10 tons in weight and carry not less than 50 pounds pressure in each tire.

4. Aggregate Spreader

Aggregate spreader shall be an approved self-propelled continuous feed aggregate spreader. The spreader shall be equipped with a disposable trash box for placing debris removed from spreader box scalping screen.

5. Miscellaneous Equipment

The Contractor shall have available for immediate use at no additional cost one rock blade and one drag broom if their use is required by the Engineer. These pieces of equipment shall not be pulled by rollers. In addition, the Contractor shall furnish one tail gate aggregate spreader and one dump truck, equipped to receive the tail gate spreader.

6. Truck Scale

A truck scale conforming to the requirements of item 520 of "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" shall be furnished by the Contractor at aggregate stockpile sites.

B. Surface Preparation

The City of Midland will sweep all streets to be sealed ahead of the Contractor. This sweeping by the City of Midland is not intended to be a final cleaning preparation for the application of asphalt but is intended as an aid to the Contractor.

Prior to placing the seal coat, loose dirt and other objectionable material shall be removed from the existing surface by the Contractor. The surface will be cleaned with rotary brooms. Hand brooms will be used in areas not accessible to the rotary broom. The Engineer shall approve all streets before application of any asphalt.

C. Application of Bituminous Material

Paper shall be spread on the surface for a sufficient distance back form the end of each application so that flow through sprays may be started and stopped on the paper, and so that all sprays will operate properly over the entire length being treated.

No asphaltic material shall be applied when the total of air temperature plus pavement surface temperature is less than 120" F.

No equipment or vehicular traffic shall be allowed to cross over joint paper in place, except the distributor.

Immediately following the application of asphaltic material, the Contractor shall remove all joint paper and load same on a designated vehicle. At the end of each day, all paper shall be disposed of at the City Landfill.

Following all preparation outlined above, the Contractor shall immediately apply asphaltic materials at the specified rates and temperatures designated by the Engineer.

If the Contractor employs only one distributor in the seal operation, he shall be required to seal all designated filets and street stubs in the seal area before moving to another section of the City. If two distributors are used, one distributor will be employed only to seal filets and street stubs.

The use of a second distributor to seal filets and street stubs shall require the following additional equipment; one dump truck equipped with tailgate spreader, and one self-propelled pneumatic roller. All rolling shall be deferred until aggregate is dry.

D. Application of Aggregate

Aggregate shall be immediately and uniformly applied and spread by an approved self-propelled continuous-feed aggregate -8- spreader, unless otherwise authorized by the Engineer. Aggregate shall be applied at the approximately rate directed by the Engineer.

Vehicles used to transport aggregate from stockpiled area to spreading machine shall be weighed and a weight ticket issued for each load. Weight tickets shall show truck identification No., tare weight of truck, gross weight, and net weight of aggregate. The weight ticket shall be delivered to the city's representative at the aggregate spreader.

E. Rolling

A minimum of three (3) rollers shall be employed by the Contractor. Rolling shall be controlled by the Engineer during the entire project. The speed of all rollers will be held to a maximum of 5 miles per hour during the rolling process. When surface moisture is present on aggregate, "Rolling shall be deferred until aggregate is dry.

F. Stockpiling

All aggregate stockpiles shall be placed on a paved surface or areas acceptable to the Engineer.

When dust from the aggregate creates a nuisance or when aggregate fails to adhere to the asphalt the Engineer may require the Contractor to "water down" the aggregate stock pile.

When, directed by the Engineer, or desired by the Contractor, aggregate stockpiles will be "watered down". When the "watered down" aggregate does not adhere to the asphalt properly the Engineer may direct that water for this purpose contain 5% EA10S emulsified asphalt and/or an approved wetting agent. The Engineer may direct the contractor to increase the amount of emulsified asphalt added to the water if, in his opinion, desired results are not being achieved. No separate payment shall be made for emulsified asphalt, water or wetting agent but the cost shall be considered as an incidental cost for furnishing satisfactory aggregate.

G. Cleanup

Clean up shall be maintained on a timely manner as the work progresses. All debris scattered on the sidewalks and driveways shall be swept up by the Contractor. Sweeping debris onto freshly sealed streets shall not be allowed.

City forces will remove excess aggregate from the street and gutters after the project is completed.

H. Maintenance

The Contractor will be required to maintain all sealed streets until final acceptance of the project by the Engineer. Maintenance shall consist of adding additional coverstone when required, rolling, pony blading, or drag brooming.

IV. MEASUREMENT

Asphaltic material shall be measured in gallons at the applied temperature at the point of application.

Aggregate shall be measured by the ton in vehicles as delivered to the aggregate spreader and applied on the street. Trucks will not be allowed to leave the construction area with a partial load. If it becomes necessary for a truck to leave the area because of mechanical failure or other reasons, a second weigh ticket for that truck will be required.

Rolling shall be measured by the hours of actual rolling for each roller.

V. PAYMENT

Payment shall be made as provided under "Measurement" at the unit price bid for "aggregate", "asphalt", and "rolling" and shall be full compensation for furnishing and incorporating the materials "Aggregate" and "Asphalt" (and additives where applicable) into a composite product; for delivering, stockpiling; for brooming, compaction, and rolling; for cleaning the existing surface; for cleaning excess bituminous material; cleaning gutters; for cleaning sidewalks and driveways; for cleaning stockpile sites; for all required maintenance; for pony blading; for drag brooming; for adding additional cover aggregate; for all labor, equipment, supervision, tools, overhead, profit, and any other incidentals necessary to complete the work required under the conditions of these plans and specifications to the satisfaction of the Engineer.

ASPHALT - RUBBER SEAL COAT

(Stress Absorbing Membrane)

1. SCOPE

This specification covers the material, equipment, and construction procedures for a Stress Absorbing Membrane (seal coat).

2. PREQUALIFICATION OF A NEW ASPHALT-RUBBER MATERIAL

Pre-qualification of a new asphalt-rubber material or applicator may be requested at any time. Pre-qualification will be based on three controlled field applications evaluated after three years' performance under traffic. New asphalt-rubber material that has been evaluated and pre-qualified by an agency recognized nationally may be pre-qualified by that agency upon disclosure of suitable evidence of successful performance. Notwithstanding other agency pre-qualification, the City reserves the right to withhold pre-qualification pending the performance evaluation of local controlled field applications.

3. MATERIALS

3.1 Asphalt

The grade of asphalt cement for the asphalt-rubber mixture shall be AC - 5 or AC - 10 which shall comply with the requirements of Item 300 "Asphalt, oils and emulsions" of Texas State Department of Highways and Public Transportation 1982 Standard Specification for Construction of Highways, Streets and Bridges. The grade selected shall be based on laboratory testing by the asphalt-rubber supplier, to insure compatibility with the granulated reclaimed rubber.

If indicated necessary by laboratory testing, an approved anti-stripping additive may be added to the asphalt cement up to 1.0 percent by weight of asphalt.

3.2 Granulated Reclaimed Rubber

The granulated reclaimed rubber used shall be produced primarily from the processing of automobile and truck tires. The rubber shall be produced by ambient temperature grinding processes only.

The gradation of the granulated reclaimed rubber when tested in accordance with ASTM C-136 and using a 50 gram +/- 1 gram sample, shall meet the

following requirements:

Sieve Sizes	Percent Passing
#8	100
#10	95 - 100
#16	40 - 60
#30	0 - 10
#50	0 - 5

The use of rubber from multiple sources is acceptable provided that the overall blend of rubber meets the gradation requirements.

The individual granulated rubber particles, irrespective of diameter, shall not be greater in length than 3/16 inch (5mm).

The granulated rubber shall have a specific gravity of 1.15 +/- 0.05 and shall be free of loose fabric, wire and other contaminants except that up to 4 percent (by weight of rubber) calcium carbonate or talc may be added to prevent rubber particles from sticking together. The rubber shall be sufficiently dry so as to be free flowing and not produce a foaming problem when blended with the hot asphalt cement.

The granulated reclaimed rubber shall be accepted by certification from the rubber supplier.

3.3 **Diluent**

The diluent shall have the following properties:

Flash Point	130^{o} F Minimum
Initial Boiling Point (ASTM D-86)	340^{o} F Minimum
Dry Point (ASTM D-86)	390^{o} - 415^{o} F
Total Saturates	85% Minimum

3.4 **Asphalt - Rubber**

The asphalt-rubber supplier shall furnish to the engineer a minimum of 10 days before the beginning of membrane placement, the asphalt-rubber mix formulation which shall contain the following information:

Asphalt Cement
Source of Asphalt Cement

Grade of Asphalt Cement
Percentage of Asphalt Cement by total weight of the asphalt-rubber mixture.

Granulated Reclaimed Rubber
Source of Granulated Rubber
Grade of Granulated Rubber
Percentage of Granulated Rubber by total weight of the asphalt-rubber mixture.

If granulated rubber from more than one source is utilized the above information will be required for each granulated rubber used.

Diluent
Source of Diluent
Grade of Diluent
Percentage of Diluent allowable by volume of the asphalt-rubber mixture.

3.5 **Cover Aggregate**

Aggregate shall be composed of a clean and durable crushed rock, crushed gravel or crushed slag conforming to Item 304 "Aggregate for Surface Treatments (pre-coated)" of Texas State Department of Highways and Public Transportation 1982 Standard Specification for Construction of Highways, Streets and Bridges, grade No. 3 or No. 4.

Proposed aggregate samples shall be submitted to the asphalt-rubber supplier a minimum of 21 days prior to application, to test for aggregate stripping characteristics. The results shall be submitted to the engineer. Anti-strip will be included as a contingency bid item.

4. **EQUIPMENT**

4.1 **General**

The equipment used by the contractor shall include a self propelled rotary power broom or mobile pickup broom for pavement cleaning and excess cover material removal.

4.2 **Asphalt-Rubber Equipment**

All equipment utilized in the production and application of the asphalt-rubber shall be so designed and accessible that the Engineer can readily determine

the percentage by weight for each material being incorporated into the mixture and shall be as described as follows:

4.2.1 An asphalt heating tank with a hot oil heat transfer system or retort heating system capable of heating asphalt cement to the necessary temperature for blending with the granulated rubber. This unit shall be capable of heating a minimum of 3,000 gallons of asphalt cement.

4.2.2 An asphalt-rubber mechanical blender with a two stage continuous mixing process capable of producing a homogenous mixture of asphalt cement and granulated rubber, at the mix design specified ratios, as directed by the engineer. This unit shall be equipped with a granulated rubber feed system capable of supplying the asphalt cement feed system, as not to interrupt the continuity of the blending process. A separate asphalt cement feed pump and finished product pump are required. This unit shall have both an asphalt cement totaling meter in gallons and a flow rate meter in gallons per minute.

4.2.3 A truck mounted self powered distributor truck equipped with a retort heating unit, and an internal mixing device capable of maintaining a uniform mixture of asphalt cement and granulated rubber. It shall be equipped with a full circulating spreader bar and a pumping system capable of applying asphalt-rubber material within +/- .05 gallons per square yard tolerance of the specified application rate and must give a uniform covering of the surface to be treated. The distributor shall have a boot board on the rear of the vehicle and a bootman shall accompany the distributor. The bootman shall ride in a position so that all spray bar tips are in full view and readily accessible for unplugging if a plugged tip should occur. The distributor shall also include a tachometer, pressure gauge, volume measuring device and a thermometer.

4.3 Cover Material Spreader

The cover material (chip) spreader shall be a self-propelled machine with an aggregate receiving hopper in the rear, belt conveyors to carry the aggregate to the front, and a spreading hopper equipped with a full-width distribution auger and spread roll. The spreader shall be in good mechanical condition and be capable of applying the cover material uniformly across the spread at the specified rate.

4.4 Rolling Equipment

A minimum of three operational self-propelled pneumatic-tired rollers shall be used for the required rolling of the cover material. The pneumatic tired rollers shall carry a minimum loading of 3,000 pounds on each wheel and a

minimum air pressure of 100 pounds per square inch in each tire.

4.5 **Hauling Equipment**

Trucks for hauling cover material shall be tailgate discharge and shall be equipped with a device to lock onto the hitch at the rear of the cover material spreader. Haul trucks shall also be compatible with the cover aggregate spreader so that the dump bed will not push down on the spreader when fully raised or have too short a bed which results in aggregate spillage while dumping into the receiving hopper.

5. **CONSTRUCTION**

5.1 **General**

Streets to receive the asphalt-rubber stress absorbing membrane or seal coat shall be prepared in accord with Section 2-C-1 "Preparation of Asphaltic Concrete Surface for Overlay or Seal Coat" of these specifications.

Immediately prior to the application of the asphalt-rubber membrane, the surface shall be thoroughly cleaned in order to insure adequate adhesion of the asphalt-rubber to the pavement.

Due to the handling characteristics of asphalt-rubber, when radii and other irregular areas are to be sealed it is recommended that this be done with an RS or CRS chip seal emulsion or paving grade asphalt cement.

5.2 **Asphalt-Rubber Mixing and Reaction**

The percentage of granulated rubber shall be 23 percent plus or minus 3 percent by weight of total asphalt-rubber mixture, the exact granulated rubber content shall be as determined by the mix design submitted by the asphalt-rubber supplier. During membrane placement the granulated rubber percentage shall not fluctuate more than 1 percent by weight of total asphalt-rubber mixture.

The temperature of the asphalt cement shall be between 350^{o} and 400^{o} F at the addition of the granulated rubber. The asphalt and rubber shall be combined and mixed together in the asphalt-rubber blending unit and reacted in the distributor for a period of time as required by the engineer which shall be based on laboratory testing by the asphalt-rubber supplier. The temperature of the asphalt-rubber mixture shall be above 350^{o} F during the reaction period.

After the reaction between asphalt cement and granulated rubber has occurred, the viscosity of the hot asphalt-rubber-mixture may be adjusted for spraying and/or better "wetting" of the cover material by the addition of a diluent. The diluent shall comply with the requirements of Section 3.3 and shall not exceed 7.5 percent by volume of the hot asphalt-rubber mixture.

When a job delay occurs after full reaction, the asphalt-rubber may be allowed to cool. The asphalt-rubber shall be reheated slowly just prior to application but not to a temperature exceeding 350° F. An additional quantity of diluent not exceeding 3 percent by volume of the hot asphalt-rubber mixture may be added after reheating.

5.3 Application of Asphalt-Rubber Material

Placement of the asphalt-rubber membrane shall be made only under the following conditions.

1. The pavement surface temperature shall be 45° F and rising.

2. The pavement surface is clean and absolutely dry.

3. The wind conditions are not excessive.

4. All construction equipment such as asphalt-rubber distributor, cover material spreader, haul trucks with cover material, and rollers are in position and ready to commence membrane placement operations.

5. Rain is not imminent.

The asphalt-rubber mixture shall be applied at a temperature of 300° to 350° F at a rate of between .55 and .65 gallons per square yard. Transverse joints shall be constructed by placing building paper across and over the end of the previous asphalt-rubber application. Once the spraying has progressed beyond the paper, the paper shall be removed immediately and disposed of as directed by the engineer. All longitudinal joints shall not exceed a four inch overlap.

5.4 Application of Cover Material

Cover material shall be applied immediately to the asphalt-rubber after spreading at a rate of 25 to 35 pounds per square yard.
At the time of application to the asphalt-rubber, cover material shall be

surface dry so as to gain proper adhesion to the asphalt-rubber material.

5.5 Rolling

At least three operational pneumatic-tired rollers complying with the requirements of Section 4.4 shall be provided to accomplish the required embedment of the cover material. At some project locations or where production rates dictate, fewer rollers may be utilized as directed by the engineer. At no time shall there be less than two operational pneumatic tired rollers on a project.

Sufficient rollers shall be used for the initial rolling to cover the width of the aggregate spread with one pass. The first pass shall be made immediately behind the cover material spreader, and if the spreading is stopped for an extended period, the cover material spreader shall be moved ahead or off the site so that all cover material may be immediately rolled. Four complete passes with rollers shall be made with all rolling completed within one hour after the application of the cover material.

5.6 Traffic Control

Except when it is necessary that hauling equipment must travel on the newly applied membrane, traffic of all types must be kept off the membrane until it has had time to set properly. The speed of all hauling equipment shall not exceed 15 miles per hour when traveling over a membrane which is not adequately set. The minimum traffic free period shall not be less than one hour.

5.7 Removing Loose Cover Material

Sweeping can begin a minimum of one hour after membrane placement.

5.8 Method of Measurement and Basis of Payment

5.8.1 Asphalt-Rubber

a) Measurement will be made of the actual number of gallons of Asphalt-Rubber including asphalt placed in accord with these specifications.

b) Payment will be made at the price bid per gallon of Asphalt-Rubber in the bid proposal and will be full compensation for furnishing all asphalt, rubber, extender and for all labor,

equipment and incidentals for placing the asphalt-rubber on the Street surface.

5.8.2 **Cover Aggregate**

a) Measurement will be made of the actual number of tons of pre-coated aggregate placed in accord with these specifications.

b) Payment will be made at the price bid per ton of pre-coated aggregate in the bid proposal and shall be full compensation for furnishing all pre-coated aggregate and for all labor and equipment including rollers and rolling for the complete surface in place.

5.8.3 **Rolling**

a) No measurement will be made of rolling but rolling shall be considered as incidental to placing of the cover aggregate.

b) No separate payment will be made for rolling. The cost of rolling shall be included in the price per ton of cover aggregate in the bid proposal.

5.8.4 **Anti strip agent**

a) Anti stripping agent, when used, shall be measured by the gallon.

b) Payment for anti stripping agent shall be made at the price per gallon of anti stripping agent bid in the bid proposal.

08/07

POLYMER MODIFIED SLURRY SEAL (MICRO-SURFACE)

I. SCOPE

This specification covers the design, application, testing, quality control and measurement and payment for a complete in place "polymer modified micro surface" constructed on existing paved surfaces cleaned and prepared in accordance with the item 2-C-1 "PREPARATION OF ASPHALTIC CONCRETE SURFACE FOR OVERLAY OR SEAL".

2. DESCRIPTION

This specification covers all materials, equipment, construction and application procedures for rut filling and/or surfacing of existing paved surfaces. The micro-surfacing shall be a mixture of cationic polymer modified asphalt emulsion, mineral aggregate, mineral filler, water and other additives, properly proportioned, mixed and spread on the paved surface in accordance with this guideline and as directed by the Engineer.

3. MATERIALS

3.1 Emulsified Asphalt

(1.) The emulsified asphalt shall be a cationic emulsified type, designated as CSS-1P and shall comply with the following requirements.

	Min.	Max.
Viscosity, Saybolt Furol, 25 C (77 F), Sec.	**20**	**100**
Storage Stability test, one day, percent	**-**	**1**
Particle charge test		**Positive**
Sieve test, percent	**-**	**0.1**
Distillation:		**-** **-**
Oil distillate, by volume of emulsion, %	**-**	**0.5**
Residue, %		**62** **-**
Test on Residue from Distillation:		
Penetration, 77 F, 100 g, 5 seconds	**55**	**90**
Ductility, 77 F, 5 cm/min, cm	**70**	**-**
Solubility in trichloroethylene , %	**97**	**-**
Softening Point, R. & B., F	**135**	**-**
Viscosity, absolute 60 C (140 F), Poise		**8000** **-**

This standard distillation procedure shall be modified as follows: The temperature on the lower thermometer shall be brought slowly to 350 degrees plus or minus 10 degrees F and maintained at this point for 20 minutes. Complete the total distillation in 60 plus or minus 5 minutes from the first application of heat.

(2). The emulsion shall be modified with an approved Polymer. The distillation residue of the modified emulsion shall contain a minimum of three percent (3%) polymer solids by weight. The modified emulsion shall pass all applicable storage and settlement tests. The polymer material shall be milled into the emulsion or blended into the asphalt cement prior to the emulsification process. The cement-mixing test shall be waived for this emulsion.

(3). The polymer modified emulsified asphalt shall be so formulated that when the paving mixture is applied with the relative humidity at not more than 50% and the ambient temperature at least 75^{o} F, the paving mixture will sufficiently cure so that uniformly moving traffic can be allowed in approximately one hour. Locations such as driveways, Intersections and where sharp turning may take place or where vehicles may accelerate sharply, additional curing time may be required.

(4). The contractor shall notify the Engineer of the source of his asphaltic material prior to the design or production of the surfacing mixture and this source shall not be changed during the course of the project, except on written permission by the Engineer.

3.2 Mineral Aggregate

(1) Description. One Hundred percent (100%) of the mineral aggregate shall be crushed and shall be composed of clean, tough and durable particles of traprock, granite, sandstone or other approved aggregates. A sand equivalent of 65 or higher is required. The aggregate shall have a weight loss of not more than 12% when sodium sulfate is used or 18% when magnesium sulfate is used in accordance with Test Method Tex-411-A, using 5 cycles. The aggregate shall be one that has proven resistant to polishing in roadway surfacing.

(2.) Grades. When tested by Test Method Tex-200-F, Part I, the gradation requirements shall be as follows:

Grade 1 (Fine Graded Surface Course)	Percent Aggregate By Weight
Passing 3/8" sieve	100
Passing No. 4 sieve	98-100
Passing No. 8 sieve	75 -90
Passing No. 16 sieve	50- 75
Passing No. 30 sieve	30- 50
Passing No. 50 sieve	18- 35
Passing No. 200 sieve	5 -15

Grade 2 (Coarse Graded Surface Course)	Percent Aggregate By Weight
Passing 1/2" sieve	100
Passing 3/8" sieve	99-100
Passing No.4 sieve	86- 94
Passing No. 8 sieve	45- 65
Passing No. 16 sieve	25- 46
Passing No. 30 sieve	15 - 35
Passing No. 50 sieve	10 - 25
Passing No. 200 sieve	5- 15

(3.) Mineral Filler. Mineral filler shall be non-air entrained Portland cement that is free of lumps or foreign matter.

3.3 Water

The water shall be portable and shall be free of harmful soluble salts.

3.4 Other Additives

Additives supplied by the emulsion manufacturer may be added to the emulsion mix or to any of the component materials to provide control of the set time in the field.

4. LABORATORY EVALUATION

4.l General

Before work commences, the contractor shall submit a signed mix design covering the specific materials to be used on the project. This design shall be performed by the contractors or suppliers laboratory or by a qualified laboratory chosen by the owner. Once the materials are approved, no substitution will be permitted, unless first tested and approved by the laboratory preparing the mix design. The cost of mix design shall be born by the contractor.

4.2 Designing Job Mix

The qualified laboratory shall develop the job mix design and present certified test results for the contractor approval. Compatibility of the aggregate and modified CSS-1P shall be verified by the mix design. The mix design must be made using samples taken from the actual materials proposed for use in the project and in accordance with the procedures and requirements of Article 5.1 below.

5. PAVING MIXTURE

5.1 Mixture Design.

The mix shall be designed in accordance with Texas State Highway Department Bulletin C-14 and Test Method Tex-204-F, using Test Method Tex-227-F to supplement Test Method Tex-201-F and Tex-202-F to conform to the requirements herein. The above laboratory mixing and curing procedures may be modified as approved by the Engineer. The emulsified asphalt content will be selected by the Engineer to provide an optimum laboratory compacted density within the range of 94 to 97%. A minimum Hveem stability of 35 is required for placements exceeding a depth of twice the maximum aggregate size.

This is a mix design requirement, to be verified by testing of trial batch material prior to placement of project material. Hveem Stability testing will be performed by the selected laboratory. The Engineer will determine the frequency of job control density and stability testing. The Contractor shall furnish the mix design for the type of mixture specified together with applicable design worksheets and data. The Bulk Specified Gravity will be determined for each aggregate to be used in the design mixture. If the determined values vary by 0.300 or more, the mixture design will be by the Volumetric Method, Test Method Tex-204-F, Part II. To substantiate the design, trial mixtures will be produced and tested using all of the proposed project materials and equipment prior to any placement. The Engineer may waive trial mixtures if the same design has been proven to be in conformance with these requirements.

5.2 Composition of Mixture.

The Engineer shall approve the design mix and all micro-surfacing materials and methods prior to use and shall designate the proportions to be used within the following limits.

Residual Asphalt	**6 to 9 percent by weight of dry aggregate or 13.5 to 23 percent by volume of the aggregate**
Mineral Filler	**0.5% to 3.0% by dry weight of aggregate**
Modifier	**As required to provide the specified properties**
Water	**As required to provide proper consistency**

5.3 Type

The paving mixture shall consist of a uniform mixture of coarse aggregate, fine aggregate and asphaltic material. The mix may also contain mineral filler and/or additives when required.

The mixture shall be designed so that the mineral aggregate will produce a gradation, which conforms to the limitations for the master grading for the type specified herein. The gradation will be determined in accordance with Test Method Tex-200-F (Dry Sieve Analysis) and shall be based upon aggregate only. The amount of asphaltic material shall conform to the limitation for the type specified.

The aggregate grade shall be as shown on the plans. If no grade is shown on the plan grade 2 aggregate shall be used.

5.4 Tolerances

The aggregate portion of the paving mixture produced shall not vary from the design gradation by more than the tolerances that follow. The material passing the No. 200 sieve is further restricted to conform to the limitations for the master grading for the type specified. The asphaltic material portion of the paving mixture shall not vary from the design amount by more than the allowed tolerance and is also restricted to conform to the master limits. The method of test for determining the aggregate gradation and asphalt content of the mixture shall be Test Method Tex-210-F or other methods of proven accuracy.

	Percent by Weight or Volume as Applicable
Passing 3/8" sieve, retained on No. 4 sieve	**Plus or minus 5**

Passing No. 4 sieve, retained on No. 8 sieve	**Plus or minus 5**
Total retained on No. 8 sieve	**Plus or minus 5**
Passing No. 8 sieve, retained on No. 16 sieve	**Plus or minus 3**
Passing No. 16 sieve, retained on No. 30 sieve	**Plus or minus 3**
Passing No. 30 sieve, retained on No. 50 sieve	**Plus or minus 3**
Passing No. 50 sieve, retained on No. 200 sieve	**Plus or minus 3**
Passing No. 200 sieve	**Plus or minus 2**

Asphaltic Material Plus or minus 0.5 by wt. or l.2 by vol.

6. EQUIPMENT

6.1 General.

All equipment for the handling of all materials and mixing and placing of the mixture shall be maintained in good repair and operating condition and subject to the approval of the Engineer. Any equipment found to be defective and potentially affecting the quality of the paving mixture will be replaced or, at the option of the Contractor, satisfactorily repaired. It will be the contractor responsibility to prove to the Engineer that the repaired equipment is properly functional.

6.2 Mixing and Proportioning Equipment.

(1.) The material shall be mixed by a self-propelled micro-surfacing mixing machine which shall be a continuous flow mixing unit able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, field control additive and water to a revolving multi-blade twin shafted mixer and discharge the mixed product on a continuous flow basis. The machine shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, field control additive and water to maintain an adequate supply to the proportioning controls. The machine shall be equipped with self-loading devices, which provide for the loading of all materials while continuing to lay micro surfacing.

The machine shall be equipped with opposite side driving stations to optimize longitudinal alignment. The machine shall be equipped to allow the mix operator to have full hydrostatic control of the forward and reverse speed during application of the micro-surfacing material.

The self-loading devices, opposite side driving stations and forward and reverse speed controls shall be original equipment manufacturer design.

(2). Individual volume or weight controls for proportioning each material to be added to the mix shall be provided. Each material control device shall be calibrated and properly marked.

(3) The aggregate feed to the mixer shall be equipped with a revolution counter or similar device so the amount of aggregate used may be determined at any time.

(4) The emulsion pump shall be a positive displacement type and shall be equipped with a revolution counter or similar device so that the amount of emulsion used may be determined at any time.

(5.) The mixing machine shall be equipped with a water pressure system and nozzle type spray bar to provide a water spray immediately ahead of and outside the spreader box.

(6.) The mixing machine shall be equipped with an approved fines feeder that shall provide a uniform, positive, accurately metered, predetermined amount of the specified mineral filler.

6.3 Spreading Equipment.

The paving mixture shall be spread uniformly by means of a mechanical type spreader box attached to the mixer, equipped with paddles, screws or augers to agitate and spread the materials throughout the box. A front seal shall be provided to insure no loss of the mixture at the road contact surface. The rear seal shall act as a final strike off and shall be adjustable and shall break in the middle so that the screed can be adjusted to fit the crown of the street including inverted crowns. The rear seal carrier shall be capable of being fitted with a rubber seal or a steel strike off bar.

The spreading equipment shall be readily adjustable in width so that laying widths can be changed without undue delay before starting each pass if necessary.

The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The seam where two spreads join, shall be neat appearing and uniform.

7. STOCKPILING AND STORAGE.

7.1 Aggregate Storage.

If the mineral aggregates are stored or stockpiled, they shall be handled in such a manner as to prevent segregation, mixing of the various materials or sizes, and contamination with foreign materials. The grading of aggregates proposed for use and as supplied to the mixing plant shall be uniform. Suitable equipment of acceptable size shall be furnished by the Contractor to work the stockpiles and prevent segregation of the aggregates. The mineral aggregate shall be screened and weighed at the contractor stockpile prior to job site delivery. The Engineer shall approve screens and scales.

7.2 Storage and Heating of Asphaltic Materials.

The asphaltic material storage shall be ample to meet the requirements of the plant. Asphalt shall not be heated to a temperature in excess of that specified
in the Item "Asphalt's, Oils and Emulsions" Texas Highway Department 1982 Standard Specifications. All equipment used in the storage and handling of asphaltic material shall be kept in a clean condition at all times and shall be operated in such manner that there will be no contamination with foreign matter.

8. CONSTRUCTION METHODS

8.1 General

It shall be the responsibility of the Contractor to produce, transport, and place the specified paving mixture in accordance with these specifications and as approved by the Engineer.

8.2 Street Preparation

Prior to starting the micro-surfacing operation, streets designated to be surfaced shall be prepared in accordance with item 2-C-1 "Preparation of Asphaltic Concrete Surface for Overlay or Seal".

8.3 Weather Limitations.

The material shall be spread only when the atmospheric temperature is at least fifty (50 degrees) F and rising and the weather is not foggy or rainy. No material will be placed when the surface on which it is to be placed is below 50^{o} F.

8.4 Final Surface Preparation

Immediately before placing the micro-surface, the area to be sealed shall be thoroughly cleaned of all vegetation, loose aggregate and soil, and moistened. Water for prewetting the surface shall be applied immediately ahead of the spreader box by use of a pressure spray bar equipped with nozzles that produce a fine mist. The rate of application of water shall be sufficient to dampen the entire surface without any free flowing water ahead of the spreader box. The rate of the mist spray shall be adjusted from time to time during the placing operation to accommodate changes in temperature, surface texture, humidity and dryness of the pavement surface.

8.5 Placing the Mix

(1). The mixture shall be spread to fill cracks and minor surface irregularities and leave a uniform skid resistant application of aggregate and asphalt on the surface. The finished surface shall be neat in appearance without drag marks, excessive buildup or other detracting irregularities.

(2). The speed of operation of the surfacing equipment shall be controlled by the mixer operator at forward speeds between 85 and 225 feet per minute depending on conditions and appearance of the newly placed surface.

If transverse rippling occurs the speed of the equipment shall be reduced until the ripples disappear.

(3). The Engineer shall designate either rubber seal/screed or the steel strike off screed according to the Project requirements.

(4). The depth of mixture in the spreader box shall be carefully controlled to prevent transverse ridging and premature setup of material in the corners of the box and ahead of the screed. In general the depth of mixture in the box should be approximately to the mid point of the auger-agitator.

(5). Auxiliary equipment shall be kept in good working order and free of leaks. Any truck or transport used to bring materials on to the street being surfaced that develops leaks either of the material being transported or fuel and/or oil leaks will be removed from the job site and not allowed to return until it has been thoroughly repaired.

Scales and screens used at the contractors stockpile and storage site shall be kept in good working order.

(6). Spills of surfacing materials or fuel, oil or other detrimental substances on the street ahead of the surfacing operation shall be thoroughly removed before the surface is placed. This may required the operation to be shut down until the street has been cleaned.

(7). No excessive streaks shall be left in the finished surface. When such excessive streaking occurs, the operation shall be immediately stopped and corrective action is taken before resuming the operation.

8.6 Joints

(1). Longitudinal joints shall be placed on lane lines. On residential streets an eight-foot parking lane will be assumed with the centerline being the other lane line.

(2). All longitudinal and transverse joints shall be straight and neat in appearance without excessive build up or bare spots. Any irregularity shall be corrected immediately before the material has started to set up.

(3). The overlap at longitudinal joints shall not exceed 4 inches. When the overlapped pass is only partially set care shall be exercised to avoid skid marks. Any skid marks that occur shall be immediately corrected by removing any partially set material that has been displaced and placing fresh mix in the mark and shaping by use of Lutes, squeegees, hand drags, etc.

Overlapping of longitudinal joints shall not leave a visible build up. Any buildup shall be immediately removed by use of lutes, squeegees, hand drags, shovels or other approved means.

8.7 Mix Stability

The modified mixture shall posses sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading; it shall be free of excess water or emulsion and free of segregation of the emulsion and aggregate fines from the coarser aggregate.

8.8 Hand Work

Areas that cannot be reached with the mixing machine shall be surfaced using hand squeegees to provide complete and uniform coverage. The area to be hand-worked shall be lightly dampened prior to mix placement. Care shall be exercised to leave no unsightly appearance from handwork. The same type finish as applied by the spreader box shall be required. Handwork shall be completed during the machine applying process.

8.9 Lines

Care shall be taken to insure straight lines along curbs and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a good appearance.

8.10 Work Force

The contractor shall maintain a work force of adequate size to accomplish the work as specified herein, including the loading and transporting of materials to the job site, the placing of the micro surface, the monitoring of joints and surface and the correction of any deficiencies that occur.

If, at any time, the Engineer or his representative determines that the work force is not adequate to perform all the tasks required for the proper completion of the micro surfacing, work on the project will be halted until adequate personnel are provided and/or modifications in procedure are implemented that will assure proper placement of the surfacing material.

8.11 Scratch or Level up course

A scratch or level up course will be required on certain streets as shown on the plans and/or as directed by the Engineer. This course shall be the same material as the polymer modified surface course and will be placed in the same manner except the spreader shall be equipped with a steel strike off screed. This screed shall be set to run as close to the pavement surface as practical.

The appearance of this course is not as critical as the final surface so long as any marks or blemishes that occur are not of such magnitude that they will affect the appearance of the final course.

8.12 Correction of Deficiencies and Blemishes

After the laydown work is completed and before final acceptance by the

Engineer, spot application of micro- surfacing material may be required to correct any deficiencies such as streaks, scuff marks, tire tracks, gaps, etc. to improve the ride quality and overall appearance. The spot application shall be performed with a full width spreader box when required.

9. QUALITY CONTROL

9.1 Materials

The contractor will permit the Engineer and/or the Independent laboratory to take samples of the aggregate and asphalt emulsion used in the project at the Engineers discretion. Gradation and sand equivalent tests may be run on the aggregate and residual asphalt content tests on the emulsion. Test results will be compared to specifications. Tests will be run at the expense of the owner. The owner must notify the contractor immediately if any test fails to meet the specifications.

9.2 Polymer Modified Micro-Surfacing

Samples of the material may be taken directly from the mixing unit(s). Consistency and residual asphalt content tests may be made on the samples and compared to the specifications. Tests will be run at the expense of the owner. The owner must notify the contractor immediately if any test fails to meet specifications.
The Engineer may use the recorders and measuring facilities of the unit to determine application rates, asphalt emulsion content, mineral filler and additive.

9.3 Non-Compliance

If any two successive tests fail on the stockpile material, the job shall be stopped. It is the responsibility of the contractor, at his own expense, to prove to the Engineer that the conditions have been corrected. If any two successive tests on the mix from the same machine fail, the use of the machine shall be suspended. It will be the responsibility of the contractor, at his own expense, to prove to the Engineer that the problems have been corrected and that the
machine is working properly.

10. CLEAN UP

10.1 Protecting and Cleaning Manholes and Valves

Prior to beginning the sealing operation the contractor shall locate all manhole covers and valve boxes in the area to be sealed. Placing one or

more layers of heavy craft paper or other suitable material over them shall protect manhole covers and valve boxes. The protective covering shall be secured in place so that it does not move or tear during the sealing operation. The contractor shall remove the protective covering and any seal material placed over manhole covers and valve boxes as soon as the seal has set sufficiently to prevent damage to the adjoining seal in the process. The edges around manhole covers and valve boxes shall be neat and smooth and shall conform to the shape and size of the manhole cover or valve box.

10.2 Streets

Clean up along streets shall be accomplished as the work progresses and any excess material that is raked onto or otherwise placed on adjoining concrete curb and gutter, valley gutters or fillet areas or on adjacent asphalt or concrete paving shall be removed before it breaks or sets up.

Before a section of street is opened to traffic all clean up work shall be completed on that section.

11. MEASUREMENT AND PAYMENT

11.1 General

Payment will be made for these items listed in the bid proposal only. All work, materials, labor and appurtenance required to complete the project as shown on the plans or called for in the specifications but not listed in the bid proposal shall be considered as incidental and no separate payment will be made. The cost of these incidentals must be included in the price bid for the various items listed in the bid proposal.

11.2 Measurements

(1). Measurement will be made of the actual number of tons of each type or grade of the Composite Polymer Modified Slurry Seal (Micro-Surface) complete in place. For this specification a ton is considered 2000 lbs. and the composite slurry seal mixture is defined as the asphalt,
aggregate and additives.

All materials shall be weighed on certified public scales or the contractor shall place a set of standard truck scales at a site approved by the Engineer. Scales shall conform to the requirements of the item "Weighing and measuring equipment" Texas Highway Department 1982 Standard Specifications.

(2). Aggregate - The quantity of aggregate used in the accepted portions of the work shall be measured by net ticket weight of each individual load of
aggregate shipped to the project from the approved job site scale.

The weight of mineral additive used shall be calculated and included in the total aggregate weight.

(3). Polymer Modified Asphalt Emulsion. The quantity of polymer modified asphalt emulsion in the accepted portion of the work shall be measured by tons of material based on the accepted load tickets issued from the manufacturer. At the completion of the project any unused emulsion shall be weighed back and that quantity deducted from the accepted asphalt emulsion quantity delivered.

11.3 Payment

Payment will be made for the number of tons of micro surface measured at the applicable unit price bid per ton of micro surface in the bid proposal. This payment shall be full and complete compensation for the complete in place micro surface.

08/07

P.V.C. PIPE CASINGS

1. SCOPE

   This item consists of furnishing and installing PVC pipe for casing for future water and electric lines at locations shown on the plans or as directed by the Engineer.

2. MATERIAL

   Pipe shall be ASTM D 1785 schedule 40 PVC pipe or ASTM D 2241 PVC SDR 32.5 pressure pipe. The ASTM designation and schedule or SDR shall be clearly marked on the outside of the pipe.

3. CONSTRUCTION

   Pipe shall be laid in straight alignment and grade in trenches as narrow as the diameter of the pipe can be laid. Pipe shall be placed after the sub grade is prepared but before base material is placed. Bedding under the pipe shall be a minimum of 2 inches in thickness and shall be carefully graded and leveled before pipe is placed. Joints shall be water tight. They may be solvent cement welded using approved materials, or may be made using a gasketed collars or push on gasketed bell and spigot. When collars are used care shall be exercised to assure that the collar is centered over the joint. All joints shall be made in accord with the manufacturer's recommendations. After pipe has been joined and inspected the pipe shall be encased in bedding/encasement material to a thickness of 3 inches above the pipe. Care shall be exercised to be sure the encasement material is worked in under the haunches of the pipe and compacted along the side of the pipe to assure adequate lateral support. The balance of the trench shall be back filled using cement stabilized backfill consisting of 2 sacks of Portland cement to 1 cubic yard of blow sand or crushed caliche mixed with sufficient water to form a stiff place able mixture that can be consolidated in the trench by rodding or vibrating. The back fill shall be "struck off" at the finished sub grade level using square point shovels or suitable screeds. The ends of the pipe shall be tightly plugged to prevent the entrance of water debris or other foreign material. These plugs shall be PVC or rubber stoppers designed to endure until the water lines and/ or electric lines are places.

4. MEASUREMENT AND PAYMENT

   Casing pipe shall be measured by the linear foot along the center of the pipe and shall be paid for at the unit price in the bid proposal.

WATER LINE SPECIFICATIONS

1. SCOPE OF WORK

The work covered by this section consists of all water pipe lines and piping, including valves, valve boxes, tapping sleeves, fire hydrants and other accessories, required to complete the project. The contractor shall furnish all materials, labor, superintendence, tools, equipment and incidentals necessary for the complete construction of this work in accordance with the drawings and these specifications.

2. PIPE AND MATERIAL

2.1 General

Pipe shall be polyvinyl chloride (PVC) AWWA C900, ductile iron AWWA C-151 or steel cylinder concrete pipe AWWA C-303.

2.2 Polyvinyl Chloride (PVC) Pipe

A. PVC pipe furnished for use on this project shall conform to the requirements of AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for water distribution pressure class 150, DR18. and shall be NSF approved for potable water supply.

B. The pipe furnished shall have an integral bell designed for joint assembly using elastomeric seals.

C. Markings for the pipe shall include all the requirements of AWWA C900 and the MSF approval stamp.

D. Elastomeric seals shall be furnished by the pipe manufacturer. Seals shall be manufactured to conform with the requirements of ASTM F4 77 and shall be specifically designed for use with the pipe furnished.

E. Lubricants intended for use with PVC pipe and seals (gaskets) shall be compatible with both PVC and the seal material. Lubricant shall not support growth of bacteria and shall not adversely affect the potable quality of the water that is to be transported.

F. Pipe laying lengths shall be 20'.

G. Service taps on PVC water lines shall be made using hinged type or double strap type saddles. Tapping saddles shall support the full circumference of the pipe and shall have a bearing area of sufficient width along the axis of the pipe to prevent distortion of the pipe when saddle is tightened.

No direct taps into the wall of PVC pipe will be permitted.

Seals for tapping saddles shall be recessed into the body of the saddle and shall be

a rubber - compound conforming to the requirements of ASTM F477.

Tapping saddles shall be SMITH-BLAIR Taper Seal Style 313 or DMD Dresser style 194 or approved equal.

H. Tapped connections for water mains and fire lines made on PVC water mains shall be accomplished using full bodied ductile iron tapping sleeves of a pressure rating equal to or greater than the pressure rating of the pipe specified.

I. Bedding for AWWA C900 PVC water pipe shall extend from a minimum depth of 4 inches below the outside of the water line to a minimum cover of 6 inches over the top outside of the water line.

J. AWWA C900 PVC water pipe shall be installed in accord with the applicable requirements for installing ductile iron pipe.

Care shall be taken to install each joint of PVC water pipe to, but not beyond the factory insertion mark on the pipe.

When a joint of PVC water pipe must be cut, the end of the pipe shall be carefully beveled to match the factory bevel on the uncut pipe. An insertion mark matching the factory insertion mark on the uncut pipe must be made before the pipe is inserted into the bell.

When PVC water pipe is to be inserted into a ductile iron fitting or valve, the factory bevel must be removed to form a square plain end pipe.

2.2 (a) Metallic Marking Tape (For PVC Water Pipe)

2.2(a).1 General

When non-metallic pipelines are to be installed, then the Contractor shall furnish and lay, above the pipeline, a continuous strip of metallic identification tape.

2.2 (a).2 Tape Material

The metallic identification tape shall be at least two inches (2”) in width and shall be of corrosive resistant metal of sufficient thickness to be stable and reflect electronic signals to electronic pipeline detector when buried to a dept of twenty-four (24”) below normal ground level.

The metallic tape shall be painted blue on one side and shall have 1-inch high letters painted continuously on the same side of the tape which read, “CAUTION: BURIED WATER LINE BELOW” or other words to this effect.

The marking tape shall be “Detectable Warning Tape”, as manufactured by the Omega Marking Company, or equal approved by the Engineer.

2.2(a).3 Construction Methods

The Contractor shall backfill over non-metallic pipelines to a depth which is less than twenty-four (24”) and not more than twelve inches (12) from the top of the cut of the ditch section in which the pipeline is laid. Contractor shall stop the backfilling material to a generally uniform level. All machine tamping, jetting and other compaction activities shall be accomplished up to this point of height in the backfilling the marking tape is placed in the trench.

The Contractor shall then lay the marking tape in the pipe trench and shall be held in position by the spot placement of backfill materials over it to keep it from sliding t the sides and/or from being blown about in the ditch by the wind. The tape shall be lid with the painted side, which shall also be the side with the identification lettering on it, in the “up” position. The tape shall be laid in the flat position and kept there until backfill is accomplished.

The Contractor shall then complete the backfilling operation in such a manner that the marking tape is not cut, crimped, ruptured or separated by the backfilling work.

2.2(a).4 Measurement and Payment

No separate pay item will be provided for furnish and placing the marking tape. This item shall be considered subsidiary to the non-metallic pipe being placed.

2.3 Ductile Iron Pipe

A. All ductile iron pipe used in the construction of water works improvements shall be Cement Lined and shall be manufactured in accordance with and shall meet the requirements of AWWA Specification C-l5l.

B. Pipe shall be cast in lengths of not less than l2 feet and shall be designed for a working pressure of l50 pounds per square inch. Thickness of ductile iron pipe shall be as shown on the plans and bid proposal or shall be computed in accordance with AWWA Specification C-l50, based on l50 pounds per square inch working pressure for 10 feet of cover and laying condition 2.

C. All ductile iron pipe shall have an exterior, bituminous coating and an inside cement-mortar lining in accordance with the requirements of AWWA Specification C-l04.

2.4 Polyethylene Plastic Tubing

Service lines shall be constructed with polyethylene plastic tubing as specified in ASTM D 2737 with a rating of l60 psi.

2.5 Ductile Iron Pipe Fittings

All fittings for ductile iron pipe and PVC pipe shall be ductile iron and shall be mechanical joint all connections except tees for fire hydrant leads unless shown otherwise on the plans. Tees for connecting fire hydrant leads shall be MJ- with a flange outlet.

All ductile iron fittings shall conform to AWWA Specification C-110, designed for a working pressure of 250 psi. All ductile iron fittings shall have an external coating and shall be cement lined in accordance with the specifications for coating and lining the pipe.

2.6 Pretensioned Concrete Cylinder Pipe

A. The contractor shall furnish and install all concrete cylinder pipe and fittings, including connections and appurtenances complete as shown on the plans and specified herein.

B. The contractor shall submit six (6) sets of full and complete shop drawings on the concrete cylinder pipe and fittings. All of the drawings and data shall be complete and shall include a complete description of the pipe offered, including cuts, tabulated layout and all pertinent engineering data required for a complete evaluation of the submittal. Submittal data shall be in such form and so presented that the Engineer may readily review the data.

C. Prior to delivery of the pipe to the project site, the manufacturer shall furnish an affidavit certifying that all pipe, fittings, and specials, and other products and materials furnished, comply with the applicable provisions of this specification.

D. The pipe manufacturer shall furnish a factory trained, job experienced field representative who shall visit the project periodically during the course of installation. He shall also be subject to call by the contractor and/or engineer to advise and assist with the solution of field problems.

During visits, the representative shall observe all phases of the project including location and condition of pipe strung ahead of the contractor, trench width, if applicable, bedding and backfill, assembly of pipe joints and protection of steel. If, in the opinion of the representative any phase of the installation is unsatisfactory, he shall so advise the contractor's superintendent and also advise the owner or engineer's representative on the job site.

E. All closure sections shall be the jack on type and "field welding" will not be permitted without the written permission of the engineer.

F. Pipe manufacturer will install all necessary taps for the contractor to disinfect and field hydrostatic test the pipe.

G. Pretensioned concrete cylinder pipe, fittings and specials shall be designed, fabricated and tested in accordance with the latest requirements of AWWA C-303, "Reinforced Concrete Pressure Pipe Steel Cylinder Type, Pretensioned, for Water and Other Liquids" with additional requirements or modifications as described herein.

H. Pretensioned concrete cylinder pressure pipe shall be designed for l50 psi, working pressure and manufactured in 32 foot nominal lengths in accordance with the provisions of AWWA Standard C-303.

I. Inspection and Testing

(1) The owner reserves the option to have an independent testing laboratory, at the owner's expense, inspect pipe and fittings at the pipe manufacturer's plant to ensure compliance with the applicable specifications. The owner's testing laboratory and Engineer shall have free access to those parts of the manufacturer's plant that are necessary to ensure compliance with the governing standard. The pipe manufacturer shall notify the owner, in writing, at least two weeks ahead of pipe fabrication as to start of fabrication and fabricating schedule so that the owner can advise the manufacturer as to owners' decision regarding tests to be performed by an independent testing laboratory. In event the owner elects to retain an independent testing laboratory to make material tests and weld test, it is the intent that the tests be limited to one spot testing of each category unless the tests do not show compliance with the standard. If these tests do not show compliance, the owner reserves the right to have the laboratory make additional tests and observations to ensure compliance of the finished product with the standard.

(2) In any event, the manufacturer shall perform the tests described in AWWA C 303, and furnish the owner with a copy of the test reports, if requested, at the expense of the pipe manufacturer. The pipe manufacturer shall furnish the owner with affidavit of compliance as outlined in the standard.

(3) All welds for water tightness in special pipe and fittings that have not been hydrostatically tested may be examined by use of visible dye penetrant system meeting requirement of ASTM El65; however, collar reinforcement and all other lap welds shall be tested by introducing air under l0 psi pressure between the collar and cylinder and checking for leaks around and through the welds with soap solution.

The area to receive the dye penetrant shall be cleaned free from contaminants that might interfere with the penetrant process. The temperature of the steel in the weld area shall be between 60 and l25 degrees F. when the penetrant is applied. Dwell time of six hours shall be allowed after application of the penetrant and developer before interpreting the results.

Defects that are found shall be repaired and the test repeated until all defects

are eliminated. Colored penetrant shall be removed before fittings are lined.

2.7 Casing Pipe

Casing pipe to be installed in bore or open cut may be limited service pipe, corrugated galvanized steel pipe or new straight seam or spiral welded steel pipe. Casing pipe shall be furnished in thickness or gage as shown on the plans.

Limited service pipe proposed for use on this project must be approved a minimum of four (4) working days prior to the time of opening bids and shall be in good condition and shall meet the same service requirements as the corrugated galvanized steel or welded steel pipe.

Welded steel casing pipe shall be coated inside and out using a coal tar epoxy or shall be bituminous coated in side and out by the hot dip method.

2.8 Bedding Materials

A. All water pipelines placed on this project shall be bedded with crushed stone bedding materials to the minimum as shown on the plans and in the Detail Drawings.

B. Granular material furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified, shall consist of any natural or synthetic mineral aggregate such as, crushed gravel, crushed rock, crushed stone, or slag, and shall conform to the following specifications and/or gradation.

Note, all materials used for these purposes shall be crushed and shall have at least two broken faces. Pea gravel will NOT be allowed.

	Foundation	Bedding	Encasement	Backfill
ASTM c33 Grade #57	X			
ASTM C33 Grade #67	X			
ASTM C33 Grade #8		X	X	
THD 1982 ITEM 302 Type "D" Grade #4		X	X	
THD 1982 Item 302 Type "D" Grade #5			X	
Crusher Fines**			*X	X

* 100 percent of crusher fines that are to be used within 12 inches of the top of pipe must pass the 3/4" sieve.

** Approximate Gradation for Crusher Fines

Sieve Size	% Passing
2 inch	100
#4	35 - 100
#10	20 - 100
#40	5 - 35
#200	4 - 10

Crushed stone material proposed as an alternate for use on this project and not meeting the above specifications must be approved in writing at least 48 hours prior to the time scheduled for opening bids.

C. Granular materials provided for Foundation, Bedding, Encasement, or backfill use as required by the contract, either as part of the pipe item work unit or as a separate contract item, shall be classified as to use in accordance with the following:

MATERIAL USE DESIGNATION	ZONE DESIGNATION
Granular Foundation	Placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support.
Granular Bedding	Placed below the midpoint of the pipe prior to pipe installation, to facilitate proper shaping and achieve uniform pipe support. Also for Class B Bedding where specified.
Granular Encasement	Placed below an elevation one half (6") foot above the top of pipe, after pipe installation, for protection of the pipe and to assure proper filling of voids and thorough consolidation of backfill.
Granular Backfill	Placed below the surface base course, if any, as the second stage of backfill, to minimize trench settlement and provide support for surface improvements.

In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

3. **VALVES AND VALVE BOXES**

3.1 General

A. Valves 4" through l2" shall be resilient seated gate valves with non-rising stems and shall open by turning to the left (counter clock wise).

B. Valves l4" and larger shall be resilient seated butterfly valves and have operators suitable for direct burial and shall open by turning to the left (counter clock wise).

All valves except valves for use in fire hydrant leads shall have mechanical joint ends unless shown otherwise on the plans. Valves for use in fire hydrant leads shall be flange by mechanical joint.

C. All valves and fire hydrants shall be spray coated with a two component thermal setting epoxy to cover all interior wetted ferrous surfaces. Finished coating shall have a minimum thickness of 4 mils. The coating shall conform to the coating section of these specifications.

D. All valves for buried service shall be equipped with 2" square AWWA operating nuts.

3.2 Gate Valves

A. Gate valves shall be iron body, resilient **wedge gate** and shall be in compliance with AWWA Standard C-509-80 or latest revision thereof and shall have the following design features:

B. All valves shall have a working pressure of 200 psi and shall be bottle tight tested at this pressure from both directions. The gate body shall also be hydrostatically tested at 400 psi. Zero leakage will be required in all tests. The body, bonnet, and stuffing box shall be flange together with ASTM A-307 Grade B bolts and nuts to insure repairability.

C. Stems shall be machined from modified manganese bronze rod with an integral forged thrust collar machined to size.

D. Stem seals shall be dual "O" ring type.

E. Valve discs shall be rubber encapsulated or have disc seat rings molded of natural rubber, internally steel reinforced retained to the disc by self-locking type 304 stainless steel screws. Valve gates shall seat against a machined epoxy coated mating surface in the body of the valve.

F. All internal ferrous metal surfaces (machined or cast) shall be factory spray coated with a two component thermosetting epoxy to a nominal thickness of 4 mils and the exterior shall be coated with asphalt varnish as specified for coating of the pipe. (See Sec. 3.4 of these specifications for epoxy coating).

G. Valves shall be Mueller A-**2360** or Dresser-M&H **4067** or approved equal. Any alternate (approved equal) to these specifications **shall have completely interchangeable parts with either of the specified valves.**

3.3 Butterfly Valves

A. General - All butterfly valves shall be of the rubber seated tight-closing type. They shall meet or exceed AWWA Standard C-504, Class l50B. Both valve ends shall be mechanical-joint per AWWA Standard C-lll. Accessories (bolts, glands, and gaskets) shall be supplied by the valve manufacturer.

B. All valves must use full AWWA C-504 Class l50 B valve shaft diameter, and full Class l50 B underground service operator torque rating throughout entire travel, to provide capability for operation in emergency service.

C. Valve body shall be high strength cast iron ASTM A 126 Class B with l8-8 type 304 stainless steel body seat. Valve vane shall be high strength cast iron ASTM A 48 Class 40 or ASTM A 536, Grade 65-45-l2 ductile iron having rubber seat mechanically secured with an integral l8-8 stainless steel clamp ring and l8-8 stainless steel self locking screws.

D. Rubber seat shall be a full circle 360^{o} seat not penetrated by the valve shaft. Valve shall have permanently set two way thrust bearing. Packing shall be designed for permanent duty in underground service.

E. Valve operator shall be of the traveling nut type, sealed, gasketed and lubricated for underground service. It shall be capable of withstanding an overload input torque of 450 ft. lbs. at full open or closed position without damage to the valve or valve operator. It shall be designed to resist submergence in water to 25 ft. head pressure. Number of turns to operate valve shall be as listed below in order to closely resemble conventional distribution valve practices and to minimize water hammer:

Pipe and Valve Size	Turns to close	Pipe and Valve Size	Turns to Close
4" - 6"	16-1/2	14" - 16"	48"
8"	24	18" - 20"	72
10" - 12"	36	24"	90

F. Valves shall be capable of easy closure by one man using standard valve key, even under emergency line-break conditions as severe as those that would - cause a valve maximum opening torque requirement of as much as two times AWWA Class l50 B.

G. All valves shall be tested bottle-tight at rated working pressure by the manufacturer as follows:

l4" up. . . . . l50 psi

In addition a hydrostatic test with vane partially open shall be given to the assembled valve as follow:

l4" up. . . . . 300 psi

H. Valve shafts shall be l8-8 type 304 stainless steel. Shaft bearings shall be of the self lubricating sleeve type.

I. Valve discs or vanes for valves 30" and larger shall be the flow through (bridge or truss) type.

J. Butterfly valves shall be Dresser-M&H Model "450", "4500" or "l450" or Mueller line seal III or approved equal. Alternates (approved equal) to these specifications must be approved in writing 48 hours prior to time bids are received.

3.4 Coating

A. The coating shall be a two part thermosetting epoxy protective coating and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings.

B. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the FOOD AND DRUG ADMINISTRATION DOCUMENT TITLE 2l of the FEDERAL REGULATIONS ON FOOD ADDITIVES SECTION l2l.25l4 entitled, RESINS AND POLYMERIC COATINGS.

C. The coating shall have a satin finish and shall be suitable for field over coating and touchup with same coating material without sanding or special surface preparation, or application of heat in excess of room temperature.

D. The coating shall have a successful record of performance in valves, pipe or other allied equipment for a minimum of two years.

E. The coating adhesion to the substrate shall exceed cohesion of the coating film as demonstrated by the following test:

(1) Prepare test panel and apply coating per manufacturer's recommendation.

(2) After sample has properly cured per manufacturer's recommendation, scribe an "X" using a sharp knife or scalpel through the coating to the metal substrate.

(3) Then with the point of the knife at the juncture of two scribes, attempt to lift off coating. Coating should not lift off substrate or between coats readily, but should break up leaving coating material on the substrate of this damaged area.

(4) No disbandment of the film shall be noted as tested above after immersion in tap water for l500 hours at l00`F.

F. A falling sand abrasion test using ASTM D968 shall produce an abrasion coefficient of 25-30 liters/mil. As an alternative, a Taber Abrader Test should find 3.5 - 3.7 milligrams coating loss per l00 cycles when using a CSF l0 Wheel (l000 gram weight).

3.5 Valve Boxes

All valves to be used in buried service shall be enclosed in cast iron valve boxes. Care shall be taken to place and maintain the 2" square operating nut in the center of the valve box. The valve box shall be two piece cast iron suitable for use with PVC pipe box risers. The 6 inch diameter cover shall be marked " Water". The PVC riser pipe shall be furnished in lengths as required (minimum pipe cover 42") PVC pipe for valve box riser may be ASTM C-900, ASTM D1785 schedule 40, ASTM D2241 pressure class 125 or ASTM D3034 DR 35. Valve boxes shall have a concrete ring 8" thick and having a radius equal to the radius of the valve box plus one foot (1') cast around them. Valve boxes placed in unpaved areas shall be set level with or slightly higher than the finished ground elevation. Valve boxes set in paved areas shall match the finished pavement surface.

3.6 Fire Hydrants

A. Fire hydrants shall conform to the requirements of AWWA C 502 dry barrel type. The fire hydrants shall be designed for a depth of bury of 4.5 feet, however the depth of bury may vary according to field conditions and extensions or shorter bury depth may be required.

B. The hydrants shall have a 5-l/4 inch valve opening, two 2-l/2 inch hose nozzles and one 4-l/2 inch pumper nozzle.

C. Hose threads shall be National Standard threads.

D. The hydrants shall be sized for 6-inch mains and shall have an inlet connection compatible with the type pipe used. All gaskets, nuts, bolts and other jointing materials shall be considered part of the fire hydrant installation.

E. Operating nut shall be standard l-l/2 inch pentagon opening counter-clockwise. The hydrant shall close with the pressure.

F. Hydrants shall be painted Federal Safety Yellow.

G. Fire hydrants shall have all interior wetted ferrous surfaces epoxy coated as required in the general and coating section of this item.

H. The hydrants shall have a minimum of two (2) drain holes located on opposite sides of the hydrant. The entire drainage channel must be made of non-corrosive material and sealed by acceptable resilient material (metal and/or leather seals are not acceptable).

I. The hydrants shall have a breakable safety flange and breakable stem coupling which breaks cleanly upon impact.

J. The hydrants shall be AWWA improved type hydrants and shall have self-oiling reservoirs.

K. Fire hydrants shall be the Mueller Centurion, the Dresser -M & H 929 Reliant, or The American Darling.

4. EXCAVATION, TRENCHING BEDDING AND BACKFILLING

4.l Trenching

A. The trench shall be excavated to the lines and grades as established by the engineer and as shown on the plans. The depth of cover for all main lines on which the grades and elevations are not shown on the plans, shall in general be Forty-two (42) inches. The amount of cover may vary over or under 42 inches as directed by the engineer but in no case will the amount of cover be less than thirty-six (36) inches. Depth of cover for service lines shall be as shown on the detail drawings.

B. Water lines constructed in proposed streets and service drives shall have the depth of cover measured from the finished grade. The contractor is hereby cautioned that proposed street finished grades are sometimes cut below the existing ground elevation.

C. The minimum width of the trench shall be the outside diameter of the pipe plus twelve (l2) inches for pipe diameter through l8", the outside diameter of the pipe plus eighteen (l8) inches for pipe diameters over l8". The trenching equipment shall be maintained on a sufficiently level road bed to provide substantially vertical trench walls. The maximum horizontal offset of the trench wall from bottom of trench to the top of the trench (under-cutting) shall be four (4) inches.

D. The trench shall be over excavated to an even grade to the depth of required bedding so that the bottom of the pipe will rest on a uniform thickness of bedding material on the bottom of trench throughout the entire length of the pipe. In order to obtain a true even grade, the bedding material shall be fine graded by hand. On lines that are to be laid to established grades batter boards shall be set at fifty foot intervals and the trench graded to the established grade.

E. Any part of the trench excavated below grade shall be corrected by filling with bedding material. The bedding material shall be thoroughly compacted.

E. If large rock, rock fragments or other unyielding materials are encountered in the bottom of the trench they shall be removed to a depth of six inches below grade, and the void filled with thoroughly compacted approved bedding material.

G. Bell holes of ample dimensions shall be dug at each joint to permit the jointing of pipe to be made properly and of sufficient depth to prevent the bell of the pipe from resting on undisturbed materials.

H. Wherever necessary to prevent caving, the trench shall be adequately braced and sheeted. Trench safety shall be in accordance with item l4 "Shoring and Sheeting of this specification.

I. Trench digging machinery may be used to make the trench excavations except in places where operation of same would cause damages to trees, buildings or other existing structures either above or below ground. In such instances hand trenching methods shall be employed.

J. All excavated material shall be stockpiled in a manner that will not endanger the work or existing structures and that will cause the least amount of obstructions to walks and driveways.

K. There will be no classification of the excavated materials and the term excavation shall include all materials encountered in excavating the trenches or structural excavations.

L. The contractor shall take all necessary precautions for protecting paved areas from being damaged by the trenching and backfilling equipment. Any damage done to any paved area, outside of the area set forth in the plans, as a result of the construction work shall be repaired by the contractor at his own expense.

M. Where the lines are located behind curbs, the contractor shall take special precautions to protect trees and shrubs. Care shall be exercised to cause as little damage to lawns as possible.

Where lines cross under curbs, gutters or curbs and gutters, tunneling will be required.

N. Blasting for excavation of solid rock will be permitted only after securing the

approval of the Director of Engineering and Transportation and the engineer and only when proper precautions are taken for protection of persons and property. The hours of blasting will be fixed by the engineer. Any damage caused by blasting shall be paid for by the contractor. The method or procedure relative to blasting shall conform to all state laws and local ordinances.

O. The contractor will be required to locate all known utility lines, including consumer service lines, far enough in advance of the trenching to make proper provisions for protecting the lines and to allow for any deviations that may be required from the established lines and grades.

P. The contractor shall not be allowed to disrupt the service on any utility lines except consumers service lines, which may be taken out of service for short periods of time, if the contractor obtains permission from the engineer and from the owner of the premises being served by the utility.

Q. The contractor shall immediately notify the proper utility company of any damage to utility lines, in order that service may be reestablished with the least possible delay. Repair of any damage to existing lines and the repair of consumer lines which are authorized to be cut or temporarily taken out of service shall be made by the contractor at his own expense, and as directed by an official representative of the utility company involved.

R. All utility lines shall be properly supported to prevent settlement or damage to the line both during and after construction.

S. Any permanent relocations of existing utility lines shall be done by the proper utility company without expense to the contractor.

4.2 Backfill General

A. All pipeline excavations shall be backfilled in a manner that will restore pre-existing conditions as the minimum requirement and fulfill all supplementary requirements indicated in the Plans and Specifications. The backfilling operations shall be started as soon as conditions will permit on each section of pipeline to provide continuity in subsequent operations and restore normal public service as soon as practicable on a section-by- section basis. All operations shall be pursued diligently, with proper and adequate equipment, to assure acceptable results.

B. Depositing of the backfill shall be done so the shock of falling material will not injure the structure. Grading over and around all parts of the work shall be done as directed by the Engineer.

C. Whenever soil types which are determined by the Inspector to be undesirable for backfill are excavated from the trench, such material shall be hauled away and deposited where directed by the Inspector at no additional compensation.

D. In the absence of special work item requirements the backfilling shall be accomplished with the use of suitable materials selected from the excavated

materials to the extent available and practical. Should the materials available from the trench section be unsuitable or insufficient, the required additional materials shall be furnished from outside sources at the Owners expense.

E. Suitable material shall be defined as a mineral soil reasonable free of foreign materials (rubbish, debris, etc.) frozen clumps, oversize stone, rock, concrete or bituminous chunks and other unsuitable materials, that may damage the pipe installation, prevent thorough compaction, or increase the risks of after settlement unnecessarily. Material selection shall be such as to make the best and fullest utilization of what is available, taking into consideration particular needs of different backfill zones. Material containing stone, rock, or chunks of any sort shall only be utilized where and to the extent there will be no detrimental effects.

F. Backfill materials shall be carefully placed in relatively uniform depth layers spread over the full width and length of the trench section in a manner and/or sequence that will provide simultaneous support on both sides of the pipeline. Each layer shall be compacted effectively, by approved mechanical of hand methods, until there is no further visual evidence of increased consolidation. Compaction of the in place layer shall be completed acceptably before placing material for a succeeding layer thereon. The manner of placement, layer thickness, compaction equipment, and procedure effectiveness shall be subject to approval of the Engineer. Water jetting or flooding shall NOT be used to compact trench backfill.

G. Within the pipe bedding and encasement zones described as that portion of the trench which is below an elevation one foot above the top of the pipe, the materials placed shall be limited in particular size to 3/4 inch maximum. For larger pipe in access of 18 inches in diameter the Engineer may allow particle sizes up to 2 inches maximum if it can be shown that the backfill can be satisfactorily compacted without leaving voids or damaging pipe or joints. Above these zones, the placement of material containing stones, boulders, chunks, etc. shall be governed by the layer thickness and compaction equipment capabilities.

H. Compaction of materials placed within the pipe bedding and encasement zones shall be accomplished with portable or hand equipment methods to achieve thorough consolidation under and around the pipe and avoid damage to the pipe. Above the pipe zone material, the use of heavy roller type compaction equipment shall be limited to safe pipe loading.

I. The maximum loose thickness of each backfill layer shall be l2 inches, except that l6 inches will be permitted for Granular Materials placed above an elevation one foot above the top of pipe, and with the provision that, by authority of the Engineer in consideration of the demonstrated capability of special type vibratory compactors, these maximums may be increased at his discretion. "Hydro tamps" or "vibra tamp: or other heavy vibrating equipment shall not be used until the backfill has reached a depth of four (4) feet above the top of the pipe.

J. All surplus or waste materials remaining after completion of the backfilling operations shall be disposed of in an acceptable manner within 24 hours after

completing the backfill work on each particular pipeline section. Disposal at any location within the project limits shall be as specified, or as approved by the Engineer; otherwise, disposal shall be accomplished outside the project limits at the Contractor's discretion. The backfilling and surplus or waste disposal operations shall be a part of the work required under the pipeline installation items, not as work that may be delayed until final cleanup.

K. Until final acceptance of the project, the Contractor shall assume full Responsibility and expense for all backfill settlement and shall refill and restore the work as directed to maintain an acceptable surface condition. All additional materials required shall be furnished without additional cost to the Owner.

4.3 Backfill Procedure above Pipe Zone, in Public Rights-of-way and other areas where settlement is important.

A. Backfill above the pipe zone shall be made using Portland cement stabilized backfill or crushed stone screening (crusher fines).

B. Backfill around structures such as manholes, junction boxes, transformer boxes and valve boxes shall be made using portland cement stabilized backfill material or crushed stone screening (crusher fines).

C. The minimum depth of stabilized backfill or crusher fines shall be twelve (12") inches.

When utilities are being constructed under existing paving, the stabilized backfill or crusher fines shall extend from top of the pipe zone to the top of the base course.

When utilities are being constructed under existing unpaved streets that are not scheduled for immediate pavement construction, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the existing roadway surface.

When utilities are being constructed in new streets that are scheduled for immediate paving or in streets in a new subdivision for which a paving contract with the property developer has been approved the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the bottom edge of the eight (8") inches of subgrade, or, if the paving contractor has constructed a portion of the roadway prior to the construction of the utilities stabilized backfill shall extend to the top of the course the contractor has finished. In no case shall the backfill extend above the top of the base course.

If the final course of asphaltic concrete has been placed, the street or alley surface shall **NOT** be cut for utility installation.

In new streets where stabilized backfill is required only to the bottom of the subgrade course, the minimum depth of stabilized backfill may be reduced to six (6") inches in which case the maximum depth of the "pipe zone" shall be limited to six (6") inches above the top of the utility line or conduit.

D. Backfill Materials

(1) Portland cement stabilized backfill shall consist of caliche base material, blow sand or native soil stabilized by the addition of Portland cement. Crushed stone or concrete aggregate shall **NOT** be used.

The Contractor shall submit a mix design prepared by an approved Commercial Laboratory that will produce a minimum 7 day compressive strength of 150 psi. In no case shall the minimum cement content of the mix be less than 1 sack per cubic yard.

(2) Cement used in Portland cement stabilized backfill shall be Type I or Type II conforming to the requirements of ASTM Designation C150.

(3) Caliche used for Portland cement stabilized backfill shall be crushed material con-forming to Texas State Department of Highways and Transportation 1982Standard Specifications for Construction of Highways, Streets and Bridges Item 248 Type F, Grade 2.

(4) Blow sand used for Portland cement stabilized backfill shall be clean, free from organic matter, clay lumps, rock and other deleterious matter.

(5) Native soil used for Portland cement stabilized backfill shall be clean, free from clods and organic matter, and rock in excess of 2".

(6) Crushed stone screening (crusher fines) used for back fill shall be sharp grained particles of crushed stone conforming to the following gradation

Sieve Size	% Passing
2"	100
#4	35-100
#10	20-100
#40	5-35
#200	4-10

and may be the by product of crushing stone for other purposes or may be stone specifically crushed for use in backfill. Crusher fines not meeting these specifications may be approved for backfill upon demonstration that the desired results will be obtained.

E. Backfill Construction

(1) Portland cement stabilized caliche backfill or Portland cement stabilized native soil backfill may be constructed using either the "dry" method or the "wet" method.

(a) The dry method of stabilized backfill construction consists of dry mixing of the cement and caliche, sand or soil to produce a homogenous mixture then adding and mixing sufficient water for proper compaction and hydration of the cement. The water content of the mixture will be approximately one to two percent above the optimum moisture for soil compaction. The mixing may be accomplished by using batch mixers or on the job site by "blade Mixing" or other suitable method to produce the desired backfill material. The mixed material shall be placed in lifts of up to a maximum of 12 inches and compacted to ninety five (95%) modified proctor density by use of suitable compacting equipment.

(b) In the "wet" method of cement stabilized backfill construction, the materials shall be mixed in an approved concrete batching plant or mixer to the consistency of concrete and placed as concrete would be placed. The slump of the backfill material shall be such that all voids will be filled, approximately four (4") to six (6") inches. The backfill shall be consolidated by rodding or by the use of mechanical vibrators.

(c) The mix design used must be for the method of placement chosen.

(2) Portland cement stabilized blow sand backfill shall be mixed and placed by the "wet" method as described above.

(3) Crushed stone screening (crusher fines) shall be wetted uniformly throughout with sufficient moisture to assure proper compaction before being placed in the trench.

The moistened crushed stone screening (crusher fines) shall be placed in maximum lifts of twelve (12") inches and consolidated using vibratory type compaction equipment except when it has been demonstrated that the compaction equipment employed will adequately compact deeper lifts in which case the maximum depth of a lift shall be limited by the capabilities of the equipment used.

Tests to determine the compacted density of the backfill shall be ordered by the Engineer if in his opinion the compaction is not adequate. Test showing a minimum compacted density of 90% modified proctor will be deemed adequate compaction.

5. INSTALLATION OF DUCTILE IRON PIPE

5.1 Pipe Laying - General

A. All pipe and accessories shall be unloaded, handled, laid, jointed, tested for defects and for leakage and chlorinated in the manner herein specified.

B. The pipe, fittings, valves, and accessories shall be inspected upon delivery and during the progress of the work and any material found to be defective will be rejected by the engineer and the contractor shall remove such defective material from the site of the work.

C. The contractor shall be responsible for all material furnished by him and he shall replace at his own expense all such material that is found to be defective in manufacturer or has become damaged in handling after delivery.

D. All pipe, fittings, valves, and other accessories shall, unless otherwise directed, be unloaded at the point of delivery, hauled to and distributed at the site of the work by the contractor. Loading and unloading, of pipe and fittings shall be by hoisting or by sliding, or rolling on skidways in such a manner as to avoid shock or damage to the material. Under no circumstances shall pipe or fittings be dropped. Pipe handled on skidways must not be skidded or rolled against pipe already on the ground.

The pipe, fittings and accessories shall be placed along the site in such a manner as to be kept as free as possible from dirt, sand, mud, and other foreign matter.

E. All pipe shall be laid and maintained to the lines and grades shown on the plans
or as established on the ground by the engineer.

F. Wherever it is necessary to deflect pipe from a straight line either in a vertical or horizontal plane to avoid obstructions, to plumb valves and hydrants, or where vertical or horizontal curves are shown or permitted, the degree of deflection at each joint shall not exceed the maximum deflection recommended by the manufacturer of the particular kind of pipe being laid and the degree of deflection shall be approved by the engineer.

G. After the trench grade has been completed and all bell holes dug and the grade inspected, the pipes and accessories my be placed in the trench. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of derricks, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to the material in any way. Under no circumstances shall pipe or accessories be dropped or dumped in the trench.

H. Before lowering into trench the pipe shall be again inspected for defects and the pipe while suspended shall be lightly hammered to detect cracks. Any defective, damaged or unsound pipe and materials shall be rejected.

I. All foreign matter or dirt shall be removed from the inside of the pipe and from all bells, spigots or parts of the pipe used in forming the joint, before the pipe is lowered into the trench, and it shall be kept clean by approved means during and after laying.

5.2 Laying and Jointing Ductile Iron Pipe

A. Unless otherwise directed, pipe shall be laid with bells facing in direction of laying; and for lines on appreciable slopes, bells shall, at the discretion of the engineer, face up grade. Cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or the cement lining.

B. The jointing shall be completed for all pipe laid each day. No open joints will be left in the trench overnight. At times when pipe laying is not in progress, the open ends of pipe shall be closed by approved means. No trench water shall be permitted to enter the pipe.

C. No pipe shall be laid in water, or when the trench conditions or weather is unsuitable for such work, except by written permission of the engineer.

D. Rubber Gasket joints for cast iron or ductile iron pressure pipe and fittings shall conform to AWWA Standard C-lll.

E. Before laying the pipes, all lumps, blisters and excess coal tar coating shall be removed from the bell and spigot ends of each pipe; the outside of the spigot and the inside of the bell shall be wire brushed and wiped clean and dry. Pipe ends shall be kept clean until joints are made.

F. The pipe and fittings shall be properly aligned and free to move in any direction while bolting, and the bolts shall be gradually tightened at a uniform rate around the entire flange.

G. Flange joints where used shall be bolted with flange bolts of best quality mild steel and of the size and length required by AWWA C-ll5: Bolts and nuts shall be provided with standard hexagonal heads. Gasket rings shall be used and shall be made of best quality rubber composition sheet packing one-eighth (l/8) inch thick, of a brand and quality approved by the engineer.

H. Standard plugs shall be inserted into the bells of all dead end pipes, tees, or crosses and spigot ends shall be capped. Plugs or caps shall be jointed to the pipe or fittings in the same manner used in joining the pipe.

6. SPECIFICATIONS FOR INSTALLING PRETENSIONED CONCRETE CYLINDER PIPE

6.l General

The applicable portions of the specifications for installing ductile iron pipe shall apply except as amended or supplemented herein.

6.2 Pipe Laying

A. Pipe and fittings shall be handled with care at all times to avoid damage. They shall be lifted by hoists or slide or rolled on skid-ways in such manner as to avoid shock. Under no circumstances shall they be dropped. Pipe must not be skidded or rolled against other pipe or object.

B. Just before making the joint, the bell and spigot rings shall be thoroughly cleaned by wire-brushing until clean and dry. The gasket and the inside surface of the bell shall be lubricated with a light film or soft vegetable soap compound (flax soap) to facilitate telescoping the joint. The rubber gasket shall be stretched uniformly as it is placed in the spigot groove to insure a uniform volume of rubber around the circumference of the groove.

C. The joint shall be telescoped by pulling directly along the centerline of the pipe so that the spigot enters squarely into the bell. After the spigot has been telescoped into the bell, the bell end of the pipe being laid shall be moved in accordance with the plans to secure proper grade and alignment. After the joint is in place, a thin metal feeler gauge shall be used to check the position of the rubber gasket around the circumference of the joint.

D. The inside joint recess shall be filled immediately prior to placing the pipe together by buttering the bell end with mortar. After the joint is engaged, the joint mortar of pipe l8" in diameter and larger shall be finished off smooth by hand. The mortar in pipe smaller than l8" in diameter shall be smoothed and cleaned with a swab.

E. After the spigot has been telescoped into the bell, the joint checked and found satisfactory, a canvas wrapper shall be placed around the pipe, covering the joint. The canvas type wrapper shall be of the quality manufactured by the Mar-Mac Manufacturing Company or approved equal burlap type, and shall be hemmed at each edge to allow threading with a steel strap to securely fasten the wrapper around the pipe by means of a stretcher and sealer.

The wrapper shall have a minimum width of 7" and sufficient length to encircle the pipe leaving enough space between the ends at the top to allow the cement mortar to be poured. The entire joint shall be poured with cement mortar and rodded or agitated to eliminate voids and settlement. Prior to pouring the cement mortar the joint shall be thoroughly cleaned and saturated with clean water. Any joint showing shrinkage or excessive cracking shall be cleaned and remade. In hot weather,

additional measures may be required to obtain the best quality of joint, such as additional wet burlap, curing membrane, or immediate careful and well controlled backfilling of the joint with damp earth.

F. The mortar used at the exterior joint shall consist of one part Portland cement to 2-l/2 parts fine, sharp, clean sand and mixed with water to the consistency of thick cream. Mortar required at the joint shall not be placed in freezing weather unless adequately protected from freezing.

G. The joints for pipe to be installed in casing shall be made as for pipe laid in trench except that the outside portion of the joint shall be wrapped in a special polyurethane wrap impregnated with unhydrated cement manufactured for this purpose, prior to being jacked into the casing pipe. The wrap shall be "Flex-Protex" as manufactured by Mar-Mag Mfg. Corporation or approved equal. The interior of the joints shall be mortared after the pipe to be installed in casing has been jacked into place. The pipe shall not be moved after interior mortaring is completed. After the water line has been installed in the casing the ends of the casing shall be sealed using concrete or cement mortar.

H. Steel cylinder reinforced concrete pipe shall not be pressure tested until it has been in place a minimum of l4 days.

I. The contractor shall fill the steel cylinder reinforced concrete pipe under slight pressure and allow approximately 24 hours for water absorption by concrete lining before performing pressure test.

7. SETTING VALVES, VALVE BOXES, FIRE HYDRANTS AND FITTINGS

7.1 General

Valves and fittings shall be set at the locations shown on the plans or at locations as established by the engineer, and shall be set and jointed to the pipe in the manner heretofore specified for pipe installation. All valves buried in the ground shall have a cast iron valve box set over the valve and set to grade. All valves shall be set vertical, unless otherwise specified, and shall be thoroughly inspected and checked for operation before installation.

7.2 Valve Boxes

Cast Iron valve boxes shall be firmly supported and maintained centered and plumb over the wrench nut of the valve, with box cover flush with the surface of the ground or street paving.

Valve boxes shall be supported by a ring of concrete as shown on the plans and Detail Drawings. This ring shall be Class "A" concrete having a minimum thickness of six (6") inches and shall extend a minimum of twelve (12") inches in all directions from the outside diameter of the valve box and shall be supported on thoroughly compacted backfill.

7.3 Setting Fire Hydrants

A. Fire hydrants shall be located at points shown on the plans, the exact location of the hydrant to be established by the engineer. All hydrants shall be set plumb, to the grade as established by the engineer, and shall have their nozzles parallel with and/or at right angles to the curb, with the pumper nozzle facing the curb. The hydrants shall be supported in such a manner as not to cause a strain on the fire hydrant lead or branch.

The bowl of the hydrant shall be well braced against unexcavated earth at the end of the trench with concrete blocking. The concrete blocking shall be placed so as not to interfere with the hydrant drains and so that the joints or flanges are accessible.

B. Each hydrant shall be connected to the main with a six (6) inch ductile iron branch controlled by an independent six (6) inch gate valve. Each hydrant shall be set upon a stone or concrete slab not less than four (4) inches thick and not less than one square foot of surface area. Where solid rock exists in the bottom of the trench and same is excavated to the proper depth to form a foundation for the hydrant, the slab of stone or concrete may be omitted.

C. There shall be placed around the base of the hydrant not less than seven (7) cubic feet of sound broken stone or clean gravel, or other suitable material to provide reservoir capacity so that the hydrant will completely drain when closed. The gravel or broken stone shall reach from the bottom of the trench to at least six (6) inches above the waste opening in the hydrant. Each hydrant shall be operated by the contractor to prove to the inspector that the drain hole has not been plugged with concrete or other material.

8. **ANCHORAGE OF BENDS, TEES AND PLUGS, ETC.**

Reaction or thrust blocking shall be applied to all pipe lines at all tees, plugs, caps, valves, fire hydrants, and at bends deflecting ll-1/4 degrees or more. Concrete shall be used for blocking the pipe and fittings. Concrete for thrust block shall have a minimum compressive strength of 3,000 psi and shall conform to Texas Highway Department Class "A" concrete. Before thrust blocking is placed the element to be blocked shall be carefully wrapped in polyethylene sheeting having a minimum thickness of 3 mils. The blocking shall be placed between solid ground and the fitting to be anchored; the area of bearing on pipe and on the ground in each instance shall be that required by the engineer. The blocking shall be so placed that the pipe and fitting joints will be accessible for repair.

9. DISINFECTION OF PIPE LINES

The contractor shall furnish all labor, equipment, and materials necessary to the disinfecting of the new pipe lines which shall be disinfected before being placed in service. The lines shall be disinfected by the application of a chlorinating agent. The chlorinating agent may be a liquid chlorine, liquid chlorine gas water mixture, or a calcium hypochlorite solution, which shall be fed into the lines through a suitable solution feed device, or other methods approved by the engineer. The chlorinating agent shall be readily dissolvable and of a type that will rapidly mix with the water as it is loaded into the water line. Tablets or other solid form shall not be used unless they are dissolved before being placed into the line. The chlorinating agent shall be applied at or near the point from which the line is being filled, and through a corporation stop or other approved connection inserted in the horizontal axis of the newly laid pipe. The water being used to fill the line shall be controlled to flow into the section to be disinfected very slowly, and the rate of application of the chlorinating agent shall be in such proportion to the rate of water entering the pipe that the chlorine dose applied to the water entering the line shall be at least 50 parts per million. The treated water shall be retained in the pipe lines for a period of not less than twenty four (24) hours. At the end of the retention period all treated water shall be thoroughly flushed from the lines until the replacement water in the lines shall have a chlorine residual of not more than 0.2 parts per million. Where it is necessary to place the new lines in service in less than 24 hours, the concentration of chlorine may be increased to 300 ppm and the lines flushed and placed in service in 3 hours. Disinfecting procedures shall conform to AWWA C 60l.

l0. HYDROSTATIC TESTS

All pipe lines constructed under this contract before being accepted, shall be tested at l20% design pressure as described in the following paragraphs. This test shall apply to all newly laid pipe or any valved sections thereof.

The required test pressure (l80 pounds per square inch) shall be maintained over a continuous period of not less than eight (8) hours.

Each valved section of pipe shall be slowly filled with water, being certain that all air is expelled from the pipe by using hydrants, blow-offs or taps at points of highest elevation in the line. The specified pressure shall be applied by means of a pump and flow meter (gpm and amount) connected to the pipe in a manner satisfactory to the engineer. The contractor shall furnish all necessary equipment, materials and labor to satisfactorily make the hydrostatic tests.

After the line section to be tested has been brought to pressure, a visual inspection shall be made of all joints, fittings, valves, and appurtenance. Any leaks thus located shall be corrected before continuing with the test.

If the test indicates a leakage in excess of a rate equal to twenty-five (25) gallons per inch of nominal diameter of pipe line per mile per day (maximum 600 gallon per mile per day total leakage) the cause of such leaks shall be determined and corrected and the line retested until satisfactory results are obtained.

11. **REMOVING AND REPLACING PAVEMENT**

A. When it is necessary to cut existing paving to install utilities the paving shall be repaired as soon after the backfill is consolidated or the cement stabilized backfill has reached sufficient strength as practical. The repair shall be made using Texas Highway Department Type "D" Hot Mix Asphaltic Concrete and shall have a minimum thickness equal to the thickness of the existing surface.

B. Edges along the trenches and around pits shall be saw cut to remove damaged edges and/or surface. Saw cuts shall be straight and parallel to or at right angles to the street or alley center line in so far as practical. Meandering, zig-zag or notched saw lines will not be permitted. The saw cuts shall be such that a minimum of 6" of surface is removed beyond the edges of the trench.

C. The edges of the saw cut and surface of the backfill material shall be tack coated prior to the placing of hot mix asphaltic concrete. The tack coat shall be either RC-250 cut back asphalt or RS2h emulsified asphalt or approved equal. When emulsified asphalt is used for tack coat the asphaltic concrete shall not be placed until the break of the emulsion is complete and all free water has evaporated or has been removed.

D. After the tack coat is cured the hot mix asphaltic concrete shall be placed uniformly throughout the repair area. The edges of the repair shall be squared up and the hot mix asphaltic concrete thoroughly compacted. Any large aggregate that is separated from the mix during the leveling process shall be removed from the surface and disposed of off the project. Care shall be taken that none of the mix over laps the old paving. Any mix that has "scabbed" onto the paving shall be removed before the section is reopened to traffic.

Sufficient mix shall be placed so that the finished repair is from one eight (1/8") inch to one quarter (1/4") inch above the old paving surface to allow for further consolidation by traffic.

12. **TUNNELING UNDER UTILITY LINES, ETC**.

Where pipes, conduits or concrete curbs, gutters or other obstructions are encountered in the construction, the cost of tunneling under such obstructions shall be included as a part of the cost of the pipe line, or other pay items, complete in place.

13. **HIGHWAY CROSSING**

A. The City of Midland will obtain any required permits from the State Highway Department for installation of the water line along and across the highway right-of-way. It shall be the contractor's duty and responsibility to coordinate the time of making the crossing and the manner of handling traffic.

B. Installations of the casing pipe shall be accomplished by boring or open cut trench as indicated on the drawings and in accordance with the Texas Department of Transportation permit and requirements. Equipment used shall be of such size and capacity as to allow the placement of the casing to proceed in a safe and expeditions manner. Installation of the casing and the excavation and removal of the materials

within the casing shall proceed simultaneously.

The boring shall proceed from a pit provided for the boring equipment and workmen. Excavation and location of the pit shall be approved by the Engineer. Boring without the concurrent installation of the casing pipe will not be permitted. The use of water or other fluids in connection with the boring operation will be permitted only to the extent of lubricating cuttings. Jetting will not be permitted. Overcutting in excess of one inch shall be remedied by concrete pressure grouting the entire length of the installation. All joints for casing pipe installed in bore shall be welded. Care shall be taken to keep the casing pipe on the proper line and grade.

C. After the casing pipe has been installed and is accepted by the Engineer, the pipe shall be shoved through the casing. The pipe shall be pushed or pulled through the casing by exerting pressure on the barrel of the pipe and not on the bell, and shall be done in such a manner that the joint is always in compression during the shoving operation. Hardwood, or other suitable material skids shall be banded with stainless steel bands to each joint of pipe In accordance with the pipe manufacturers recommendation. The hardwood skids shall be of sufficient dimensions to allow the bell of the pipe to clear the casing pipe by at least one-half inch. The length of the skid shall be in accordance with the pipe manufacturers recommendations. A minimum of three bands shall be used to secure the skids to the pipe. The skids shall be such that the carrier pipe will be centered in the casing pipe. The design of skids and bonding techniques shall be submitted to the Engineer for approval prior to use.

In general waterline installation in the casing pipe shall conform to AWWA C 600-Section 6 requirements.

After completion of pipe installation in casing, the ends of the casing shall be sealed off by use of concrete grout. The minimum compressive strength of the grout shall be 2,000 psi in 28 days.

14. **SHORING & SHEETING**

14.1 Description

This item shall govern for the Trench Safety Systems required for the construction of all trench excavation to be utilized in the project and including all additional excavation and backfill necessitated by the safety system. A trench shall be defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. The depth is five feet or more.

Trench Safety Systems include but are not limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, dewatering or diversion of water to provide adequate drainage.

l4.2 Construction Methods

Trench safety systems shall be accomplished in accordance with the detailed specifications set out in the provisions of Excavation, Trench, and Shoring, Federal Occupational Safety and Health Administration (OSHA) Standards, 29CFR, Part 1926, Subpart P, as amended, including Proposed Rules published in the Federal Register (Vol. 52, No. 72) on Tuesday, October 31, l989. The sections that are incorporated into these specifications by reference include Sections 1926-650 through 1926-652. Legislation that has been enacted by the Texas Legislature, being Tex. Rev. Civ. Stat. Ann. arts. 1015q, 2368a.6 (Vernon Supp. 1988) with regard to Trench Safety Systems, is hereby incorporated, by reference into these specifications.

A reproduction of the OSHA Publication 2226 is attached for the convenience of the Contractor. The City assumes no responsibility for the accuracy of the reproduction or that it reflects current law. The Contractor is responsible for obtaining a copy of this section of the Federal Register for his use.

If the contractor elects to use a trench protective system that, in the Proposed Rules, requires "Design by a qualified person or a qualified engineer," [For example see 1926.652(b) (3) and 1926.652(c) (4)], "a qualified person or qualified engineer" shall be a Professional Engineer registered in the State of Texas. The Contractor is responsible for obtaining boring and soil analysis as required for the planned design. The trench excavation is to be designed in conformance with OSHA standards and regulations.

14.3 Safety Program

The Contractor shall submit a safety program specifically for the construction of trench excavation. The trench safety program shall be in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

14.4 Inspection

The Contractor shall make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. Daily inspection is to be made by a "competent person" provided by the Contractor. If evidence of possible cave-ins, or slides, is apparent, all work in the trench shall cease until the necessary precautions have been taken by the Contractor to safeguard personnel entering the trench. It is the sole duty, responsibility and prerogative of the Contractor, not the owner or the Engineer, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project. The Contractor shall maintain a permanent record of daily inspections.

14.5. Safety Restrictions - work near high voltage lines

The following procedures will be followed regarding the subject item on this contract:

A. Warning signs painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

B. All equipment except back hoes or dippers that may be operated within ten feet of high voltage lines shall have an insulating cage-type of guard about the boom or arm and insulator links on the lift hook connections.

C. When necessary to work within six feet of high voltage electric lines, notification shall be given the power company who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

D. The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

l5. MEASUREMENT AND PAYMENT

l5.l General

The unit price or lump sum price bid on each item, as stated in the proposal, shall include furnishing all labor, superintendence, machinery, equipment, and materials necessary to complete the various items of work in accordance with the plans and specifications. Cost of work or materials shown on the plans and called for in the specifications and on which no separate payment is made shall be included in the bid price on the various pay items.

l5.2 Water Lines

A. Measurement

The length of pipe lines for the various sizes, classes and types to be paid for will be determined by measurement along the center lines of the pipe installed, measurement being made from the center of fitting to center of fitting or end of pipe, without any deduction for the length of intermediate fittings or valves including pipe installed in casing.

B. Payment

Furnishing and installing approved type pipe of the various sizes and classes shown on the plans or as required will be paid for at the unit price bid per linear foot for furnishing and installing the various sizes and classes of approved pipe complete in place. The unit price bid shall be complete compensation for furnishing and installing the pipe complete in place including all excavation, backfilling, testing and disinfection of lines and shall include any and all incidental work not otherwise included in the bid items or otherwise provided for in the specifications.

l5.3 Solid Rock Excavation

All excavation for pipe trenches shall be unclassified and no extra compensation will be made for solid rock excavation. The contractor is expected to make boring of his own and satisfy himself to the character of material which will be encountered.

l5.4 Gate Valves or Butterfly Valves

A. Measurement

Gate valves or butterfly valves will be counted in the field after installation by the size and type specified and actually installed.

B. Payment

The unit price bid for each type and size valve shall be complete compensation for furnishing and installing the valves, complete in place, including the furnishing and installation of cast iron valve boxes on all valves to the finished grade of the adjacent surface. All valves in paved areas shall be set to finish pavement grades

l5.5 Fire Hydrants

A. Measurement

Fire hydrants will be counted in the field after installation in accordance with the plans and specifications.

B. Payment

The unit price bid shall be complete compensation for furnishing and installing the fire hydrants, complete in place, each, including lead pipe the gravel drain, concrete blocking, extension or additional bury depth as required for a complete installation.

I5.6 Service Connections

A. Measurement

The number of service connections of the type and size specified to be paid for will be counted in the field after complete installation.

B. Payment

The unit price bid shall be complete compensation for furnishing and installing the service connections, complete in place, including the meter box and lid, service line, corporation stop, meter stop and incidentals required for a complete installation.

I5.7 Ductile Iron Fittings

A. Measurement

The weight of the various ductile iron fittings and specials were estimated by using the standard weights for cast iron fittings as established by the American Water Works Association or American Standard Association. Measurement of ductile iron fittings will be made by counting the actual number of fittings installed and multiplying the number of fittings by the catalog weights for those types of fittings actually installed. Allowance will be made for glands and bolts.

B. Payment

The ductile iron fittings or specials required in the construction of the various size pipe lines as shown on the plans or as required will be paid for at the unit price bid per ton for furnishing and installing the ductile iron fittings complete in place. The unit price shall also include all materials, excavation, backfilling, concrete blocking and other incidental work required for the complete installation.

I5.8 Steel Cylinder Concrete Pipe Fittings

A. Measurement

No separate measurement or count of fittings and specials for steel cylinder concrete pipe will be made.

B. Payment

No separate payment will be made for fittings or specials for steel cylinder concrete pipe used on this project, but the cost of same shall be included in the price bid per linear foot for the various classes and sizes of pipe in the bid proposal.

l5.9 Casing Pipe In Bored Hole Or Open Cut

A. Measurement

Measurement of the casing pipe, of the type and size specified, shall be made by the linear foot of casing installed complete in bored hole or installed complete in open cut.

B. Payment

The unit price bid per linear foot for casing in bored hole or for casing in open cut shall be complete compensation for furnishing and installing the casing, complete in place, including all pits, boring equipment, materials and labor required for a complete installation. Payment for carrier pipe installed in the casing will be made as stated under Waterlines above.

l5.l0 Paving Cut and Repair

A. Measurement

Measurement of paving cut and repair will be made by the square yard for replacing pavement of the type specified. The area of the pavement replaced shall be determined by actual measurements on the ground; however, measurement will be limited to areas within widths of cuts as shown on the plans unless additional widths are authorized by the engineer. Any pavement removed or damaged outside of the aforementioned limits shall be replaced as prescribed with these specifications, but will not be measured for payment.

B. Payment

The unit price bid, per square yard, shall be complete compensation for cutting and removing the pavement, and constructing the concrete base and surfacing of the type specified, all as specified herein and as shown on the plans.

15.ll Trench Safety Systems, Sheeting and Shoring

A. Measurement

Trench Safety Systems shall be measured by the linear foot along the centerline of trench including manholes and other line structures.

B. Payment

Payment for Trench Safety Systems, measured as prescribed above, shall be made at the unit price bid per linear foot of "Trench Safety Systems: Payment of all work prescribed under this item shall be full compensation for the Trench Safety Systems including all Engineering cost and any additional excavation and backfill required, for furnishing, placing, maintaining and removing all shoring, sheeting, or bracing; for dewatering or diversion of water; for all jacking and jack removal; and for all other labor, materials, tools, equipment and incidentals necessary to complete the work.

Revised 08/07

GRAVITY FLOW PIPE SEWERS AND FITTINGS FOR WASTE WATER AND STORM WATER

PART I – GENERAL

1.01 SCOPE

A. The work covered by this specification shall include the furnishing of all material, labor and equipment to construct, complete in place, all Gravity sewers including jointing, gaskets, fittings, castings, mortar, concrete, the placing of sewer pipe, and the construction of manholes and other appurtenance, all in accordance with the details shown on the plans and these specifications for the drainage of sanitary and/or storm sewage.

B. Sanitary and storm sewer lines constructed under these specifications shall be straight in grade and alignment between manholes. Manholes shall be constructed at any change in grade and at any change in alignment. In general manholes are to be constructed at 300 feet intervals or less with the maximum distance between manholes being 350 feet when approved by the Engineer.

1.02 QUALITY ASSURANCE

A. The Contractor, at the Engineer's request, shall furnish a certificate from the manufacturer of the pipe and fittings that the manufacturer is fully competent and capable of manufacturing sewer pipe, fittings, and accessories of the type, size and grade proposed for use in this project that are of uniform texture and strength that will fully comply with these specifications and have so manufactured this class of pipe in sufficient quantities to be certain that it will meet all normal field conditions of usage. The manufacturer must have adequate equipment and quality control facilities to be sure that each extrusion casting or run of pipe is uniform in texture, dimensions, and strength.

B. All PVC, HDPE, or plastic resin based pipe and fittings shall be covered during storage to protect them from excessive heat and direct sunlight.

C. All pipe and accessories shall be stored above ground and fully supported so that they will not bend or deflect excessively under their own weight.

D. Pipe in any way damaged or deformed during storage shall not be incorporated into this project, but at the direction of the Engineer, shall be permanently removed from the job site and project area.

1.03 TYPE OF PIPE

A. Pipe for sanitary sewers 15 inches in diameter and less shall be PVC. Pipe for storm drains 15 inches in diameter and less may be corrugated steel pipe when called for on the plans and in the bid proposal. Pipe 18 inches in diameter and larger shall be of the type shown on the plans and bid proposal.

B. The contractor may be allowed to bid a choice of two or more of the pipe materials when pipe 18 inches in diameter and larger are proposed for use on a project. When such choice is allowed the permissible choices will be clearly stated on the plans and/or bid proposal and a blank space will be provided for the contractor to write in the type of pipe proposed for use on the project. When such blank spaces are provided, the contractor must choose one of the permitted pipe materials as specified in part 2 “Materials” of these specifications and write in the type of pipe bid. Failure to write in the type of pipe bid may be reason to disqualify the bid. One or more types of pipe 18 inches in diameter and larger may be excluded from consideration on any given project by notes on the plans and/or the bid proposal.

PART 2 – MATERIALS

2.01 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS FOR SANITARY AND STORM SEWERS

A. GRAVITY SEWERS

(1) Pipe and fittings in nominal diameters from 4-inch through 15-inch shall be manufactured in accordance with ASTM D3034, “Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings” and pipe and fittings in diameter 18” through 36” shall be manufactured in accordance with ASTM F-679 or ASTM F-794, closed profile, subject to the modifications and limitations below.

B. MODIFICATIONS AND LIMITATIONS

(1) The concrete slab manhole tops shall be reinforced with number 4 steel reinforcing bars spaced at 12 inches on center each way. Additional diagonal bars shall be placed on 4 sides around the manway opening. The diagonal bars shall be number 4 rebar with a minimum length equal to the diameter of the manway opening plus 4 inches. The steel reinforcing mat shall be placed in the bottom of the slab with 1-1/2 inches protective covering.

(2) The term Dimension Ratio (DR) or standard dimension ratio (SDR) is the ratio of the average outside pipe diameter to the minimum wall thickness rounded to the nearest 0.5. The maximum DR for PVC sewer pipe shall be 35. PVC pipe sewers that will have less than 4 feet of cover shall be DR26.

(3) PVC pipe manufactured under ASTM F679 or F794 shall have a wall thickness that will meet or exceed the D.R. and stiffness specified herein. The minimum pipe stiffness for pipe having a DR of 26 shall be 115 psi. The minimum pipe stiffness for DR 35 pipe shall be 46 psi.

(4) Where DR 26 pipe is specified, all necessary fittings shall be the same as for SDR 35 PVC pipe.

(5) Minimum wall thickness for ASTM D-3034 PVC pipe shall be as follows:

Nominal Size (in.)	Min. Wall Thickness (in.)	
	DR 26	DR 35
4	0.162	0.120
6	0.241	0.180
8	0.323	0.240
10	0.404	0.300
12	0.481	0.360
15	0.588	0.437

The minimum wall thickness for PVC pipe meeting ASTM F-679 or F-794 requirements shall be the thickness as set forth in said ASTM specification that will meet or exceed the pipe stiffness and DR required.

(5) The identification markings as shown in Section 12 of ASTM 3034 shall note the specified DR of 26 where applicable.

(6) All pipe and fittings shall have the dimensions for inside diameter, outside diameter, etc. as shown in ASTM D3034 and/or ASTM F-679 except that the inside diameter DR 26 may be reduced by the added wall thickness.

(7) The pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density, and other physical properties.

(8) The Contractor shall provide wyes, tees, bends, adapters, and any other fittings called for in the specifications and/or shown on the plans or directed by the Engineer.

(9) The standard length of ASTM, D-3034 SDR 35 or SDR 26 PVC pipe under this specification shall be 20 feet with a minimum of 10 feet, except that all pipe used in service lines shall not exceed 10 feet in length unless otherwise approved by the Engineer. The standard laying length for ASTM F-679 PVC pipe shall be 13 feet. The Engineer must approve other laying lengths.

C. SEWER LATERALS AND CONNECTIONS

Pipe and fittings for service lines shall be the same material and thickness class as required for the main sewer. Schedule 40 PVC pipe may be used for 4” service lines when PVC pipe meeting requirements of ASTM 3034, SDR 35 is required.

D. JOINING SYSTEMS

(1) PIPE JOINTS

The pipe shall be joined with an integral bell, bell and spigot type rubber gasket joint. Each integral bell joint shall consist of a formed bell complete with a single rubber o-ring gasket. Gaskets shall be manufactured in accordance with ASTM F477 and shall be installed in accordance with the pipe manufacturer's instructions using all the necessary materials, lubricants and equipment recommended by the manufacturer.

For pipe 18" through 36" gaskets shall be factory installed and chemically bonded to the bell end of the pipe.

Lubricant shall be water soluble, non-toxic and have no deteriorating effects on gasket or pipe materials and shall not support the growth of bacteria. Lubricant shall be suitable for use at temperatures from 5^{o} to 120^{o} F (-15^{o} to 50^{o} C). Containers shall be labeled with the manufacturer's name and identified as PVC pipe joint lubricant. Each lubricant container shall have printed instructions for usage and joint assembly.

Field welded joints will not be allowed.

(2) FITTING JOINTS

All fittings shall utilize rubber gasket joints of the same type design and specifications as pipe joints.

(3) PIPE SPIGOT

The pipe spigot shall have a bevel and an insertion stop mark. The assembled joint shall be designed so the gasket shall be radially compressed to assure a positive water-tight seal for all installation conditions recommended by the manufacturer and under all combinations of production tolerances for the joint components. Each size joint shall be qualified to no leakage under various test conditions in conformance with ASTM Specification D-3212, "Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals."

E. INSPECTION AND TESTING

(1) INSPECTION REQUIREMENTS

Certification: as the basis of the acceptance of the material, the manufacturer will furnish a certificate of conformance to these specifications. The manufacturer will furnish other conformance certification in the form of affidavit of conformances, test results, and copies of test reports.

(2) PHYSICAL TEST REQUIREMENTS

For each 4,000 linear feet of pipe manufactured of each class and size of pipe, the following certified test data shall be required:

1. The basic dimensions shall be measured.
2. The allowable crush load (lbs/ft ^{2}) shall be calculated.
3. Impact resistance, fusion quality and ductility shall be tested.

F. MARKING AND DELIVERY

Each pipe shall be identified with the name of manufacturer, nominal size, cell classification, ASTM designation F794, Uni-Bell Plastic Pipe Association designation Uni-B-9, the pipe stiffness designation “PS-46 psi” and manufacturer’s date code.

1. MANHOLE CONNECTIONS

The Contractor shall provide smooth pieces of pipe for connecting sewer line into manholes. The Contractor shall be required to assist the manhole gasket supplier with the nominal outside diameter of these smooth pieces of pipe, as manufactured. There shall be only one plain end thickness for each diameter of pipe specified for the project.

2. DELIVERY

All pipe couplings and fittings shall be prepared for standard commercial shipment.

The pipe shall be inspected upon delivery to the job site for final acceptance. The contractor shall be responsible for all material furnished by him and he shall replace, at his own expense, all such material that is found to be defective in manufacture or which has become damaged in handling until final acceptance has been made. Pipe, which exhibits excessive ovalty or curvature, shall be rejected.

PVC pipe and fittings shall be covered during storage to protect them from excessive heat and direct sunlight.

All pipe and accessories shall be stored above ground and fully supported so as not to bend or deflect excessively under its own weight.

2.01(a) Metallic Marking Tape (For PVC Sewer Pipe)

2.01 (a).1 General

When non-metallic pipelines are to be installed, then the Contractor shall furnish and lay, above the pipeline, a continuous strip of metallic identification tape.

2.01 (a).2 Tape Material

The metallic identification tape shall be at least two inches (2”) in width and shall be of corrosive resistant metal of sufficient thickness to be stable and reflect electronic signals to electronic pipeline detector when buried to a dept of twenty-four (24”) below normal ground level.

The metallic tape shall be painted green on one side and shall have 1-inch high letters painted continuously on the same side of the tape which read, “CAUTION: BURIED SEWER LINE BELOW” or other words to this effect.

The marking tape shall be “Detectable Marking Tape”, as manufactured by the Omega Marking Company, or equal approved by the Engineer.

2.01(a).3 Construction Methods

The Contractor shall backfill over non-metallic pipelines to a depth which is less than twenty-four (24”) and not more than twelve inches (12) from the top of the cut of the ditch section in which the pipeline is laid. Contractor shall stop the backfilling material to a generally uniform level. All machine tamping, jetting and other compaction activities shall be accomplished up to this point of height in the backfilling the marking tape is placed in the trench.

The Contractor shall then lay the marking tape in the pipe trench and shall be held in position by the spot placement of backfill materials over it to keep it from sliding t the sides and/or from being blown about in the ditch by the wind. The tape shall be lid with the painted side, which shall also be the side with the identification lettering on it, in the “up” position. The tape shall be laid in the flat position and kept there until backfill is accomplished.

The Contractor shall then complete the backfilling operation in such a manner that the marking tape is not cut, crimped, ruptured or separated by the backfilling work.

2.01(a).4 Measurement and Payment

No separate pay item will be provided for furnish and placing the marking tape. This item shall be considered subsidiary to the non-metallic pipe being placed.

2.02 CORRUGATED STEEL PIPE (CSP) FOR STORM SEWERS AND CULVERTS ONLY

1. PIPE

A. STEEL SHEET STOCK

(1) Corrugated steel pipe shall be manufactured using galvanized steel sheet AASHTO M 218 or aluminized steel sheet AASHTO M 274.

(2) The lining for smooth lined corrugated steel pipe shall be polymer coated on both sides. The minimum thickness of the polymer coating shall be 10 mils.

B. PIPE DESIGNATION

(1) Pipe furnished shall be manufactured in accordance with AASHTO Specification M 36.

(2) Corrugated steel pipe shall be one or more of the following type as designated in AASHTO M 36.

Type I - Full circular cross section having helical corrugations.

Type IA - Full circular smooth lined pipe constructed of an outer shell having helical corrugations with a smooth sheet lining attached to the outer shell at helical lock seams.

Type IR - Full circular cross section with helical rib protruding outward.

Type II - Type I pipe formed into a pipe arch.

Type IIA - Type IA pipe formed into a pipe arch.

The type of pipe furnished on this project will be as shown on the plans and in the bid proposal.

When no type of pipe is called for on the plans or in the bid proposal helically corrugated circular single wall pipe (Type I or Type IR) shall be furnished.

C. MANUFACTURERS CERTIFICATION

(1) The pipe manufacturer will be required to certify the adequacy of the pipe furnished for the application and design life of the project.

(2) The design life for storm sewers constructed under this specification is 50 years.

(3) The pipe manufacturer will be required to run soil pH, soil resistivity and such other test as they deem necessary to design pipe thickness and protective coatings required to assure the adequacy of the pipe supplied.

D. CORRUGATION AND MINIMUM THICKNESS

(1) Thickness used in this specification refers to the bare steel thickness before coating is applied. The minimum thickness for any single wall corrugated steel pipe furnished under this specification is 16 gage.

(2) All corrugated steel pipe furnished under these specifications shall have helical corrugations.

(3) Circular corrugated steel pipe 48” in diameter and smaller shall have 2-2/3” x ½” corrugation and shall be a minimum of 16 gage in thickness.

Circular corrugated steel pipe larger than 48” in diameter may have either 2-2/3 x ½” or 3” x 1” corrugations. The minimum thickness for corrugated steel pipe larger than 48” in diameter and having 2-2/3 x ½” corrugation shall be as follows:

54” Diameter - 12 gage
60” Diameter - 10 gage
66” through 90” Diameter - 8 gage

The minimum thickness for circular corrugated steel pipe having 3” x 1” corrugation and diameters of 54” through 90” shall be 14 gage.

(4) For smooth lined corrugated steel pipe the minimum thickness for the lining shall be 20 gage and the minimum thickness for the outer shell shall be 18 gage.

The corrugations for the outer shell shall be 2-2/3” x ½” for pipe 48” diameter and smaller. Larger diameter pipe may use 3” x 1” corrugations in the outer shell. The sum of the thickness for the outer shell and the liner shall be a minimum of one thickness unit greater than the thickness that would be required for single wall pipe of the same diameter or span.

(5) Spiral rib steel pipe (Type IR) shall have outward projecting spiral corrugations of ¾” x 1” at 11-1/2” on center in accord with AASHTO specification M 36 or ¾” x ¾” at 7-1/2” on center as described in AASHTO specification M 196.

The minimum thickness for spiral rib pipe 48” in diameter and smaller shall be 16 gage.

The minimum thickness for spiral rib pipe 54” and 60” in diameter shall be 14 gage.

The minimum thickness for spiral rib pipe 66” and 72” in diameter shall be 12 gage.

The minimum thickness for spiral rib pipe larger than 72” in diameter shall be as shown on the plans.

(6) The corrugations and minimum thickness of corrugated steel pipe arch shall be in accord with the following table:

EQUIV. Dia. (in.)	2-2/3" x ½" Corrugations Span (in.)	Rise (in.)	Gage	3" x 1" Nominal Size Span (in.)	Rise (in.)	Gage
15"	17	13	14			
18"	21	15	14			
24"	28	20	14			
30"	35	24	14			
36"	42	29	14	40	31	16
42"	49	33	12	40	36	14
48"	57	38	10	53	41	12
54"	64	43	10	60	46	12
60"	71	47	8	66	51	12
66"	77	52	8	73	55	12
72"	83	57	8	81	59	12
78"				87	63	12
84"				95	67	12
90"				103	71	12

When 2-2/3" x ½" corrugations are called for on the plans and/or on the bid schedule the substitution of 3" x 1" corrugations will be allowed only upon the demonstration by the contractor that there is sufficient head room to accommodate the higher rise for arch pipe of this cross section.

E. END TREATMENT AND JOINING

(1) The ends of all corrugated steel pipe furnished for this project shall be rolled to provide circumferential corrugations for coupling. The end corrugations for all pipe 48" in diameter and less shall be 2-2/3 x ½". The end corrugations for single wall helically corrugated steel pipe or for smooth lined corrugated steel pipe 54" in diameter and larger shall be the same pitch as the pipe furnished and may be either 2-2/3" x ½" or 3" x 1". The end corrugations for spiral rib (Type IR) corrugated steel pipe shall be 2-2/3" x ½" or 3" x 1" for pipe 54" and larger in diameter.

(2) Coupling bands shall be made of the same material as the pipe and shall be not more than 3 nominal sheet thicknesses lighter than the pipe joined and in no case less than .052 inch.

Jointing devices for joining corrugated steel pipe shall have a gasket and shall produce a joint meeting the infiltration/exfiltration requirements of these specifications.

If it should be necessary to cut a joint of Helically corrugated pipe and join the unreformed end to another section of pipe or fitting extra width bands will be required and special care must be taken to insure a water tight connection.

Locking bands shall be corrugated and shall securely fit into at least one full annular corrugation. The corrugations on the locking band must match the corrugations on the pipe being joined.
The minimum width for locking bands is as follows:

for 2-2/3 x ½ inch corrugations	10-1/2 inches
3 x 1 inch corrugation	12 inches

For helical corrugations that have not been reformed the coupling bands must be at least 2 inches wider than the widths listed above.

Unless shown otherwise on the plans all bolts for coupling or locking bands shall be ½ inch in diameter. Bands 12 inches wide or less shall have a minimum of 2 bolts. Bands wider than 12 inches shall have a minimum of 3 bolts.

Bolts must be galvanized in accordance with AASHTO Designation M232 or ASTM A164 Type RS.

(3) Gaskets for corrugated steel pipe shall be closed cell expanded rubber and shall be formed into a continuous band. Gaskets may be either “O” ring or flat band as recommended by the pipe manufacturer. Flat band gaskets shall be a minimum of 7” wide and 3/8” thick. “O” ring gaskets shall be 13/16” diameter minimum for pipe 36” in diameter or less and 7/8” for pipe larger than 36” diameter and having ½” deep corrugations. “O” ring gaskets shall be a minimum of 1-3/8” diameter for pipe having 1” deep corrugations. When “O” ring gaskets are furnished, an additional flat gasket shall be furnished and placed between the overlapping ends of the coupling band. This flat gasket shall completely fill the gap between the “O” rings. All gasket materials shall be capable of producing a water tight joint that will meet the leakage requirements of these specifications.

2. CORRUGATED STEEL MANHOLE FITTINGS, AND CLEAN OUTS

A. FABRICATION

(1) Corrugated steel manholes and fittings shall be constructed of the same material and type of pipe furnished for the storm sewer line with the exception that manhole risers shall be helical corrugated single wall circular pipe when used with pipe arch sewers or smooth lined corrugated steel pipe. The thickness of the manhole riser shall be the same as would be required for the same type and diameter pipe if it were used for the storm sewer.

(2) Cleanouts for use on shallow storm sewer and inlet leads shall be manufactured from pipe meeting the requirements of these specifications. Cleanouts shall be constructed to the dimensions and in accord with the details shown on the plans.

B. CONNECTION TO MANHOLES AND CLEANOUTS

(1) Stub outs from manholes and cleanouts for connection to storm sewers and inlet leads shall have annular corrugations and shall be compatible with the type and size of pipe being connected. Stub outs provided for connection to PVC pipe storm sewers and inlet leads shall be sized so that the PVC pipe can be inserted into the stub leaving the least amount of annular space between the PVC pipe and the CSP practical. The PVC pipe shall be connected using an approved molded rubber or PVC sleeve connector clamped to both pipes with stainless steel straps.

The connector shall be a flexible coupling as manufactured by Fernco, 300 S. Dayton St., Davison, MI., or approved equal.

.

C. LEAKAGE

Manholes, fittings and cleanouts shall meet the leakage requirements of these specifications.

D. SHOP DRAWINGS

The contractor shall submit shop drawings of all manholes, fittings and cleanouts for approval prior to their fabrication. A minimum of 5 sets of drawings for each manhole, each fitting and each cleanout shall be submitted.

E. CONCRETE SLAB TOPS

A reinforced concrete slab top shall be constructed for each manhole and cleanout. The slab shall extend to one foot (1') outside the riser section on all sides and shall have an eccentric 2' diameter opening for the manway located at the outside edge of the riser section. For manholes and cleanouts designated for standard manhole rings and covers the concrete top shall be 8 inches thick and shall be finished smooth to receive the manhole ring.

For manholes designated to receive pressure type manhole rings and covers the concrete slab top shall be a minimum of 12 inches thick and shall have L bolts imbedded in the concrete to fit the requirements of the manhole ring furnished. The slab shall be finished smooth to receive the manhole ring. The manhole ring shall be securely bolted to the slab and sealed using "Ram Nek" or an approved equal bitumastic sealer between the manhole ring and the concrete slab.

The concrete slab manhole tops shall be reinforced with number 4 steel reinforcing bars spaced at 12 inches on center each way. Additional diagonal bars shall be placed on 4 sides around the manway opening. The diagonal bars shall be number 4 rebar with a minimum length equal to the diameter of the manway opening plus 4 inches. The steel reinforcing mat shall be placed in the bottom of the slab with 1-1/2 inches protective covering.

F. PRESSURE MANHOLE RING AND COVER

(1) Pressure type manhole rings and covers shall be Western Iron Works No. 380-24P or approved equal. The manhole cover shall be sealed with an "O" ring gasket in a ring groove and shall be secured to the ring by six (6) 5/8-inch stainless steel bolts.

(2) The ring shall have six (6) 1-1/4 inch bolt holes in the flange for securing the ring to the concrete slab top on the manhole.

3. CORRUGATED STEEL PIPE SLOTTED DRAIN

(1) Corrugated steel pipe slotted drains shall be fabricated from full circle corrugated steel pipe conforming to these specifications.

(2) C.S.P. Slotted drains shall be of a type as manufactured by "Contech Construction Products, Inc.", "Texas Corrugators", "Caldwell Culvert Company" or approved equal.

(3) The upstream end of CSP slotted drains shall be equipped with a bend and a ring and cover of the some size as the pipe from which the slotted drain was fabricated to allow cleaning equipment to be inserted into the slotted drain. The ring and cover shall be Nenah Foundry Co. R-5901 open grate or R-5900 solid lid or approved equal. Unless shown otherwise on the plans the open grate shall be furnished.

(4) When slotted drain is to be connected to PVC leads, molded rubber or PVC flexible connector as specified for connections to manholes and cleanouts shall be furnished.

4. DAMAGED COATING

A. PROTECTION OF PIPE

(1) Pipe fittings and specials shall be handled and stored in a manner that will minimize damage to the coating.

(2) The fabrication process shall be designed to minimize the burning of coatings during welding.

(3) Pipe and/or fittings showing excessive abuse or damage will be rejected.

B. REPAIRING DAMAGE

(1) Pipe on which the metallic coating has been burned by welding or has been otherwise damaged in fabricating or handling, shall be repaired. The repair shall be done so that the completed pipe shall show careful finished workmanship in all particulars.

(2) The damaged area shall be cleaned to bright metal by blast cleaning, power disk sanding, or wire brushing. The cleaned area shall extend at least ½ inch into the undamaged section of the coating. The cleaned area shall be coated within 24 hours and before any rusting or soiling.

(3) Zinc-rich paint shall be applied to a dry film thickness of at least 0.005 inches over the damaged section and surrounding cleaned area. Zinc-rich paint shall be used for repair of damage to all types of metallic coating -zinc, aluminum, and aluminum-zinc alloy.

2.03 CAST-IN-PLACE CONCRETE SEWER PIPE (NON-REINFORCED) FOR STORM SEWERS ONLY

1. DESCRIPTION

This item shall cover machine cast-in-place monolithic non-reinforced concrete pipe, which shall consist of Portland cement concrete placed in a prepared trench at such locations and grades shown on the plans and intended to be used for the conveyance of storm water. Items and item numbers referred to in this specification are the items as given in the "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges."

2. MATERIALS

The cast-in-place pipe shall be constructed of Class "C" concrete. The concrete shall meet the requirements of Item 421, "Concrete for Structures," and Special Provision thereto, except as otherwise noted herein or on the plans. Type III Portland Cement shall be used.

The minimum compressive strength for concrete used in this item is 4000 psi. Backfilling operations may proceed when the concrete has reached 2000 psi compressive strength.

The coarse aggregate grading for pipe diameters 48 inches or less shall conform to that of Aggregate Grade No. 3, one inch (1") maximum size aggregate under Item 421. For pipe diameters over 48 inches, Coarse Aggregate No. 2, one and one third inch (1-1/3") maximum size aggregate shall be used.

No concrete having a slump in excess of 2" will be permitted for use in pipes with diameters of 48 inches and over. For pipes with diameters less than 48 inches, no concrete having a slump in excess of 3" will be permitted for use. At the option of the Contractor, sections of precast reinforced concrete pipe (D-load) may be substituted for cast-in-place concrete pipe. Pipe and installation shall conform to the requirements of Item 465, "Pipe Sewers." Backfill shall be in accordance with the requirements for other storm sewers in these specifications using crusher fines (chat).

3. PIPE MAKING EQUIPMENT

The pipe shall be constructed with equipment specially designed for constructing cast-in-place monolithic concrete pipe. The equipment shall be acceptable to the Engineer and the Contractor may be required to furnish evidence of successful operation in other work of the equipment he proposes to use. Equipment not suitable to produce the quality of work required for the pipeline will not be permitted to operate on the project.

4. DIMENSIONS AND TOLERANCES

The design shell thickness shall be as specified in Table 1.

TABLE I

Internal Diameter inches	Min. Shell Thickness inches
18	2
24	2-1/2
30	3
36	3-1/2
42	4
48	5
54	5-1/2
60	6
66	6-1/2
72	7
84	8
96	9
108	10
120	11

Variation in the internal diameter shall not exceed plus or minus 3 percent. The maximum allowable deviation form the true grade of the design invert of the pipe shall not exceed ½ inch either side of true grade. Where deviation from true grade occurs, true grade shall be re-established at a maximum departure of one-eighth inch per foot.

5. EXCAVATION AND BACKFILL

Excavation shall be in accordance with the requirement for other types of storm drains, except as modified herein. The trench shall be excavated in the lines and grades shown on the plans or as directed by the Engineer. The width of the trench shall be sufficient to accommodate travel of the pipe machine only. The bottom of the trench shall be shaped to the nominal outside circumference of the pipe. Excavation shall be performed from the outlet to the inlet. If the trench is over-excavated for the bottom 210 degrees of the pipe the excess area shall be filled with concrete. If rock is encountered, it will be removed at least 6 inches below the bottom of the pipe and the trench refilled with material sufficiently compacted to

allow operation of the machine and provide a smooth firm surface. The sidewall of the pipe shall be placed against undisturbed material.

Backfill material will be a crusher fine (chat) as described elsewhere in these Specifications. No backfill other than permitted for curing purposes shall be placed until the line has been inspected and approved by the Engineer. The trench may be completely backfilled after the pipe has been in place at least 24 hours and concrete strength requirements have been reached. Light traffic, axle load less than 6,000 pounds, may be routed over the pipe after backfill has been completed for twenty-four (24) hours. Unrestricted traffic may be permitted over the pipe after the backfill has been in place for forty-eight (48) hours.

All backfill material shall be mechanically compacted to 95% modified proctor or as directed by the Engineer.

6. CONSTRUCTION

All surfaces against which concrete are to be placed shall be free from standing water, mud, and debris. Absorptive surfaces against which concrete are to be placed shall be moistened thoroughly so that moisture will not be drawn from the freshly placed concrete.

The concrete shall be placed in one operation around the full circumference of the pipe by means of a traveling form. The forms shall be of sufficient strength to withstand vibrating or tamping the concrete and to permit workmen to walk on the forms without causing springing or bulging at any point.

As the traveling form moves forward, forms shall be placed inside the newly formed pipe to support a minimum of 230 degrees of the upper portion of the pipe.

The concrete shall be vibrated, rammed, tamped or worked with suitable appliances until the concrete has been consolidated to the maximum practicable density, free of rock pockets, and closes snugly against all surfaces or forms and provides a bond between the pipe shell and supporting earth.

When placing operations cease for any reason, the end of the pipe shall be left rough with a slope of approximately 45 degrees. The ends of the pipeline shall be covered with canvas or other suitable cover material to prevent excessive loss of moisture from the interior of the pipe already placed.

When starting pipe laying operation from a previously laid cast-in-place pipe or section of pre-cast pipe, a construction joint shall be made by excavating a “bell” completely around the end of the existing pipe and constructing a concrete collar to extend at least one foot either side of the joint with a minimum thickness equal to that of the wall of the pipe. The end of the existing pipe shall be clean and damp before continuing pipe making operations. Cleaning of the construction joint shall consist of removing all latency, loose or defective concrete, coatings, and any other deleterious materials.

All forms shall be clean and shall be placed at the trench side at the location of their proposed use for inspection by the Engineer. Forms, which are defective in any way, will not be used, and upon condemnation they shall be removed from the site of the work. The forms shall not vary more than ½ inch from the lower edge of a straightedge laid parallel to the centerline of the form, and shall be free of any holes larger than 5/8 inch in greatest dimension. The pipe machine shall be thoroughly clean and serviced prior to the placing of the concrete. Particular attention will be given to all parts of the machine with which concrete comes into contact.

Concrete chutes or trunks shall be provided to reach within 1 foot of the pipe machine hopper. The end of the chute or trunk shall discharge the concrete at the center of the hopper. Provisions shall be maintained to minimize segregation of the concrete mix in all phases of the operation.

Delays in placing shall be handled as follows or as otherwise directed. The concrete hopper on the pipe laying machine shall be kept ½ full at all times, provided, however, that when placing operations cease or are delayed for any reason for more than 20 minutes, the pipe machine shall be pulled forward until all the concrete is exhausted and until the top troweling skirt is clear of the concrete. If the pipe laying operation proceeds within one hour of the time of the last placement, no further steps need to be taken. However, if longer than one hour has elapsed, then a construction joint must be made as previously described. The end of the pipe shall be left rough and at the natural slope when the machine is moved forward.

All junctions of pipe shall be provided for at the time the cast-in-place pipe is placed.

Inside forms shall be removed from the pipe not sooner than 4 hours nor longer than 24 hours after placement of the concrete. Care shall be taken when removing forms to prevent damage to the pipe. The inside of the pipe shall be carefully inspected for imperfections in placement, and any required repairs or smoothing shall be made immediately to provide a uniform interior surface. No wash, mortar or concrete shall be applied to a surface not properly moistened or cleaned. Visible cracks shall be brushed with cement paste or chipped out and pointed up with cement mortar. Any cracks that appear to go through the shell shall be grooved and filled with mortar. All construction operations and methods for providing a watertight pipeline shall be the responsibility of the Contractor. Mortar shall consist of one part cement; two parts well graded sand passing 1/8-inch sieve. Wash shall consist of four parts cement, one part fire clay. The finished surface of the concrete pipe shall be substantially free of fractures, cracks and surface roughness.

7. CURING CONCRETE

Immediately after the concrete is placed the exposed surface of the concrete shall be cured by covering the top with a sheet of polyethylene film sealed with dirt along the edges. During the curing period following the placement of the concrete, the ends of the pipeline and all other openings into the pipeline shall be covered with canvas or other suitable material, except at locations where work is actually in progress. The inside surface of the pipeline shall not be cured.

8. MANHOLES AND BENDS

Manhole bases shall be hand formed on top of the pipe as soon as the pipe-placing machine has passed. Where required, the extra width for manholes shall be excavated ahead of the pipe placing operation. The base for the manhole shall be formed to receive a standard precast concrete barrel section and shall be shaped and smoothed so that the joint can be sealed water tight by use of “Ram Nek” or other approved joint sealing material.

Bends may be formed and cast in place or fabricated using precast reinforced concrete pipe (load D). Design and shop drawings shall be submitted to and approved by the Engineer before the bends are fabricated or cast.

9. MEASUREMENT

Measurement of manholes shall be as specified elsewhere in these specifications. Measurement of bends shall be as for other storm sewer pipe. The method of pipe measurement shall conform to that for other types of storm drainpipe in the section or storm drains in these specifications.

10. PAYMENT

Payment for cast-in-place non-reinforced pipe sewers, measured as prescribed above, will be made at the unit price bid per linear foot for the various sizes of “Pipe Sewers (Cast-in-Place)” complete in place. Payment for manholes shall be as specified elsewhere in these specifications.

Such payment shall be full compensation for furnishing all concrete materials, precast reinforced concrete pipe used in place of cast-in-place pipe, and for all other materials, tools, labor, equipment, and incidentals required to perform the applicable work prescribed herein.

When precast reinforced concrete pipe at the Contractor’s option is used in a line of cast-in-place pipe the additional excavation for the pipe will be subsidiary.

2.04 CENTRIFUGALLY CAST FIBERGLASS REINFORCED RESIN PIPE SEWERS

A. DIRECT BURY PIPES

1. GENERAL

All pipes, joints and fittings shall be manufactured in accordance with the requirements of the applicable standard given below except as noted herein:

Service	Standard
Non pressure Sanitary Sewer	ASTM D3262
Sewer Force Main and Effluent Lines	ASTM D3754

Pipes shall be centrifugally cast, fiberglass-reinforced polyester resin as manufactured by Hobas USA, Inc. or approved equal.

Minimum pipe stiffness when tested in accordance with ASTM D2412 shall be 46 psi.

2. MATERIALS

The manufacturer shall use only approved polyester resin systems for which he can provide a proven history of performance in these particular applications. The historical data shall have been acquired from a composite material of similar construction and composition as the proposed product.

The reinforcing glass fibers used to manufacture the components shall be of highest quality commercial grade of E-glass filaments with binder and sizing compatible with impregnating resins. Sand shall be minimum 98% silica with a maximum moisture content of 0.2%

3. DIMENSIONS

Pipe outside diameters shall be in accordance with AWWA Standard C151 and C950. For diameters larger than covered in those documents, OD's shall be as shown in Table 1.

TABLE I

*WP/s		0/46		50/46		100/46		150/46		200/46	
Nomin Pipe Sz. (in.)	Pipe OD (in.)	Min. wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt (lb/ ft.)
18	19.50	.42	20	.41	20	.40	19	.38	18	.37	18
20	21.60	.46	25	.45	24	.43	23	.42	22	.40	21
24	25.80	.54	35	.53	34	.51	33	.49	31	.47	30
30	32.00	.66	54	.65	53	.62	51	.60	49	.57	47
36	38.30	.78	77	.77	76	.74	73	.71	70	.68	67
42	44.50	.90	104	.88	101	.85	98	.82	94	.78	89
48	50.80	1.02	134	1.00	131	.96	126	.93	122	.88	115
54	57.10	1.14	169	1.12	166	1.08	160	1.04	155	.99	147
60	62.90	1.26	209	1.23	204	1.19	197	1.14	188	1.09	180
66	69.20	1.38	249	1.35	243	1.30	234	1.25	228		
72	75.40	1.50	298	1.47	292	1.41	280	1.36	270		
78	81.60	1.62	352	1.58	343	1.52	331	1.47	320		
84	88.00	1.74	409	1.70	399	1.64	385				
90	94.30	1.86	468	1.82	458	1.75	440				
96	100.6	1.98	531	1.94	520	1.87	501				

- **Maximum nominal working pressure in psi/pipe stiffness in psi**

Pipe shall be supplied in nominal lengths of 20 feet. Actual laying length shall be the nominal plus or minus 2 inches. At least 90% of the total footage of each size and class of pipe, excluding special order lengths, shall be furnished in nominal length sections.

4. **PRESSURE CLASS & TESTING FOR SEWER FORCE MAINS AND EFFLUENT LINES**

The pipe nominal pressure class (PN) shall be equal to or greater than the maximum sustained operating pressure of the line. The minimum pressure rating for non-pressure pipe shall be 15 psi.

The maximum transient (operating plus surge) pressure of the line shall not exceed the pipe nominal pressure class by more than 40%.

Pipe hoop tensile strength for pressure pipe shall be verified as specified in the applicable standard (D3754 or C950) or by random burst testing at the same sampling frequency. All pipes shall be capable of withstanding a test pressure of 2 times the maximum sustained operating pressure of the line without leaking or cracking. This performance shall be periodically verified at the factory for pressure pipe at least once per lot as defined in D3754, section 7.1.

A. JOINTS

Unless otherwise specified, the pipe shall be field connected with fiberglass sleeve couplings that utilize elastomeric sealing gaskets made of EPDM rubber compound as the sole means to maintain joint water tightness. The joints must meet the performance requirements of ASTM D4161.

B. FITTINGS

Flanges, elbows, reducers, tees, wyes, laterals and other fittings shall, when installed, be capable of withstanding all operating conditions. Acceptable configurations include contact molded or metered fiberglass or properly protected standard ductile iron.

Unbalanced thrust forces shall be restrained with thrust blocks or other approved suitable methods. Fiberglass tees, wyes, laterals, or other similar fittings shall be fully encased in reinforced concrete designed to withstand the pressure forces.

2.05 POLYETHYLENE SEWER PIPE

A. SCOPE

(1) This specification covers Polyethylene (PE) pipe with a corrugated outer wall and a smooth interior wall, for use with non-pressure sanitary sewer systems. The PVC fittings and joints are included in the specification.

B. MATERIAL AND MANUFACTURING

1. PIPE MATERIALS

The pipe shall be made from clean virgin Polyethylene compounds having a cell classification of 324420C as defined by ASTM D-3350.

2. FITTING MATERIALS

The fittings shall be made from clean virgin polyvinyl chloride (PVC) compounds having a cell classification of 12454B, 1245C or 13343C as defined by ASTM D-1784.

Pipe shall be manufactured by simultaneous extrusion of the corrugated and smooth walls with the smooth inner wall fused to the outer corrugated wall.

Fittings shall be molded or fabricated.

3. JOINING MATERIALS

a. Gaskets
b. Elastomeric gaskets shall meet the requirements of ASTM F-477.
c. Lubricants

The lubricants used for assembly shall have no detrimental effect on the gasket or the pipe, and shall be per published recommendations of the pipe manufacture.

4. MATERIAL CERTIFICATION

A manufacture's or an independent laboratory certification shall be furnished to the purchaser/engineer that the products were manufactured, sampled, tested, and inspected at the time of manufacture in accordance with this specification.

C. PIPE DIMENSIONS

Pipe dimensions shall meet the following requirements when tested in accordance with ASTM D-2122.

Nominal Size	Avg. O.D.	Avg. I.D.
4	4.790 (121.7)	4.00 (101.6)
6	6.930 (176.0)	6.00 (152.4)
8	9.145 (232.2)	8.00 (203.2)
10	11.405 (289.7)	10.00 (254.0)
12	14.450 (367.0)	12.00 (304.8)
15	17.530 (445.3)	15.00 (381.0)
18	21/150 (537.2)	18.00 (457.2)

D. INSTALLATION

1. Joint Tightness

Minimum joint performance shall show no leakage when tested in accordance with ASTM D-3212.

2. Supplier Assistance

A manufacturers representative of the above referenced pipe material shall be present at the beginning of the installation as required by the Design Engineer or Contractor and shall remain on site until released by the Design Engineer or Field Inspector/Engineer.

2.06 INLETS FOR STORM SEWERS

A. CURB TYPE INLETS

(1) Curb inlets shall be constructed at the locations and to the lines and grades or shown on the plans or as directed by the Engineer.

(2) Curb inlets shall be constructed of reinforced class “C” concrete in accordance with Section 1-B “Concrete Structures” and the plans and detail drawings.

(3) The curb section and the curb inlet shall conform to the curb and gutter section in which it is placed in so far as it is possible.

B. GRATE TYPE INLETS

(1) Grate inlets shall be constructed at the locations and the lines and grades as shown on the plans or as directed by the Engineer.

(2) Concrete boxes for grate inlets shall be constructed of reinforced Class “C” concrete in accordance with Section 1-B “concrete Structures” and the plans and detail drawings.

(3) Grates shall be constructed of ASTM A-48 gray iron having minimum tensile strength of 35,000 psi or ductile iron having a minimum tensile strength of 60,000 psi and a yield strength of 40,000 psi.

The size, style, shape, type, weight and class shall be as shown on the plans.

Grate frames shall be as manufactured for the grate by the grate fabricator. If more than one type or style or frame is available, the type and/or style shall be as indicated on the plans.

C. COMBINATION INLETS

(1) Combination curb and grate inlets shall be constructed at the locations and to the lines and grades as shown on the plans or as directed by the Engineer.

(2) Combination inlets shall be constructed in accordance with the applicable requirements for “Curb type inlets” and “Grate type inlets” above.

D. INLET LEADS

(1) Inlet leads may be PVC pipe or CSP as shown on the plans and called for in the bid proposal.

(2) Inlet leads shall be constructed in accordance with the specifications for type of material used and the plans and detail drawings.

(3) Where two or more leads are joined together to form a single lead to the storm sewer they shall be joined at a cleanout unless shown otherwise on the plans.

(4) Inlet leads shall be connected to the storm sewer at a manhole. The leads shall enter the manhole at a point that will match the .8 points of the two pipes as near as practical.

E. CLEANOUT FOR STORM SEWER INLET LEADS

Cleanouts at the juncture of inlet leads shall be constructed in accordance with the dimensions and requirements shown on the plans and detail drawings.

F. CORRUGATED STEEL SLOTTED DRAINS

(1) Corrugated steel slotted drains shall be as specified in section 2.02-3 of these specifications and shall be furnished in the lengths and diameters as shown on the drawings and in the bid proposal.

(2) Corrugated steel slotted drains are approved for nuisance water inlets only and are sized to allow for considerable clogging before they will cease to function in this capacity.

2.07 MANHOLES

1. GENERAL

A. **CONCRETE MANHOLES ARE NOT TO BE USED FOR SANITARY SEWERS AFTER DECEMBER 31, 2002. FIBERGLASS MANHOLES ARE TO BE USED FOR ALL SANITARY SEWERS**. Concrete manholes can be used for storm water sewers.

All manholes furnished for this project shall be precast unless noted otherwise on the plans and or bid proposal.

Precast manholes shall conform to the requirements of ASTM Specification C-478 with the modifications given in this article.

Concrete used for precast manholes shall have a minimum 28-day compressive strength of 4,000 psi and shall have a minimum cement content of 7 sacks per cubic yards.

All manhole sections shall be furnished with tongue and groove type joints suitable for sealing water tight with rubber or bituminous joint sealer or gaskets.

B. When cast in place components for manholes are called for on the plans the concrete used shall have a minimum 28 day compressive strength of 4,000 psi and a minimum cement content of 7 sacks per cubic yard and shall conform to the requirements of ASTM Specification C-478 with wall thickness as shown on the plans and detail drawings.

Aggregate for the concrete shall meet the sodium sulfate and magnesium sulfate test as required in ASTM Specification C-33.

C. Mortar for filling and shaping the inverts in precast manhole bases and for mortaring precast grade rings and cast iron rings and covers shall consist of one part Portland cement ASTM C150 Type 1 to 3 parts washed sand mixed with just enough water to make a workable mix.

D. Manholes for corrugated steel pipe may be precast concrete or corrugated steel as described in Article 2.02. The type and material shall be as shown on the plans and called for on the bid proposal.

2. PRECAST MANHOLES

A. Manhole base sections shall be cast with an integral floor and shall be constructed in accordance with the details shown on the plans.

B. Manhole riser sections shall be constructed in accordance with the plans and details and these specifications. When pipe openings are required in manhole riser sections they shall be of the same type and meet the same requirements as the pipe openings in the precast bases.

Manhole riser sections for each manhole shall be furnished in the proper combination of lengths to construct the manhole in conjunction with the other components to the finished grade shown on the plans.

C Eccentric cone sections shall be constructed in the same manner as other components except the top of the cone will have a flat surface to accommodate the manhole ring and cover or grade adjusting rings instead of a tongue or groove.

Generally openings will not be required in the wall of the cone section of the manhole.

D. Manhole grade rings shall comply with all the requirements for manhole riser sections except they shall be cast smooth both sides without tongues and/or grooves.

Manhole grade rings shall be sized to fit the smooth small end of the cone section and shall be cast in heights of 2", 4" or 6".

E. Joint seals for precast concrete manholes shall be a bitumastic sealer such as Ram-Nek or approved equal, a soft rubber sealer such as Butyl-Lok or approved equal or an approved "O" ring gasket or a combination of the above if required to achieve a water tight joint.

F. All water tight Storm Sewer Manholes constructed on this project shall have Neenah R-1755-C watertight manhole rings and covers or approved equal.

No separate payment will be made for the protective plastic manhole linings or for the water tight manhole rings and covers but the cost of these items shall be included in the price bid for water tight Storm Sewer Manholes.

In addition to the markings required by ASTM Specification C-478, all components of each manhole shall be, marked with location identifying information such as manhole number or line number and station value where manhole is to be installed. If the manhole has openings for installation of branch lines above the base section, each manhole section shall be clearly marked with the sequence of installation to assure the branch opening will be at the correct elevation.

3. FIBERGLASS MANHOLES

A. SCOPE

Fiberglass reinforced polyester manholes shall be manufactured from commercial grade polyester resin or other suitable polyester or vinyl resins, with fiberglass reinforcements and in accordance with the latest edition of ASTM D 3 753 (Standard Specification for Glass-Fiber Reinforced Polyester Manholes). Fiberglass manholes shall be used with fiberglass or plastic sewer pipe.

B. MATERIALS

1. **Resin:** The resins used shall be a commercial grade unsaturated polyester resin.

2. **Reinforcing Materials**: The reinforcing materials shall be commercial Grade "E" type glass in the form of mat, continuous roving, chopped roving, roving fabric, or a combination of the above, having a coupling agent that will provide a suitable bond with the resin and leave a resin rich surface.

3. **Surfacing Materials**: If reinforcing materials are used on the surface exposed to the contained substance, they shall be a commercial grade chemical-resistant glass organic surfacing mat having a coupling agent that will provide a suitable bond with the resin and leave a resin rich surface.

4. **Fillers and Additives**: Fillers, when used, shall be inert to the environment and wet well construction. Additives, such as thixotropic agents, catalysts, promoters, etc., may be added as required by the specific manufacturing process to be used. The resulting reinforced plastic material must meet the requirement of this specification.

C. FABRICATION

1. **Exterior Surface**: The exterior surface shall be relatively smooth with no sharp projections. Handwork finish is acceptable if enough resin is present to eliminate fiber show. The exterior surface shall be free of blisters larger than ½ inch in diameter, de-lamination and fiber show.

2. **Interior Surface**: The interior surface shall be resin rich with no exposed fibers. The surface shall be free of crazing, de-lamination, blisters larger than ½ inch in diameter, and wrinkles of 1/8 inch or greater in depth. Surface pits shall be permitted up to 6 per square foot if they are less than ¾ inch in diameter and less than 1/16 inch deep.

3. **Defects not permitted**:

Exposed fibers: glass fibers not wet out with resin.
Resin runs: runs of resin and sand on the surface
Dry areas: areas with glass not wet out with resin.
De-lamination: separation in the laminate.
Blisters: light colored areas larger than ½ inch in diameter.
Crazing: cracks caused by sharp objects
Pits or Voids: air pockets.
Wrinkles: smooth irregularities in the surface.
Sharp projection: fiber or resin projection necessitation gloves for handling.

D. PHYSICAL REQUIREMENTS

1. **Load Rating**: The complete manholes shall have a minimum dynamic-load rating of 16,000 ft-lbs. when tested in accordance with this standard. In order to establish this rating, the complete manhole shall not leak, crack, or suffer other damage when load

tested to 40,000 ft-lbs. and shall not deflect vertically downward more than ¼ inch at the point of load application when loaded to 24,000 lbs.

2. **Stiffness**: The manhole cylinder shall have a minimum pipe stiffness value as shown below when tested in accordance with A.S.T.M. 3753 8.5 (note 1)

Depth Ft.	F/dy.psi
3 – 6.5	0.75
7 – 12.5	1.26
13 – 20.5	2.01
21 – 25.5	3.02
26 – 35	5.24

3. **Soundness:** In order to determine soundness, apply an air or water pressure test to the manhole test sample. Test pressure shall not be less than 3 psig or greater than 5 psig. While holding at the established pressure, inspect the entire manhole for leaks. Any leakage through the laminate is cause for failure of the test. Refer to A.S.T.M. 3753 8.6.

4. **Chemical Resistance**: The fiberglass manhole and all related components shall be fabricated from corrosion proof material suitable for atmospheres containing hydrogen sulfide and dilute sulfuric acid as well as other gases associated with the wastewater collection.

5. **Physical Properties**:

	Hoop Direction	Axial Direction
a. Tensile Strength (pi)	18,000	5,000
b. Tensile Modulus (pi)	0.6×10^6	0.7×10^6
c. Flexural Strength (psi)	26,000	4,500
d. Flexural Modulus (psi)	1.4×10^6	0.7×10^6
e. Compressive (psi)	18,000	10,000

6. **Minimum Wall Thickness**: Shall be 0.48” nominal at all depths of the manholes.

E. TEST METHODS: All tests shall be performed as specified in A.S.T.M 3753 latest edition, section 8. Test method D-790 (see note 5) and test method D-695.

F. QUALITY CONTROL: Each completed manhole shall be examined for dimensional requirements, hardness, and workmanship. All required A.S.T.M 3753 testing shall be completed and records of all testing shall be kept and copies of test records shall be presented to customer upon formal written request within a reasonable time period.

G. CERTIFICATIONS: As a basis of acceptance the manufacturer shall provide a independent certification which consist of a copy of the manufacturer’s test report and accompanied by a copy of the test results that the manhole has been sampled, tested,

and inspected in accordance with the provisions of this specification and meets all requirements.

H. SHIPPING AND HANDLING: Do not drop or impact the fiberglass manhole. Fiberglass manhole may be lifted by inserting a 4" x 4" x 30" timber into the top of manhole with cable attached or by a sling or "choker" connection around center of manhole, lift as required. Use of chains or cables in contact with the manhole surface is prohibited.

I. CONCRETE:

1. **Fiberglass Bottom**: Manholes may have fiberglass bottoms that are a minimum of 6" below the OD of the pipe invert when concrete is used to form the invert. Manufactured fiberglass inverts and bench areas are allowed, or concrete may be used to form bench area and invert. Concrete is to be used on top of anti-flotation ring and around the reducer section as required for buoyancy.

2. **Concrete Bottom**: Lower manhole into wet concrete until it rests at the proper elevation, with a minimum of 4 inches of fiberglass manhole inserted into the wet concrete below flow line, then move manhole to plumb. The concrete shall extend a minimum of one foot from the outside wall of the manhole and a minimum of 6 inches above incoming lines. On the inside concrete shall form the bench and invert area and rise a minimum of 4 inches above incoming lines. If required by Engineer concrete may be used around reducer section for buoyancy control.

BACKFILL:

1. **Backfill Material**: Unless shown otherwise on drawings and approved by the Engineer, sand, crushed stone, or crushed gravel shall be used for backfill around the manhole for a minimum distance of one foot from the outside surface and extending from the bottom of the excavation to the top of the reducer section. Suitable material chosen from the excavation may be used for the remainder of the backfill. The material chosen shall be free of large lumps or clods, which will not readily break down under compaction. This material will be subject to approval by Engineer.

2. **Backfill Procedure**: Backfill shall be placed in layers of not more than 12 loose measure inches and mechanically tamped to 95% Modified Proctor Density, unless otherwise approved by Engineer. Backfill shall be placed in such a manner as to prevent any wedging action against the fiberglass manhole structure.

K. MARKING and IDENTIFICATION: Each manhole shall be marked on the inside and outside with the following information:

Manufacturer's name or trademark
Manufacturer's factory location
Manufacturer's serial number
Total length

4. MANHOLE RINGS AND COVERS

A. Manhole rings and covers furnished for this project shall be pattern No. 300-24 as produced by Western Iron Works, Inc., 21 E. 6th St., San Angelo, Texas 76903-5493 or Bass and Hays Foundry, Inc., 238 South Bagdad Rd., Grand Prairie, Texas 75050, or approved equal.

B. WATER TIGHT MANHOLE COVERS

(1) Water tight manhole rings and covers furnished for this project shall be number R-1755-C as manufactured by Neenah Foundry Company, P.O. Box 729, Neenah, Wisconsin 54957, or approved equal.

(2) When watertight replacement sanitary sewer manhole rings and covers are called for on the plans and in the bid proposal they shall be Neenah Foundry Co. No. R-1755-C or approved equal.

No separate payment will be made for adjusting to grade of the replacement watertight manhole rings and covers. The contractor shall schedule this work to coincide with other manhole and water valve adjustments and any costs that might be involved shall be included in the price bid for replacement water tight manhole rings and covers.

(3) Manhole vents shall be used in conjunction with watertight rings and covers spaced every third manhole or as indicated on the plans. Vents shall be constructed as indicated on City design and construction standards.

C. Pressure type manhole rings and covers may be required for certain storm sewer applications. When pressure type manhole rings and covers are called for on the plans and/or bid schedule they shall be Western Iron Works Pattern #380-24P or approved equal. The manhole cover shall be sealed with an “O” ring gasket in a ring groove and shall be secured to the ring by six (6) five-eighths inch (5/8”) stainless steel bolts. The ring shall have six (6) one and one quarter inch (1-1/4”) bolt holes in the flanges for securing the ring to the concrete slab top on the manhole.

D. All manhole covers except grate type shall have two blind pick holes or pick bar cast into them. The blind pick holes or pick bars shall be placed on opposite sides of the cover.

E. All manhole covers except grate type shall have cast into their tops in letters 2 inches high minimum one of the following:

CITY OF MIDLAND
SANITARY SEWER
OR
CITY OF MIDLAND
STORM DRAIN

which ever is applicable.

2.08 GRANULAR MATERIALS

A. GRANULAR MATERIAL GRADATION CLASSIFICATIONS:

Granular materials furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified, shall consist of any natural or synthetic mineral aggregate such as sharp grained sand, crushed gravel, crushed rock, crushed stone, or slag, and shall conform to the following specifications and/or gradation.

Note all materials used for these purposes shall be crushed and shall have at least two broken faces. Pea gravel will NOT be allowed.

	Foundation	Bedding	Encasement	Backfill
ASTM C33 Grade #57	x			
ASTM C33 Grade #67	x			
ASTM C33 Grade #8		x	x	
THD 1982 Item 302 Type D Grade 4		x	x	
THD 1982 Item 302 Type D Grade 5			x	
Crusher fines**			*x	x

*100 percent of crusher fines that are to be used within 12 inches of the top of pipe must pass the ¾" sieve.

** Approximate Gradation for Crusher Fines.

Sieve Size	% Passing
2 inch	100
# 4	35 - 100
# 10	20 - 100
# 40	5 - 35
#200	4 - 10

Crushed stone material proposed as an alternate for use on this project and not meeting the above specifications must be approved in writing at least 48 hours prior to the time scheduled for opening bids.

B. GRANULAR MATERIAL USE DESIGNATIONS:

Granular materials provided for Foundation, Bedding, Encasement, or Backfill use as required by the contract, either as part of the pipe item work unit or as a separate contract item, shall be classified as to use in accordance with the following:

MATERIAL USE DESIGNATION	ZONE DESIGNATION
Granular Foundation	Placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support.
Granular Bedding	Placed below the midpoint of the pipe prior to pipe installation, to facilitate proper shaping and achieve uniform pipe support. Also for Class B bedding where specified.
Granular Encasement	Placed below an elevation one half foot (6") above the top of pipe, after pipe installation, for protection of the pipe and to assure proper filling of voids and thorough consolidation of backfill.

In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

PART 3 – EXECUTION

3.01 LOCATION OF WORK

A. The work will be located as shown on the plans.

B. It may be necessary for the Engineer to shift lines as reasonable amount to avoid an obstruction to the construction or to reduce right of way difficulties. The Contractor will not be allowed any additional compensation due to shift of lines. Additional compensation will be allowed only for lengthening of lines.

3.02 PROTECTION OF SURFACE STRUCTURES

A. All surface structures and features located outside the permissible excavation limits for underground installations, together with those within the construction areas which are indicated in the Plans as being saved, shall be properly protected against damage and shall not be disturbed or removed without approval by the Engineer.

B. Obstructions such as street signs, guard posts, mail boxes and other items of prefabricated construction may be temporarily removed during construction provided that essential service is maintained in a relocated setting as

approved by the Engineer and that non-essential items are properly stored for the duration of construction. Upon completion of the underground work, all such items shall be replaced in their proper setting. This removal, relocation and replacement shall be at the sole expense of the Contractor.

In the event of damage to any surface structures or improvements, either privately or publicly owned, in the absence of construction necessity, the Contractor will be required to replace or repair the damaged property to the satisfaction of the Engineer and without cost to the Owner.

3.03 INTERFERENCE OF UNDERGROUND STRUCTURES

A. When any underground structure interferes with the planned placement of the pipeline or appurtenances to such an extent that alterations in the work are necessary to eliminate the conflict or avoid endangering effects on either the existing or proposed facilities, the Contractor shall immediately notify the Engineer and the Owner of the affected structure. When any existing facilities are endangered by the Contractor's operations, he shall cease his operations at the site and take such precautions as may be necessary to protect the in place structures until a decision is made as to how the conflict will be resolved.

B. Without specific authorization from the Engineer, no essential utility service shall be disrupted, nor shall any change be made in either the existing structures or the planned installations to overcome the interference. Alterations in existing facilities will be allowed only to the extent that service will not be curtailed unavoidably and then only when the encroachment or relocation will satisfy all applicable regulations and conditions.

C. Wherever alterations are required as a result of unforeseen underground interference not due to any fault or negligence of the Contractor, the Engineer will issue a written order covering any additional or extra work involved and specifying the revised basis of payment, if any. Any alterations made strictly for the convenience of the Contractor shall be subject to prior approval and shall be at the Contractor's expense.

D. No extra compensation will be allowed for delays caused by the interference of underground structures.

3.04 SEPARATION BETWEEN SANITARY SEWERS AND WATER MAINS

A. Sanitary sewers and service lines shall be installed so that the separation between the sewer and water mains is not less than 9 feet in all directions. The 9 feet shall be measured between the nearest outside edges of the pipe.

B. When the required 9 foot minimum separation cannot be maintained and a sanitary sewer must be constructed parallel to a water main, the sanitary sewer shall be constructed of ductile iron or PVC pipe meeting AWWA specification or having NSF approval for potable water pipe, with a pressure rating of 100 psi for both the pipe and the joint. The sanitary sewer line shall

be installed in a separate trench and may be placed no closer than 2 feet vertically and 4 feet horizontally from the water main, with the separation being measured from the nearest outside walls of the pipes. The sanitary sewer shall be constructed lower than the water main.

C. When a sanitary sewer must cross a water main and the 9 feet required separation cannot be maintained, the sanitary sewer may be constructed with a minimum clear separation between the outside diameters of the two pipes of 6 inches if that part of the sanitary sewer within 9 feet of the water main is constructed of ductile iron pipe or PVC pipe meeting AWWA specifications, having a 150 psi pressure rating and equipped with pressure type joints. One length of the sewer pipe must be centered on the water main and where possible, the sanitary sewer should pass under the water line.

D. When the 9 foot required separation cannot be maintained and a sanitary sewer force main must be constructed parallel to a water main, the sanitary sewer force main shall be constructed of ductile iron or PVC pipe meeting AWWA specifications and having a pressure rating of 150 psi and equipped with pressure type joints. The force main must be constructed with a minimum vertical separation of 2 feet and a minimum horizontal separation of 4 feet measured between the outside diameters of the pipes. The force main must be constructed lower than water main.

Table I showing separation of water and sewer lines and construction materials allowed:

TABLE 1
SEPARATION OF WATER AND SEWER LINES

Condition	Location	Material		Separation (Min.)		Comments
		Water	Sewer	Vert.	Horiz.	
NEW WATER AND NEW SEWER SYSTEM						
New Water & New Sewer Gravity Sanitary Sewer Parallel to Water Main	Water above Sewer	Std.	CI DI PVC 150 PSI	2’	4’	Separate Trenches
Gravity Sanitary Sewer Crossing Water Main	Water above Sewer or Sewer above Water	Std	CI DI PVC. 150 PSI	6”	NA	Center one joint of sewer pipe on water main
Gravity Sewer Crossing Water Main	Water above Sewer	Std	ABS, Clay Conc. composite	2’	NA	Cement stabilize sand initial backfill zone each side of crossing. Center of sewer for 9 ft one joint of sewer pipe on water Main
NEW WATER AND EXISTING SANITARY SEWER						
New Water Parallel Existing Sewer	Water above Sewer	Std.	Clay, Conc. ABS CI DI PVC	2’	4’	If sewer shows no sign of leakage, then leave sewer alone. If Sewer shows signs of leakage, then repair or replace.
New Water Crossing Existing Sewer	Water above Sewer	Std	Clay, ABS Conc. composite	2”	NA	If sewer shows no sign of leakage, then leave sewer alone if sewer shows signs of leakage then repair or replace.
New Water Crossing Existing Sewer	Sewer above Water	Std	Clay, ABS Conc. composite	2’	NA	Replace existing sewer with one joint CI,DI,PVC-150 Centering over waterline
New Water Parallel to Existing Sewer	Sewer above Water	Std	Clay, ABS Conc. composite	2’	4’	Replace existing sewer with CI, DI, PVC – 150 PSI or Cement Stabilized sand back- fill initial Backfill none of sewer where parallel closer than 9 ft., or Encase the water in 150 PSI Pipe two nominal sizes larger.

EXISTING WATER AND NEW SANITARY SEWER						
New Sewer parallel Existing Water	Water above Sewer Or Sewer above Water	Std	CI DI PVC 150 PSI	2'	4'	Separate trenches
New Sewer crossing Existing Water	Water above Sewer or Sewer above water	Std	CI DI PVC 150 PSI	6"	NA	Center one joint of sewer pipe on water main.
New Sewer crossing Existing Water	Water Above Sewer	Std	Clay, ABS Conc. composite	2'	NA	Cement Stabilize sand initial backfill zone of sewer for 9 ft each side of crossing. Center one joint of sewer pipe on water main.

3.05 EXCAVATION

A. Excavation of every description and of whatever materials encountered shall be made to the alignment and depth shown on the plans or as directed by the Engineer. Excavation shall be made by open cut. Sides of trenches shall be kept as nearly vertical as possible and the trench shall be so braced, sheeted and drained that workmen may work safely and efficiently therein. The trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench.

B. The trench width may vary with and depend upon the depth of trench, the diameter of pipe to be laid and the nature of the material to be excavated; but in any case shall be of ample width to permit the pipe to be laid and jointed properly and the backfill to be placed and compacted properly. The minimum width of unsheeted trench shall be 18 inches. The maximum clear width of trench at the top of the pipe shall be not more than two (2) feet greater than the outside diameter of the pipe for pipes up to 33" diameter except by consent of the Engineer. Whenever, for any reason, the maximum trench width is exceeded, the Contractor shall provide, at his own expense, pipe of higher class and/or bedding adequate to sustain the increased soil load as calculated by the Engineer.

C. Trenches shall be undercut to provide for the class bedding specified and/or shown on the plans. Bell holes shall be excavated to insure the pipe resting for its entire length upon the bedding material. Where trenches are under-cut beyond the depth required for bedding the trench shall be brought to grade by using crushed aggregate as specified for foundation herein. The use of loose native soil will NOT be permitted for this purpose.

D. No pipe shall be laid in water. Where the ground water table is at or above trench bottom, the Contractor shall de-water the trench to permit the pipe to be laid on a solid foundation.

   Costs for de-watering by whatever method selected shall be considered incidental to the price bid per foot of pipe.

   The Contractor shall discharge pumps to the natural drainage channels, or if permitted, to other sewer or drains.

Where sewer pipelines are located in or across streambeds or drainage ditches, the Contractor shall divert the stream flow and de-water each section as the work progresses.

E. Temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstructions encountered in the progress of the work shall be furnished by the Contractor at his own expense under the direction of the Engineer.

F. Whenever wet, soft or unstable soil, incapable of properly supporting the pipe, manholes or other structure is encountered in the trench, a further depth and/or width shall be excavated and refilled to trench bottom grade with gravel or other approved suitable material thoroughly compacted to assure a firm foundation for the pipe.

G. Rock, boulders and large stones shall be removed to provide a clearance of at least six (6) inches below the outside barrel of the pipes, valves, or fittings and to a clear width of six (6) inches on each side of all pipe and appurtenances for pipe 15 inches in diameter or less, and a clear width of nine (9) inches on each side of all pipe and appurtenances for pipe larger than 15 inches in diameter. Adequate clearance for properly joining pipe laid in rock trenches shall be provided at bell holes. The space between the rock at the bottom of the trench and the bottom of the pipe barrel shall be filled with compacted bedding material.

H. The Engineer shall be notified of any need for blasting to remove materials which cannot be broken up mechanically, and there shall be no blasting operations conducted until the Engineer's approval has been secured. Blasting operations will be allowed only when proper precautions are taken to protect life and property, and then shall be restricted as the Engineer directs. The Contractor shall assume full responsibility for any damage caused by blasting, regardless of the requirements for notification and approval. The Contractor shall secure any required permits for blasting and shall conduct blasting operations in conformance with all applicable State and local laws, regulations and ordinances.

I. In the event the Contractor desires to employ tunneling in locations other than as shown on the Plans in order to avoid replacement of sidewalks, etc., he shall do so only upon receipt of specific permission from the Engineer. Tunneling of this nature shall be considered incidental.

J. Excavated materials will be classified for reuse as being either suitable or unsuitable for backfill or other specified use.

3.06 SPECIAL SAFETY PROVISIONS

1. TRENCH SAFETY SYSTEMS

A. DESCRIPTION

This item shall govern for the Trench Safety Systems required for the construction of all trench excavation to be utilized in the project and including all additional excavation and backfill necessitated by the safety system. A trench shall be defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. The depth is five feet or more. Trench Safety Systems include but are not limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, de-watering or diversion of water to provide adequate drainage.

B. CONSTRUCTION METHODS

Trench safety systems shall be accomplished in accordance with the detailed specifications set out in the provisions of Excavation, Trench, and Shoring, Federal Occupational Safety and Health Administration (OSHA) Standards, 29CFR, Part 1926, Subpart P, as amended, including Proposed Rules published in the Federal Register (Vol. 52, No. 72) on Tuesday, October 31, 1989. The sections that are incorporated into these specifications by reference include Sections 1926-650 through 1926-652. Legislation that has been enacted by the Texas Legislature, being Tex. Rev. Civ. Stat. Ann. Arts. 1015q, 2368a.6 (Vernon Supp. 1988) with regard to Trench Safety Systems, is hereby incorporated, by reference into these specifications.

A reproduction of the OSHA Publication 2226 is attached for the convenience of the Contractor. The City assumes no responsibility for the accuracy of the reproduction or that it reflects current law. The Contractor is responsible for obtaining a copy of this section of the Federal Register for his use.

If the contractor elects to use a trench protective system that, in the Proposed Rules, requires “Design by a qualified person or a qualified engineer,” [For example see 1926.652 (b) (3) and 1926.652 (c) (4)], a “qualified person or qualified engineer” shall be a Professional Engineer registered in the State of Texas. The Contractor is responsible for obtaining boring and soil analysis as required for the planned design. The trench excavation is to be designed in conformance with OSHA standards and regulations.

C. TRENCH SAFETY PROGRAM

The Contractor shall submit a safety program specifically for the construction of trench excavation. The trench safety program shall be in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

D. INSPECTION

The Contractor shall make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. Daily inspection is to be made by a "competent person" provided by the Contractor. If evidence of possible cave-ins, or slides, is apparent, all work in the trench shall cease until the necessary precautions have been taken by the Contractor to safeguard personnel entering the trench. It is the sole duty, responsibility and prerogative of the Contractor, not the owner or the Engineer, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project. The Contractor shall maintain a permanent record of daily inspections.

2. SAFETY RESTRICTIONS - work near high voltage lines

The following procedures will be followed regarding the subject item on this contract:

A. Warning signs painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

B. All equipment except back hoes or dippers that may be operated within ten feet of high voltage lines shall have an insulating cage-type of guard about the boom or arm and insulator links on the lift hook connections.

C. When necessary to work within six feet of high voltage electric lines, notification shall be given the power company who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

D. The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

3.07 PIPE LAYING

A. All gravity pipe shall be laid using approved grade boards, furnished and set by the Contractor at no additional cost to the Owner, according to the grade stakes established by the Engineer. The maximum spacing of grade boards shall be fifty (50) feet. No sewer shall be laid unless there is a minimum of three grade boards set to check the proper grade and alignment ahead. The Contractor shall provide and use a suitable grade rod to insure the proper grade of the pipe.

B. The Contractor may use the laser beam method of setting a line and grade for the sewer by using the laser beam coaxially through the center of the sewer being laid. The laser beam projector is to be rigidly mounted to its support platforms, with a two-point suspension, or equivalent, assuring that all ground and equipment vibrations are kept to an absolute minimum. The Contractor shall furnish all equipment including equipment necessary to control atmospheric conditions in the pipe to keep line and grade to acceptable standards of accuracy. Competent experienced people who have been properly trained to operate the equipment used must operate the laser beam system.

C. The Contractor shall stake check pegs at all manholes throughout the job. Check pegs midway between manholes and any other checkpoints deemed necessary to assure accuracy of the equipment shall be provided by the contractor.

D. Each piece of pipe and special fitting shall be carefully inspected before it is placed and no defective pipe shall be laid in the trench. Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells uphill. No pipe shall be laid except in the presence of an inspector representing the Engineer. Any pipe laid except in the presence of an inspector representing the Engineer shall be subject, at the contractor's expense, to a television camera inspection and survey by the city. Trench bottoms found to be unsuitable for foundations after pipe laying operations have started shall be corrected and brought to exact line and grade with approved compacted granular material as specified for foundation in Item 2.07 A. of these specifications.

E. Pipe laying shall proceed up-grade with spigot or tongue ends pointing in the direction of flow. The spigot shall be centered in the bell, and pipe shoved into position, and brought into true alignment. It shall be secured there with bedding material carefully tamped under and on each side of it, excepting at bell holes. Care shall be taken to prevent dirt from entering the joint space.

F. Any defective or damaged pipe discovered after the line is laid or any gravity pipe, which has had its grade or joint, disturbed after laying shall be removed and replaced or relayed. The section of line in which such damaged or displaced section is discovered shall be retested after corrections are made.

G. Where excavation for buildings or other portions of the work have been carried below the line and grades of the pipe, thorough tamping of approved crushed stone backfill and the use of adequate bracing and blocking under the pipe will be required to insure against settling and shearing of the pipe. In areas where noted on plans, Portland cement stabilized material or concrete shall be used for backfill to provide adequate bracing for pipe and protection of structures.

H. All manhole connections for PVC or other Polymer based pipe shall be made using "A Lok Gaskets" or "Kor-N-Seal" boots or other approved water stop devices. Only Portland cement grout that expands upon curing or approved non-shrink grout will be incorporated into any manhole connection.

I. Connections to manholes for other types of pipe shall be in accord with the pipe manufacturers specifications and other applicable requirements of these specifications. The resulting joint shall meet the leakage test requirements of these specifications.

J. The exposed end of all pipes shall be fully protected with a stopper or bulkhead at the end of each day's work to prevent earth, debris, small animals, or other substances from entering the pipe. The interior of the sewer shall be carefully freed from all dirt, jointing compound, or superfluous material of every description as the work progresses.

3.08 CONNECTION AND ASSEMBLY OF JOINTS

1. JOINING PVC OR OTHER POLYMER BASED PIPE

A. The type of joint and the material to be used shall be as shown on the plans or specified herein. Factory cast compression joints shall be free of dirt and lubricated before inserting the barrel into the bell. After the spigot is centered in the bell, the pipe shall be shoved home solidly by using a wood block and bar. The Contractor shall keep the ends of the pipe closed to prevent dirt and other material from entering the pipe during placement. All joints must be water tight, and any leaks or defects discovered must be repaired immediately. Any pipe, which has been disturbed after being laid, must be taken up, the joint cleaned and properly relayed as directed by the Engineer.

Lubricant used shall be as recommended by the pipe manufacturer.

B. Field-cut pipe must be beveled for insertion into the gasketed bell or coupling. Bevels can be made with a hand or power tool. Bevels shall be made to pipe manufacturer's specifications. If pipe manufacturers specifications are not available the bevel may be made at 15 degrees to the longitudinal axis of the pipe through one half (l/2) the wall thickness.

C. After pipe has been cut and beveled, a new full insertion mark located as recommended by the pipe manufacture shall be made using a felt tip pen. The contractor may determine the location of the insertion mark by measuring the mark location on a factory marked joint of pipe if manufacturer's specifications are not available.

2. JOINTING CORRUGATED STEEL PIPE

A. Gaskets for corrugated steel pipe shall be "O" Ring or sleeve types. Sleeve gasket shall be carefully placed on one joint of pipe. When the pipe is aligned and brought end to end the gasket shall be carefully centered over the joint between the ends of the pipe. "O" ring gasket shall be installed in accordance with the manufacturer's recommendation.

B. When "O" ring gaskets are furnished a flat gasket shall be furnished and placed between the overlapping portions of the band. The gasket shall extend the full width of the band and shall be of sufficient depth to assure a watertight joint.

C. The coupling band shall be carefully centered over the joints and tightened to the pipe manufacturer specifications. Care shall be taken during the tightening process to assure a snug uniform fit for the entire circumference of the pipe.

3. PROTECTING AND COVERING JOINTS

A. The contractor shall keep the ends of the pipe closed during the time of construction to prevent the entry of dirt, debris, small animals and other foreign objects.

B. Joints shall not be covered until approved by Engineer or his representative. Connections, which are for future use, shall be properly capped.

3.09 CONNECTIONS TO EXISTING STRUCTURES

A. Where shown on the plans, the contractor shall connect the new sewer to existing manholes. If no stub out is present in the existing manhole for such connection, the contractor shall construct such connection by making a hole in the side of the existing manhole using a coring machine or other approved method and installing a “KOR N Seal” boot as manufactured by N.P.C. Systems, Inc. or other approved water tight manhole connector.

The contractor shall use caution in constructing the connection to the existing manhole. Damage to the manhole that, in the opinion of the Engineer, would impair the use and/or function of the manhole shall be just cause to require the contractor to reconstruct the manhole at contractor’s expense. Such damage shall include but not be limited to cracking of the manhole riser section, spalling around the connection significantly reducing manhole wall thickness or excessive oversize in the opening for the new connection requiring any filler other than the manhole connector and/or non-shrink grout specified.

The contractor shall make such changes in the invert of the manhole as may be necessary to provide a smooth flow of the water through the manhole. Any connection to existing structures required in the Plans shall be accomplished by the Contractor and shall be incidental item with no direct compensation being made unless listed as a pay item in the bid proposal.

B. If the work consists of the construction of a sewer that is to replace an existing sewer, all of the existing service lines shall be kept in operation and connected to the new line.

C. Connections shall be made to all existing sewer lines in the vicinity of the work by removing a section of the sewer for the existing line and inserting in the space a tee branch of proper size, or by the construction of a manhole, regulator chamber of other structure as shown on the Drawings.

D. Connections to building services shall be made in a neat and workman like manner. Clean out plugs shall be installed wherever feasible, by making the connections with a standard wye or tee-wye. When clean out plugs are installed they should be located as near the right of way line as practical.

3.10 BACKFILL OPERATIONS

1. GENERAL

A. All pipeline excavations shall be backfilled in a manner that will restore pre-existing conditions as the minimum requirement and fulfill all supplementary requirements indicated in the Plans and Specifications. The backfilling operations shall be started as soon as conditions will permit on each section of pipeline, so as to provide continuity in subsequent operations and restore normal public service as soon as practicable on a section-by-section basis. All operations shall be pursued diligently, with proper and adequate equipment, to assure acceptable results.

B. For this specification backfill is defined as any material placed in the trench above the bedding zone other than the pipe or conduit and appurtenance.

For flexible pipe the backfill between the bedding material and the crown of the pipe shall be crushed stone suitable for encasement as specified in article 2.07 of the specifications. When Portland cement stabilized backfill is used above the pipe zone; the crushed stone encasement shall extend to 1' above the crown of the pipe.

C. Depositing of the backfill shall be done so the shock of falling material will not injure the structure. Grading over and around all parts of the work shall be done as directed by the Engineer.

D. Whenever soil types which are determined by the Inspector to be undesirable for backfill are excavated from the trench, such material shall be hauled away and deposited at locations shown on the plans or as directed by the Engineer at no additional compensation.

E. Backfill materials placed in the pipe zone shall be carefully placed in relatively uniform depth layers spread over the full width and length of the trench section in a manner and/or sequence that will provide simultaneous support on both sides of the pipeline. Each layer shall be compacted effectively, by approved mechanical of hand methods, until there is no further visual evidence of increased consolidation. Above the pipe zone the backfill material shall be placed uniformly across and along the trench in depth suitable for the compaction method used and compacted to a minimum of the density specified for the material used and the trench location. Compaction of the in place layer shall be completed acceptably before placing material for a succeeding layer thereon.

The manner of placement, layer thickness, compaction equipment, and procedure effectiveness shall be subject to approval of the Engineer. Water jetting or flooding shall NOT be used to compact trench backfill.

F. Compaction of materials placed within the pipe bedding and encasement zones shall be accomplished with portable or hand equipment methods, so as to achieve thorough consolidation under and around the pipe and avoid damage to the pipe. Above the pipe zone, the use of heavy roller type compaction equipment shall be limited to safe pipe loading.

G. The maximum loose thickness of each backfill layer placed above the pipe zone shall be 12 inches, except that 16 inches will be permitted for Granular Materials placed above an elevation one foot above the top of pipe, and with the provision that, by authority of the Engineer and in consideration of the demonstrated capability of special type vibratory compactors, these maximums may be increased at his discretion. “Hydro tamps”, “vibra tamps” or other heavy compacting equipment shall not be used until the backfill has reached a depth of four (4) feet above the top of the pipe.

H. All surplus or waste materials remaining after completion of the backfilling operations shall be disposed of in an acceptable manner within 24 hours after completing the backfill work on each particular pipeline section. Disposal at any location within the project limits shall be as specified, or as approved by the Engineer; otherwise, disposal shall be accomplished outside the project limits at the Contractor’s discretion. The backfilling and surplus or waste disposal operations shall be a part of the work required under the pipeline installation items, not as work that may be delayed until final cleanup.

I. For the duration of the warranty period of the project, the Contractor shall assume full responsibility and expense for all backfill settlement and shall refill and restore the work as directed to maintain an acceptable surface condition. All additional materials required shall be furnished without additional cost to the Owner.

2. BACKFILL IN PUBLIC RIGHTS-OF-WAY AND OTHER AREAS WHERE SETTLEMENT IS CRITICAL

A. GENERAL REQUIREMENTS

(1). Backfill above the pipe zone in public rights-of-way and under paved parking lots, near structures or other utilities where settlement can cause damage shall be made using Portland cement stabilized backfill or crushed stone screenings (crusher fines).

The pipe zone is defined as that portion of the trench extending from the bottom of the trench to 12” above the crown of the pipe or conduit.

(2) Backfill around structures such as manholes, junction boxes, transformer boxes and valve boxes shall be made using Portland cement stabilized backfill material or crushed stone screening (crusher fines).

(3) The minimum depth of stabilized backfill or crusher fines shall be twelve (12”) inches.

When utilities are being constructed under existing paving, the stabilized backfill or crusher fines shall extend from top of the pipe zone to the top of the base course.
When utilities are being constructed under existing unpaved streets that are not scheduled for immediate pavement construction, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the existing roadway surface.

When utilities are being constructed in streets that are scheduled for immediate paving, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the bottom edge of the eight (8”) inches of subgrade, or, if the paving contractor has constructed a portion of the roadway prior to the construction of the utilities the backfill shall extend to the top of the course the contractor has finished, or the top of the base course, which ever is lower.

If the final course of asphaltic concrete has been placed, the street or alley surface shall not be cut for utility installation.

In streets where stabilized backfill is required only to the bottom of the subgrade course, the minimum depth of stabilized backfill may be reduced to six (6”) inches in which case the maximum depth of the “pipe zone” shall be limited to six (6”) inches above the top of the utility line or conduit.

B. BACKFILL MATERIALS

(1) Portland cement stabilized backfill shall consist of caliche base material, blow sand or native soil stabilized by the addition of Portland cement. Crushed stone or concrete aggregate shall NOT be used.

When Portland cement stabilized backfill is to be used, the contractor shall submit a mix design prepared by an approved commercial laboratory for approval before the trenching operation is begun. When native soil is to be used samples may be taken along the proposed route by boring or other approved means. Samples must be representative of the full trench depth.

The mix design shall be such that the minimum 7-day compressive strength is 150 psi when tested according to test method Tex 418-A.

The minimum cement content for Portland cement stabilized backfill shall be 1 sack per cubic yard.

Cement used in Portland cement stabilized backfill shall be Type I or Type II conforming to the requirements of ASTM Designation C150.

Caliche used for Portland cement stabilized backfill shall be crushed material conforming to Texas State Department of Highways and Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges Item 248 Type F, Grade 2.

Blow sand used for Portland cement stabilized backfill shall be clean, free from organic matter, clay lumps, rock and other deleterious matter.

Native soil used for Portland cement stabilized backfill shall be clean, free of clods and organic matter, and free of rock in excess of 2”.

(2) Crushed stone screening (crusher fines) used for back fill shall be sharp grained particles of crushed stone conforming to the requirements of Article 2.07 of these specifications.

(3) Trencher excavated rock material shall be screened so that the largest diameter material is less than 2". The screened rock material used for backfill shall have sufficient moisture added so that the backfill will bind with the fines. The rock material backfill shall be tamped or compacted in two (2) foot lifts. A sheeps foot roller shall not be used unless there is two (2) feet or more compacted backfill above the pipe bedding.

C. BACKFILL CONSTRUCTION

(1) Portland cement stabilized caliche backfill or Portland cement stabilized native soil backfill may be constructed using either the "dry" method or the "wet" method.

(a) The dry method of stabilized backfill construction consists of dry mixing of the cement and caliche or soil to produce a homogenous mixture then adding and mixing sufficient water for proper compaction and hydration of the cement. The water content of the mixture will be approximately one to two percent above the optimum moisture for soil compaction. The mixing may be accomplished by using batch mixers or on the job site by "blade mixing" or other suitable method to produce the desired backfill material. The mixed material shall be placed in lifts of up to a maximum of 12 inches and compacted to ninety-five (95%) modified proctor densities by use of suitable compacting equipment.

(b) In the "wet" method of cement stabilized backfill construction, the materials shall be mixed in an approved concrete batching plant or mixer to the consistency of concrete and placed as concrete would be placed. The slump of the backfill material shall be such that all voids will be filled, approximately four (4") to six (6") inches. The backfill shall be consolidated by rodding or by the use of mechanical vibrators.

Portland cement stabilized blow sand backfill shall be mixed and placed by the "wet" method as described above.

Crushed stone screening (crusher fines) shall be wetted uniformly throughout with sufficient moisture to assure proper compaction before being placed in the trench. The moistened crushed stone screening (crusher fines) shall be placed in maximum lifts of twelve inches and consolidated using vibratory type compaction equipment except when it has been demonstrated that the compaction equipment employed will adequately compact deeper lifts in which case the maximum depth of a lift shall be limited by the capabilities of the equipment used.

Tests to determine the compacted density of the backfill shall be ordered by the Engineer if in his opinion the compaction is not adequate. Test showing a minimum compacted density of 90%-modified proctor will be deemed adequate.

3. BACKFILL OUTSIDE OF PUBLIC RIGHTS-OF-WAY WHERE SETTLEMENT IS NOT CRITICAL

A. In areas outside of public rights-of-way and in the absence of special work item requirements the backfilling shall be accomplished with the use of suitable materials selected from the excavated materials to the extent available and practical. Should the materials available from the trench section be unsuitable or insufficient, the required additional materials shall be furnished from outside sources at the Owners expense.

B. Suitable material shall be defined as a mineral soil reasonably free of foreign materials (rubbish, debris, etc.) frozen clumps, oversize stone, rock, concrete or bituminous chunks and other unsuitable materials, that may damage the pipe installation, prevent thorough compaction, or increase the risks of after settlement unnecessarily. Material selection shall be such as to make the best and fullest utilization of what is available, taking into consideration particular needs of different backfill zones. Material containing stone, rock, or chunks of any sort shall only be utilized where and to the extent there will be no detrimental effects.

C. The backfill material placed in this area shall be compacted by suitable means to a minimum density equal to the density of the undisturbed surrounding soil. City Engineer MUST approve water flooding as a means of compaction.

4. TRENCH BACKFILL BEHIND CURB AND GUTTER

A. When utilities are placed behind the curb in paved streets and other landscaped areas the backfill shall be the same as elsewhere in the right-of-way or other applicable location except that in grassed areas and in flower beds the top six (6") inches of backfill shall be good quality top soil. When utilities are placed behind the curb in grassed or landscaped areas where no sidewalk is to be constructed and the edge of the trench is a minimum of 2 feet from the back of curb or where sidewalk is to be constructed and the minimum distance from both the back of curb and the edge of the sidewalk to the edge of the trench is 2 feet the contractor may elect to use suitable native soil for backfill. The native soil backfill shall be compacted to 95% modified proctor density to within 6" of the top of curb height. The top 6" of backfill shall be good topsoil and shall be compacted to the density of the adjacent soil.

B. Sidewalks shall be repaired by removing and replacing the complete section or sections that have been damaged. Strip patching through sidewalks will not be permitted.

The replacement sidewalk shall be of the same design and section as the walk removed and shall be of equal or better workmanship.

C. When utilities are placed in paved areas behind curbs the pavement shall be repaired as specified for street pavement.

D. Grassed areas and flowerbeds shall be restored as nearly as possible to the original condition. Care shall be taken to avoid damage to sprinkler systems.

Mail boxes and other appurtenance in the construction area. Any damage to said items shall be repaired immediately.

E. All repairs made behind the curb shall be to the satisfaction of the property owner responsible for their maintenance and/or to the satisfaction to the City Engineer.

3.11 INLET STRUCTURES AND LEADS AND CLEANOUTS FOR STORM SEWERS

A. Corrugated Galvanized Steel Slotted Drains for Nuisance water inlets only.

(1) Slotted drains shall be the sizes and lengths as shown on the plans and constructed at the locations as shown on the plans or at locations to be established on the job site.

(2) Slotted drains shall not be installed under asphalt pavement but shall have a section of concrete gutter constructed around it as shown on the detail drawings.

Slotted drains shall be protected from the entrance of debris, concrete or HMAC by closing the slot with one or two layers of heavy duct tape or similar material. In addition, the slot for slotted drain shall have a 2-½ inch or ¾ inch board attached to use as a guide for placing and edging the concrete.

Unless otherwise approved or directed by the Engineer the removal of tape and planking from the slotted drain should be accomplished as part of the final clean up.

B. Curb inlets, grate inlets and combination inlets

(1) General

Curb inlets, grate inlets and combination inlets may be pre-cast or cast-in-place at the contractor's option unless specifically shown otherwise on the plans and bid proposal.

(2) Pre-cast inlet boxes

(a) Construction and finish for pre-cast inlet boxes shall conform to details shown on the plans and all applicable requirements for pre-cast manholes.

(b) Tops for curb inlets and combination inlets may be cast in place or pre-cast. Extra care will be required in setting pre-cast tops to assure curb and gutter match.

(c) Pipe connections, bedding, setting and backfill for pre-cast inlets shall be in accord with the applicable requirements for pre-cast manholes article 3.12 of these specifications.

(3) Cast in place inlets

(a) Cast in place inlets shall be constructed of class "C" reinforced concrete as specified in item 1-B "Concrete for Structure" in these specifications.

(b) Forms for cast in place inlets shall be straight, clean and in good condition. Forms shall be properly cleaned and oiled before concrete is placed.

(c) Construction joints may be placed in cast in place inlets at locations shown on the plans. When construction joints are used, extra care will be required to assure that the joints are watertight.

(d) Cast in place inlets may be cast without outside forms if the soil conditions are such that true vertical walls can be cut and will stand during construction without sloughing or otherwise incorporation foreign materials into the concrete.

(e) When inlets are cast without outside forms, a plastic sheet lining may be required to prevent excessive loss of moisture from the concrete and/or to prevent incorporation of foreign material into the concrete.

A. Inlet Leads

(1) Inlet leads shall be constructed of corrugated steel pipe, PVC pipe or other material as called for on the plans and in the bid proposal.

(2) Construction of inlet leads shall be in accord with the applicable requirements for the type of pipe used.

(3) Junctions where two or more inlet leads are joined shall be made at clean outs or manholes.

B. Cleanouts

(1) Clean outs shall be constructed in accord with the plans and detail drawings.

(2) Construction and connections shall be in accord with the applicable specifications for construction of corrugated steel pipe manholes.

3.12 SANITARY SEWER SERVICES AND PLUGGED STUBS

A. Sanitary Sewer Services:

(1) On new sewer main construction all sewer laterals shall be constructed as part of the initial installation. Sewer wye fittings for sewer laterals in new construction shall be molded or fabricated with all gasketed connections. Four (4”) inch laterals shall be installed at all single-family residences and duplex. Laterals installed for apartment complexes, commercial and industrial areas shall be a minimum of six (6”) inches. Depth of laterals will be determined by depth of sewer main and applicable building codes. Laterals shall be installed using tee wyes or wyes and bends so that they will be at 90 degrees to the sewer main. Laterals shall extend to 3’ minimum beyond the property line of the served lot or tract. The contractor shall install sewer laterals according to the typical sewer lateral detail and the most current revisions of the Plumbing Code.

(2) Taps into existing lines shall use a gasketed fitting in conjunction with a full circle repair sleeve coupling, except that taps into existing ductile iron sewer may be made using the Genco Model DF sewer pipe saddle (The General Engineering Co., Frederic, MD Drawing No. R-3220-D dated 12/29/82) or approved equal.

(3) Cemented mitered connections without socket reinforcement shall not be permitted. The contractor will be permitted to use fittings, which are prefabricated, using pipe sections, molded saddles and PVC solvent cement, provided the solvent cement used in fabrication has cured for at least 24 hours prior to the installation. All solvent cement fittings shall e manufactured in the shop under controlled conditions.

(4) All caps and plugs shall be braced, staked, anchored, wired on or otherwise secured to the pipe to prevent leakage under maximum anticipated thrust from internal abnormal operating conditions or test pressures from water or air.

(5) It shall be the duty of the Contractor to keep a record of sewer service wye locations with respect to the nearest downstream manhole, but the Engineer will record ties on the end of all sewer services at the property line. When installing sewer services the Contractor shall, before backfilling, contact the Engineer or his representatives, and assist him in making ties to the end of the service in the open trench. At least two ties shall be made for each service, and if backfilling proceeds before such ties are made, the Contractor shall dig up the end of all such services, with no additional compensation, for the purpose of making ties. During backfilling the Contractor shall furnish and place a vertical steel post or 2 inch by 2 inch wooden stake set flush with finished ground surface, and extending down to the end of the sewer service, a nail shall be placed in the top of the stake to allow location of the service by metal finder.

(6) The main sewer service connection shall consist of installing an in-line wye section in the main sewer line at designated locations. Saddle wye installations will be permitted only when specifically called for. Orientation of service connection fittings shall be as shown in the standard drawings unless otherwise directed by the Engineer.

(7) Where the depth of cover over the main sewer invert is greater than 8 feet (or such other maximum as may be indicated), the service connection shall be extended outward then upward by use of bends to prevent excess loading on the sewer main in accordance with the details shown in the drawings.

(8) The Contractor shall provide the necessary wyes, tees and bends to bring the service to the proper place at the property line.

(9) Wherever service line connections to the main sewer are permitted or required to be made by the open cutout method in the absence of a built-in tee or wye fitting, the connection shall be made by using an approved type coring machine or by other approved methods producing a uniform, smooth circular cut-out as required for proper fit. The cutout discs shall be retrieved and shall not be allowed to remain within the main sewer pipe. The saddle tee shall be securely fastened to the main sewer pipe by means of epoxy resin or other approved adhesive. The entire connection fitting shall be encased in concrete to a minimum thickness of six inches and as may be shown in the standard drawings.

(10)Wherever service line connections to the main sewer are required to be made by means of built-in branch tee or wye fittings, the Contractor shall, in the absence of such fitting, remove a section of the main sewer pipe and replace it with the required branch tee wye or wye section connected by means of an approved sleeve coupling.

(11)Connections of service lines to the main sewer are required to be made by means of built-in branch tee or wye fittings, the Contractor shall, in the absence of such fitting, remove a section of the main sewer pipe and replace it with the required branch tee wye or wye section connected by means of an approved sleeve coupling.

(12)The end of all service connections shall be plugged with PVC plug and sealed with plastic joint material.

(13)Crushed stone bedding and backfill material, concrete encasement and protection, etc., for service line installation shall be the same as for the sewer lines.

(14)No service connections or laterals shall be covered until they have been inspected and located by the Engineer.

B. INSTALLATION OF PLUGGED STUBS ON SANITARY SEWERS

Plugged pipe stubs for future connections to manholes and sewerage structures shall be installed where shown on the Drawings or directed by the Engineer. The pipe stubs shall be installed in accordance with the specifications and details shown on the Drawings for connecting the type of pipe used to manholes.

3.13 MANHOLES

1. General

The manholes shall be constructed at the locations shown on the plans or as directed by the Engineer and in accordance with the details shown on the plans and as specified herein. After the excavation has been completed, the subgrade for the manhole base shall be graded and leveled. A crushed stone foundation having a minimum thickness of 6 inches shall then be placed on the subgrade. The crushed stone foundation shall be leveled and consolidated before the section of the manhole is placed. Pre-cast base sections shall sit in place level and plumb and to the lines and grade as shown on the plans. Cast in place bases shall be placed around the existing sewer line in accord with the plans and detail sheet. When pre-cast manhole bases are used, riser construction may proceed when the base is set on line and grade. When cast in place manhole bases are used, riser construction may proceed when the base has set sufficiently to support the weight of the riser.

Manholes shall be of the type and material shown on the plans and called for in the bid proposal and shall conform to these specifications.

All lift holes shall be filled with approved non shrink grout and bituminous material before final acceptance. Use of bituminous material or other flowable material alone to plug lift holes will not be permitted. Voids in the invert around the sewer pipe on the

inside wall of the manhole shall be grouted with cement rich grout, to conform to the rest of the wash, in accordance with the standard manhole details.

The backfill around the manhole shall be done in accordance with the details shown on the plans and trench backfill specifications.

The Contractor shall take whatever precautions necessary to protect the manholes that are under construction. At the end of the day or at such time as the Contractor deems necessary, all manholes not completed shall be covered, sealed, plugged, etc. to prevent the inflow of storm water or other objectionable material, and to prevent animals and humans from getting into the manhole.

2. PRE-CAST CONCRETE

A. Pre-cast tub bottom sections of manholes shall be set on a crushed stone foundation or bedding according to the details shown on the plans. Care shall be exercised to assure true alignment and grade for the pipe openings.

The invert of the manhole shall be constructed of cement rich grout and shall be formed to true lines; grades and curvature to assure smooth flow through the manhole. The invert shall have a steel trowel finish.

Joints for pre-cast concrete manhole riser sections shall be made Watertight by use of bitumastic or rubber sealers or “O” ring gaskets. Both sides of the tongue and groove joint shall be painted with a bitumastic primer before assembly.

The bitumastic or rubber sealer shall be clean and pliable and shall deform under the pressure of joint closure to assure a complete water tight seal. Care shall be exercised to assure proper alignment of the joint. The walls of the completed manhole shall be straight and vertical.

B. Pre-cast eccentric cone sections and precast slab manhole tops with eccentrically located manway shall be set with the manway adjacent to the up stream side of the manhole. The joints between the cone or slab top and the manhole riser shall be sealed in the same manner as the joints between the riser section. Care shall be taken in placing the cone and or slab tops to assure the manhole ring and cover can be set to match the finished paving.

C. Pre-cast grade rings will be used, when required, to bring the manhole ring and cover up to the finished grade. Grade rings may be set using cement rich grout or bitumastic seal and such as Ram-Nek or approved equal. When cement rich grout is used, care shall be taken that the space between the cone or slab top and the first grade ring and between the grade rings are completely filled without voids.

When bitumastic sealer is used the joints shall be constructed in the same manner as the joints between the riser sections.

When pre-cast manholes with PVC or other approved polymer lining are called for on the plans and bid proposal and are furnished under this contract they shall be constructed as other pre-cast concrete manholes.

In addition the joints in the lining shall be sealed by hot air welding, use of epoxy coating, or other approved means.

3. CAST IN PLACE MANHOLE BASES

A. Cast in place manhole bases shall be used only where shown on the plans or as directed by the Engineer and shall be constructed in accord with the details shown on the plans.

B. Special care shall be taken in casting the surfaces that will mate with the first risersection to assure a smooth even fit and a watertight joint.

C. The first riser section to be used with cast in place manhole bases shall be castwithout tongue or groove. The joint between the riser section and the cast in place base shall be sealed with a bitumastic or rubber sealant in the same manner as the joints in the pre-cast riser sections.

D. Care shall be taken in forming the invert of the manhole around existing sewers to assure adequate opening for the insertion of a “go – no go” mandrel or other testing equipment and cleaning tools.

4. MANHOLE RING AND COVER

A. The tops of the manhole frame and cover (ring) shall be built to the grade shown on the plans. The cast iron frame shall be firmly embedded in mortar.

B. When pressure type manhole rings and cover are specified on storm sewer manholes they shall be bolted to the concrete slab top using the “L” bolts cast into the slab for this purpose. The joint between the ring and the concrete slab top shall be made watertight using a bitumastic or rubber seal and conforming to the requirements of these specifications.

5. CORRUGATED STEEL MANHOLES

A. Corrugated steel manholes shall be constructed in accord with the details shown on the plans and in accord with the applicable requirements for the construction of corrugated steel pipe sewers.

B. Care shall be taken during the placing of backfill around corrugated steel pipe manholes to maintain the horizontal and vertical alignment of the manhole.

C. Since full contact of the flat top slab with the cement stabilized backfill is critical the backfill shall be finished smooth and to the proper grade. A thin layer of cement rich grout shall be placed on the cement stabilized backfill immediately prior to placing the concrete slab top. The grout shall be sufficient t fill all voids between the backfill and the slab and of a consistency to be forced into the voids under the weight of the slab.

3.14 TESTING GRAVITY SEWER MAINS AND MANHOLES

A. Upon completion of the sewer construction including all wyes and service laterals and before any house drains or services are connected, all sewers shall be cleaned and lamped. All runs of sewer between manholes shall be straight and true. Leakage tests shall be made to determine the amount of ground water infiltration into the sewers. Infiltration tests shall be made when groundwater level is 18 inches or more above the top of the outside of the pipe. Measurement will be taken by means of a weir placed in the lines. The maximum allowable rate of leakage shall be 25 gallons per inch diameter per mile of pipe per 24 hours, for any section of pipe with a maximum total leakage of 200 gallons per mile per 24 hours for sanitary sewers with the exception that the maximum leakage for storm drains shall be 200 gallons per inch of diameter per mile per 24 hours with a total maximum leakage of 6,000 gallons per mile per 24 hours.

When the groundwater is not at sufficient height for infiltration testing the Contractor shall use exfiltration to test the sewer lines.

B. In lieu of the infiltration or exfiltration tests the Contractor may perform air tests on the sewers.

C. If the infiltration, exfiltration, or air tests fail to meet requirements specified herein, the Engineer reserves the right to request television work to be done to locate leaks. The Contractor shall furnish all materials and equipment necessary to accomplish all infiltration, exfiltration, air or television testing.

The Contractor shall receive no additional compensation for this testing or inspection work or for repairs of corrective work required to be done to the sewers. The exfiltration tests shall be used in areas where no ground water is present.

D. Test Procedure Hydrostatic (Exfiltration)

(1) The test section shall be bulk headed and the pipe subject to a hydrostatic pressure produced by a head of water at a depth of three (3) feet above the invert of the sewer at the upper manhole under test. In areas where ground water exists, this head of water shall be three feet above the existing water table.

(2) This head of water shall be maintained for a period of one hour during which it is presumed that full absorption of the concrete manhole body has taken place and thereafter for a further period of one (1) hour for the actual test of leakage. Fiber glass manholes are exempt from the one hour absorption requirement. During this one (1) hour test period, the measured maximum allowable rate of exfiltration for any section of sewer shall be the same as allowed for the infiltration test.

E. TEST PROCEDURE AIR

(1) Where the Contractor elects to air test, he shall perform these tests with equipment similar to Air-Loc equipment manufactured by Cherne Industrial, Inc. Hopkins, Minnesota.

(2) The air test shall be made when the sewer is clean. The line shall be plugged at each manhole with pneumatic balls. Low pressure air shall be introduced into the plugged line until the internal air pressure reaches 4.0 psig greater than the average

back pressure of any ground water pressure that may submerge the pipe. At least two (2) minutes shall be allowed for the air temperature to stabilize before readings are taken and the timing started.

(3) When testing pipes 14 inches and less in diameter between consecutive manholes, the portion being tested shall pass if it does not lose air at a rate to cause the pressure to drop from 4.0 to 3.0 psig (greater than the average back pressure of any groundwater that may submerge the pipe) in less time than listed as calculated from Table 1.

When testing pipes greater than 15 inches in diameter between consecutive manholes the portion being tested shall pass if it does not lose air at a rate to cause the pressure to drop from 3.5 psig 3.0 psig (greater than the average back pressure of any groundwater that may submerge the pipe) in less time than that shown in or calculated from Table II.

TABLE I
Specification Time Required for a 1.0 PSIG Pressure Drop for Size and Length of Pipe indicated for Q = 0.0015

Specification Time for Length (L) Shown (min: sec)											
1	2	3	4 (xL)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.
4	3:46	597	.380	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854	5:40	5:40	5:40	5:40	5:40	5:40	5:42	5:42
8	7:34	298	1.520	7:34	7:34	7:34	7:34:	7:36	8:52	10:08	11:24
10	9:26	239	2.374	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768	51:17	75:55	102.34	128:12	153:50	179:29	205:07	230:46

1. Pipe Diameter (in.)
Minimum Time (min:sec)
Length for Minimum Time (ft.)
Time for Longer Length (sec)

NOTE: When using column 4 multiply the number in column 4 opposite the pipe diameter by the length of pipe of that diameter and sum the times for the various pipe size in the run being tested. Computations shall include lengths for service connection laterals.

Table II
Specification Time Required for 0.5 PSIG Pressure Drop for Size and Length of Pipe Indicated for Q + 0.0015

Specification Time for Length (L) Shown (min: sec)											
1	2	3	4 (xL)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.
4	1:53	597	.190	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187	4:43	4:43	4:43	4:57	5:56	6:55	7;54	8:54
12	5:40	199	1.709	5:40	5:40	5:40	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54

30 33 36	14:10 15:35 17:00	80 72 66	10.683 12.926 15:384	17:48 21:33 25:39	26:43 32:19 38:28	35:37 43:56 51:17	44:31 53:52 64:06	53:25 64:38 75:55	62:19 75:24 89:44	71:13 86:10 102:34	80:07 96:57 115:23

1 Pipe Diameter (in.)
2 Minimum Time (min:sec)
3 Length for Minimum Time (ft.)
4 Time for Longer Length (sec)

NOTE: When using column 4 multiply the number in column 4 opposite the pipe diameter by the length of pipe of that diameter and sum the times for the various pipe size in the run being tested. Computations shall include lengths for service connection laterals. All service plugs shall be secured in place to prevent displacement during testing operation.

F: DEFLECTION TEST

Deflection tests shall be performed on all flexible pipe, the tests shall be conducted after the backfill has been in place at least 30 days. No pipe shall exceed a deflection of 5 percent. The deflection tests shall be run using a Go-No-Go mandrel having a diameter equal to 95 percent of the inside diameter of the pipe. The tests shall be performed without mechanical pulling device, any pipe not meeting the deflection test shall be excavated and re-bedded at no cost to the owner.

The Contractor at no additional cost to the owner shall furnish the Go-No-GO Mandrel.

Upon completion of all tests, the Contractor shall provide personnel to remove each manhole cover in the presence of the Engineer's representative for inspection and depth measurement.

G. TESTING SANITARY SEWER MANHOLES

All sanitary sewer manholes shall be tested for water tightness by one of the following methods.

Manholes, except those in streets scheduled for immediate paving, shall be complete, having all adjusting rings and cover rings in place and shall be backfilled prior to testing.

Manholes in streets scheduled for immediate paving shall be complete as described above except those acceptance tests shall be made at the top of the cone section.

(1.) Vacuum Test

a. General

This item will govern the testing of all sanitary sewer manholes. All connections to manholes including drop connections shall be in place before testing.

b. Equipment

Equipment for vacuum testing manholes shall be:
MANHOLE VACUUM TESTER as manufactured by:

P.A. Glazier, Inc.
P.O. Box 1002
Worcester, MA. 01613

Or

THE CHERNE AIR-LOC MANHOLE TESTER as manufactured by:

Cherne Industries, Inc.
5700 Lincoln Dr.
Minneapolis, MN 55436-1695

Or approved equal.

c. Preparation for Testing

All connections to the manhole; except plugged stubs for future line extensions, shall be plugged using suitable pneumatic plugs. Line plugs shall be placed at a point outside of the manhole wall (approximately 8" to 10" into the sewer pipe). Drop connections shall be plugged at a point up stream from the drop.
All plugs, pipe connections and plugged stub outs shall be adequately braced to prevent them being drawn into the manhole when vacuum is applied.

d. Testing

The contractor shall set the test equipment in place and operate it in accord with the manufacturer instructions. A copy of these instructions shall be kept on the job site and shall be available to the inspector when tests are performed. When equipment is properly set up a vacuum of 10" of mercury (Hg) shall be drawn and the vacuum line valve closed. After the vacuum pump is shut off the hose shall be disconnected before the test is started.

Note: Vacuum must be at 10" Hg when test is started. The contractor may wish to draw up to 10.5" Hg vacuum and then bleed back to 10" Hg before starting the test. The test shall pass when the minimum time for the vacuum to drop from 10" Hg to 9" Hg is greater than the time shown in the following table:

TABLE 1: Minimum test times for various manhole diameters.

	DIAMETER		
Depth Feet	48"	60"	72"
8'	0:20	0:26	0:33
10'	0:25	0:33	0:41
12'	0:30	0:39	0:49
14'	0:35	0:46	0:57
16'	0:40	0:52	1:05
18'	0:45	0:59	1:13
20'	0:50	1:05	1:21
* ADD	0:05	0:06.5	0:08

Any manhole that fails the test shall be repaired and retested until it passes the test.

e. Contractors Optional Test

The contractor, at his option may wish to test manholes before they are backfilled to assure himself that the manhole is sound.
Manholes that fail the test prior to being backfilled may be repaired under vacuum by coating the area of the leak with a liquid quick setting grout allowing the grout to be drawn into the opening until the leak is stopped.

Manholes will not be accepted on the bases of this test.

f. Fiberglass Manholes

Fiberglass manholes may be tested in the same manner as concrete manholes except that all repairs to the fiberglass body of the manhole shall be made using materials furnished by the manufacturer. Repairs shall be made in accord with the manufacturer instructions.

g. No separate payment will be made for vacuum testing of manholes, but the cost shall be considered incidental to furnishing and construction of manholes as bid in the bid proposal.

2. HYDROSTATIC TESTING

a. General

This item shall govern the hydrostatic testing of manholes and may be used as an alternative to vacuum testing by the contractor.

All connections to manholes including drop connections shall be in place prior to testing manholes.

b. Testing

All connections to the manhole, except plugged stubs installed for future line extensions, shall be plugged upstream from the drop.

Plugs in pipe connections must be placed outside the manhole wall (approximately 8” to 10” into the pipe).

The manhole shall then be filled to the top of the cast iron ring (or top of the cone section for manholes in streets scheduled for immediate paving) and allowed to stand for a minimum of one hour to allow for absorption by the components of the manhole. The inspector may extend the absorption period if it appears that the manhole has not reached a stable state.

The manhole shall then be refilled to the top of the ring (or cone) and allowed to stand for up to 24 hours.

The manhole shall be checked at the end of 4 hours and will be deemed to have passed if no perceptible loss has occurred – if loss has occurred the manhole will be checked after the 24 hour period and will be considered to have passed if loss does not exceed the following schedule

Depth Ft.	Loss Inches
0 - 10’	.2
10 – 20’	.4
20 - 30’	.6

c. No separate payment will be made for Hydrostatic Testing of manholes but the cost shall be considered as incidental to furnishing and constructing manholes as bid in the bid proposal.

H. TELEVISING NEW SEWER LINES

It is the city’s intention to televise all new sanitary sewer lines for record purposes.

Immediately after the contractor completes all testing of sanitary sewer lines and manholes he shall leave all manholes accessible for televising and make allowances for the city’s camera crews working on the project site.

The contractor at his own expense before final acceptance must correct any defects discovered during the televising of sanitary sewers.

3.15 RESTORATION

A. Whenever any surface improvements such as pavement, curbing, pedestrian walks, fencing, or turf have been removed, damaged or otherwise disturbed by the Contractor’s operations, they shall be repaired or replaced to the Engineers satisfaction, to restore the improvement in kind and structure to the pre-existing condition. Each item of restoration work shall be done as soon as practicable after completion of installation and backfilling operations on each section of pipeline.

B. In absence of specific payment provisions, as separate Contract Items, the restoration work shall be compensated for as part of the work required under those Contract Items, which necessitated the destruction and replacement or repair, and there will be no separate payment therefor. If separate pay items are provided for restoration work, only that portion of the repair or reconstruction, which was necessitated by the contract, will be measured for payment. Any improvements removed or damaged unnecessarily shall be replaced or repaired at the Contractor’s expense.

C. Turf restoration shall be accomplished by sod replacement except where seeding is specifically allowed or required.

Caliche or gravel surfaced streets and driveway shall be restored to their original condition by salvaging and replacing the pre-existing caliche or gravel. If the Contractor does not salvage sufficient material during excavation operation, he will be required to furnish material to restore the surface to the depth of the original section. This caliche or gravel restoration shall be considered a part of excavation and backfill and no extra compensation will be made.

E. Bituminous and concrete surfaced streets and driveways will be restored to equal or better condition than existed prior to sewer construction. Measurement will be made of the actual quantities required to be replaced by the sewer construction and paid for at the price bid in the appropriate bid items in the proposal.

No measurement or payment will be made for work done outside the lines considered necessary for sewer construction. The Contractor will be required to replace damage outside these lines at his own expense.

F. Reconstruction of caliche base courses and concrete or bituminous surface courses shall be in substantial compliance with all applicable City of Midland Specifications pertaining to the item being restored.

3.16 CLEANUP

After completing each section of the sewer line, the Contractor shall remove all debris, construction materials, and equipment from the site of the work, grade and smooth over the surface on both sides of the line and leave the entire right-of-way in a clean, neat, and serviceable condition. No separate compensation shall be made for clean up.

3.17 PAYMENT

A. General

Payment in accordance with the following items, at the unit price bid for the work, shall constitute full and complete payment for the entire project including all incidental terms necessary for the complete and successful prosecution of the work in accordance with the intent of the plans and specifications.

Materials and work required to complete the project for which there is no bid item in the bid proposal shall be considered as incidental and the cost shall be included in the prices bid for the various items in the bid proposal.

Where payment is to be made on a unit price basis, it shall be made on the actual measured quantities as constructed in the work.

B. Sewer Pipe in Place

Unit prices bid shall cover furnishing and installation of pipe and jointing materials, including tests and all other necessary work and material to install the pipe complete in place at the depth specified. The unit of work shall be the lineal foot of the various types and sizes as shown in the proposal form. The pipe installation shall be measured

along the centerline of the sewer from center to center of manholes with no deduction in footage for manholes, wye branches, riser bases or other structure.

C. Foundation Corrections Materials

Payment for foundation correction materials shall be made at the unit price bid per cubic yard for material furnished and placed to pro vide adequate pipe base in unstable soil. The unit price shall include extra excavation below pipe grade, the material, placing and tamping.

Additional material required to backfill excess depth of excavation caused by neglect or error on the part of the Contractor or wet conditions, shall be furnished and placed at his own expense.

Removal of Street Surfacing

The Contractor shall receive no extra compensation for the removal of street surfacing including cutting of a straight edge.

E. Trench Safety Systems, Sheeting and Shoring

Measurement: Trench Safety Systems shall be measured by the linear foot of "Trench Safety Systems": Payment for work prescribed under this item shall be full compensation for the Trench Safety Systems including any Engineering and/or consulting fees and any additional excavation and backfill required, for furnishing, placing, maintaining and removing all shoring, sheeting, or bracing; for de-watering or diversion of water; for all jacking and jack removal; and for all other labor, materials, tools, equipment and incidentals necessary to complete the work.

F. Manholes

Payment will be made for the various types of manholes at the unit prices bid for the various types of manholes 0 to 6' deep which price shall include excavation, furnishing and installing all materials pumping where necessary, and backfilling and all incidentals for the complete manhole in place. Measurement for manholes over 6 feet in depth shall be made of the depth of manhole in excess of six (6) feet. Manholes will be measured from the invert to the top of the casting as set.

Payment will be made for the manhole depth in excess of 6 feet at the vertical foot price bid in the bid proposal for extra depth of manhole over 6 feet for each type of manhole furnished.

G. Drop Connections to Manholes

Payment shall be made for drop connections to manhole for each drop connection made as counted in the field at the price bid in the proposal.

Said payment shall be complete compensation for furnishing all materials and fittings and making all connections to the manhole including 2' of vertical depth as measured from the invert of the incoming line to the invert of the manhole.

H. Drop Section for Manholes

Drop sections shall be paid for on a vertical footage basis as measured from the invert of the incoming line to the invert of the manhole less 2 feet and shall be paid for at the price bid per vertical foot for the various size drop connections in the bid proposal.

The price bid per vertical foot includes all fittings, granular material, if used and concrete and shall be full compensation for the complete in service drop connection.

I. Service Lines

Service lines will be measured from centerline of the sewer main to the plug end and paid for at the unit price bid per linear foot of each type of pipe as specified and as shown on the typical details.

J. Barricading and Traffic Control

The lump sum price bid in the bid proposal shall be full compensation for furnishing flag persons when required and all barricades, signs and other barricading and traffic control devices and for furnishing barricading plans and erecting and maintaining all such devices and signs as required for the duration of the period.

Updated
08/07

MIDLAND
Engineering Services

ADDENDUM #01

Project Number BPU18-03

TO ALL BIDDERS ON THE SUBJECT BID: **"A" Street Mill And Inlay Paving Project**

ADDENDUM #01

DATE: November 6, 2020

1. Q/A and Clarification
2. Non-Mandatory Pre-Bid Meeting Teleconference Agenda
3. Non-Mandatory Pre-Bid Meeting Teleconference Attendance

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

CDKing Construction DBA SDKing
Company Name

Bidder Authorized Signature

11-18-2020
Date

Chad King
Please Print Above Name

432-209-1739
Phone

"A" Street Mill And Inlay Paving Project
Project Number BPU18-03

Q/A and Clarification

During the Pre-Bid Meeting, the following questions were raised by one or more bidders. Below is a list of the questions along with the answers and clarifications.

Clarification: The deadline to ask or send questions for this project has been moved back to Tuesday, November 10, 2020 at 5:00 PM. A final addendum for this project will be issued Wednesday, November 11, 2020. The final addendum will include official responses to all questions asked prior to the November 10th deadline that are not addressed by this Addendum 01. Questions asked after the November 10th deadline will be directed to the information provided in the original bid documents or included in the addendums.

Clarification: The Bid Opening is Wednesday, November 18, 2020 at 2:00 PM as stated in the Non-Mandatory Pre-Bid Teleconference Meeting Agenda that is attached to this Addendum 01.

Clarification: All addendum acknowledgement forms must be included with the bid for the bid to be considered complete. Bidders have sole responsibility for making sure they have and acknowledge all addendums provided for this project bid.

Question: Would it be possible to push the Due Date for questions back for Next Week, maybe Tuesday or Wednesday instead of Noon Tomorrow?

Answer: The deadline to ask or send questions for this project has been moved back to Tuesday, November 10, 2020 at 5:00 PM. A final addendum for this project will be issued Wednesday, November 11, 2020. The final addendum will include official responses to all questions asked prior to the November 10th deadline that are not addressed by this Addendum 01. Questions asked after the November 10th deadline will be directed to the information provided in the original bid documents or included in the addendums.

"A" Street Mill And Inlay Paving Project
Pre-Bid Teleconference Meeting Agenda
Project No. BPU18-03
November 4, 2020; 4:00 PM

Teleconference Call In Number: (866) 528-2256
Access Code: 4450719

Discussion Items

1. Sign-In Sheet
   - Please email jferguson@midlandtexas.gov if you plan to attend the teleconference so your name and contact information can be added to the attendance roll and to ensure you receive a copy of the Addendum following the pre-bid teleconference meeting.

2. Personnel Overview
   - Matt Carr – City Engineer
   - Mike Pacelli – Traffic Engineer
   - Cory Moose – Assistant Utilities Director
   - Josh Ferguson – Engineering Manager – CIP, project engineer
   - Bobby Wojciechowski – Construction Manager, construction management & inspections
   - Rex Swearinger – Operations Planner, utility coordination
   - Taha Sakrani – Associate Traffic Engineer
   - Troy Clabaugh – Sr. Transportation Technician
   - Gabe McClelland – Transportation Manager
   - Jesus Perez – Project Manager
   - Natalie Burgard – Administrative Assistant, document processing
   - Erika Martinez – Purchasing Manager, conduct bid process and bid opening

3. Project Overview and Scope
   - This project will include the removal and installation of pavement improvements, sidewalk improvements, traffic improvements, and appurtenances as well as all equipment, labor, materials, etc. necessary to complete the work outlined in the Construction Drawings and Specifications, and to satisfactorily complete the work.
   - In general this project involves repaving "A" Street with mill-inlay pavement for most of the project but with a few areas of substantial concrete paving and signal work.

4. Bid Process
   - Pre-Bid Meeting Teleconference attendance is non-mandatory to bid on this project.
   - ATTENTION: All questions submitted before or after the Non-Mandatory Pre-Bid Meeting Teleconference must be submitted via email to the following email address: jferguson@midlandtexas.gov
   - Addendum distributed by email the Friday afternoon following the Pre-Bid Meeting.
     - The deadline to ask or send questions for the addendum is this Friday, November 6, 2020 at Noon.
     - Questions asked after the Noon deadline will be directed to the information already provided in the bid documents or included in the Addendum.
   - ATTENTION: Due to the Coronavirus (COVID-19) pandemic, the City of Midland's City Hall is closed to the Public. All bidders are encouraged to mail bid packets to one of the

addresses below rather than delivering them in person in the interests of maintaining social distancing:

USPS Mailing Address:
City of Midland, Texas
Attn: City Secretary's Office
P O Box 1152
Midland, TX 79702

– OR –

Physical Address for mail carriers other than USPS:
City of Midland, Texas
Attn: City Secretary's Office
300 North Loraine St, Suite 330
Midland, TX 79701

If bid packets are delivered in person then bidders must make arrangements in advance to drop the bid packets off at the north doors of City Hall before the bid opening deadline, and social distancing measures will be maintained for the health of all parties involved.

- **Bid Opening is Wednesday, November 18, 2020 at 2:00 PM** in the City Hall Council Chamber located on the 1st Floor of Midland's City Hall.
  - ATTENTION: The public bid opening will be shown via the City Council Meeting live feed in order to maintain social distancing due to COVID-19. This can be accessed from the following web address at the time of the bid opening: http://www.midlandtexas.gov/600/Watch-Council-Meetings
  - No late bids will be accepted.
  - Bidders must be willing to sign the contract as is.
  - Bidders must complete the conflict of interest forms if applicable.
  - Bidders must fill out all bid items in the Proposal. If bid items are left blank then the bid will be considered non-responsive.
  - Bidders have sole responsibility for making sure they have and acknowledge all addendums provided. If all acknowledgement forms are not included with the bid packet submittal then the bid will be considered non-responsive.

5. Notice to Proceed
   - Date of Notice to Proceed to be determined at the Pre-Construction Meeting.
   - Pre-Construction Meeting date will be set after the project bid is awarded.

6. Payment
   - Invoices should be submitted on or before the 1st day of each month and cover work completed up to the 25th day of the preceding month.
   - Invoice submittals need to be itemized and match the bid items listed in the bid packet Proposal.
   - Payment based on the portion of work completed only. No payment for material delivery.
   - 5% retainage until project completion, acceptance, and final payment.
   - Recommended that invoices state "Invoice Due Upon Receipt", or have a due date that is two (2) weeks after the date the invoice is submitted.

7. Project Schedule
   - City Inspector must be notified of all work occurring and be able to perform inspections on any construction or installation that occurs.
   - Typically Monday – Friday from 8:00 AM – 5:00 PM. No work earlier than 7:00 AM or later than 8:00 PM without City permission unless for emergency conditions.
   - Work will not occur on Sundays or legal holidays unless required for emergency situations.
   - Work will not occur on Saturdays unless requested by Contractor in writing at least 48-hours in advance and approved by the City Engineer.

8. Project Specifics
   - Comply with all OSHA and other applicable safety requirements and regulations at all times.

- Construction staking is solely the responsibility of the Contractor.
- Construction testing is solely the responsibility of the Contractor.
- Contractor is responsible for Traffic Control for this project.
- There is a one (1) calendar year warranty period on this project. This includes all infrastructure installed.

9. Additional Information, Clarifications, and Corrections
   - Bidders are directed to bid the item quantities listed in the Bid Packet's Proposal, not the quantities listed in the design drawings.
   - At least one travel lane in each direction must be maintained at all times on "A" Street.
   - It is possible that the "A" Street utility bond project may still be in progress when this project begins. If this occurs the utility construction activity and utility contractor will have precedence on the job site, and the paving project construction activity will be restricted to locations that do not interfere with the utility construction operations.
   - If a Bidder wishes to deliver a bid submittal in person then they are directed to call City Purchasing to coordinate this.

10. Questions received to date and City responses:

Q: Traffic Item #6 – Install H.T.S.(System) – What is the intent for the item? I did not see anything about if a new cabinet, controller, pad, etc. was being requested, or if it is a general "catch-all" for making connections, foaming pipes, etc.
A: This item is intended to cover all miscellaneous signal work that is not covered by other pay items and is needed to complete the project per the plans. There is no intent to relocate or replace any of the cabinets with this project.

Q: Traffic Item #8 – Ped Pole Assembly – I believe that the foundation is subsidiary correct?
A: Yes, the foundation is subsidiary to this pay item.

Q: Traffic Item #10 – ped detector push button (standard) – City to provide APS system. I would assume it is all equipment to make functional such as the equipment in the cabinet and the buttons. Contractor to only provide spacers as needed? If so, we need to clarify if they are "standard buttons or APS buttons as that material is different and costs would be as well.
A: The City is supplying older model Polara 4-wire APS push buttons from existing stock (in brand new condition). This model does not require any specialized cabinet equipment and is wired at the cabinet like a traditional push button. The other pair of wires (supplied) will run directly to the ped signal above that button. The Contractor will need to provide the spacers for mounting the APS buttons.

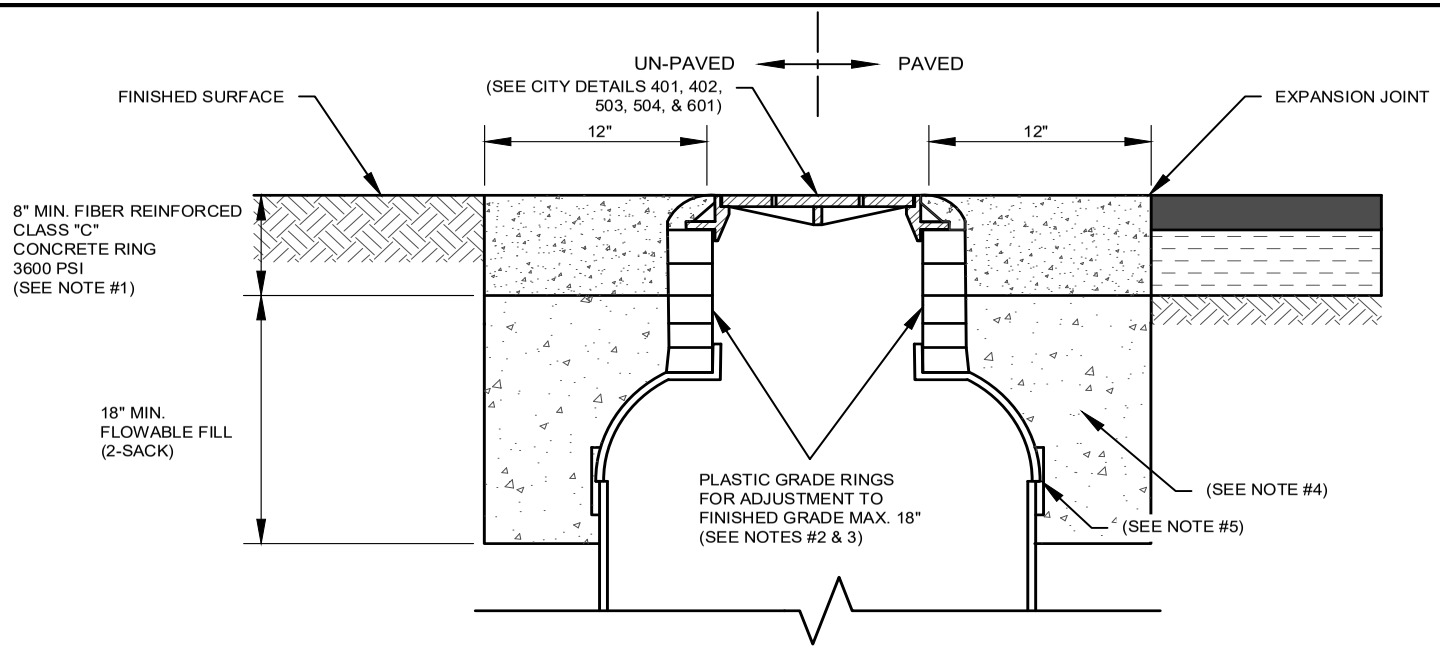
Q: Bid Line Item 21, Flowable Fill is to be bid by the SY, I can't find any drawings showing the Thickness/Depth of the Flowable Fill. We know that there is 940 SY's, but without the Thickness/Depth of the Flowable Fill it is impossible to figure the correct quantities of Flowable Fill to convert a price back to SY's.
A: The Bid Item for Flowable Fill / 2-Sack Backfill will remain measured per square yard. All affected existing water valves and manholes will have flowable fill in place, in which case any flowable fill removed during paving operations will need to be replaced. Details 317, 318, 608(A), and 608(B) are attached to this agenda and are to be complied with such that the flowable fill placed has a final surface elevation that allows the concrete ring for each cover to be placed as shown in these details. The minimum thickness of flowable fill for utility trenches is 20" under existing asphalt pavement and 18" under existing concrete pavement, but if the paving activity doesn't excavate that deep then this full depth of existing flowable fill should not need to be replaced.

11. Any Additional Questions?

Please direct all questions or comments following the Pre-Bid Meeting to Josh Ferguson with the City of Midland.

Engineering Services

Josh Ferguson
Office Phone: (432) 685-7290
Cell Phone: (432) 241-5078
Email: jferguson@midlandtexas.gov

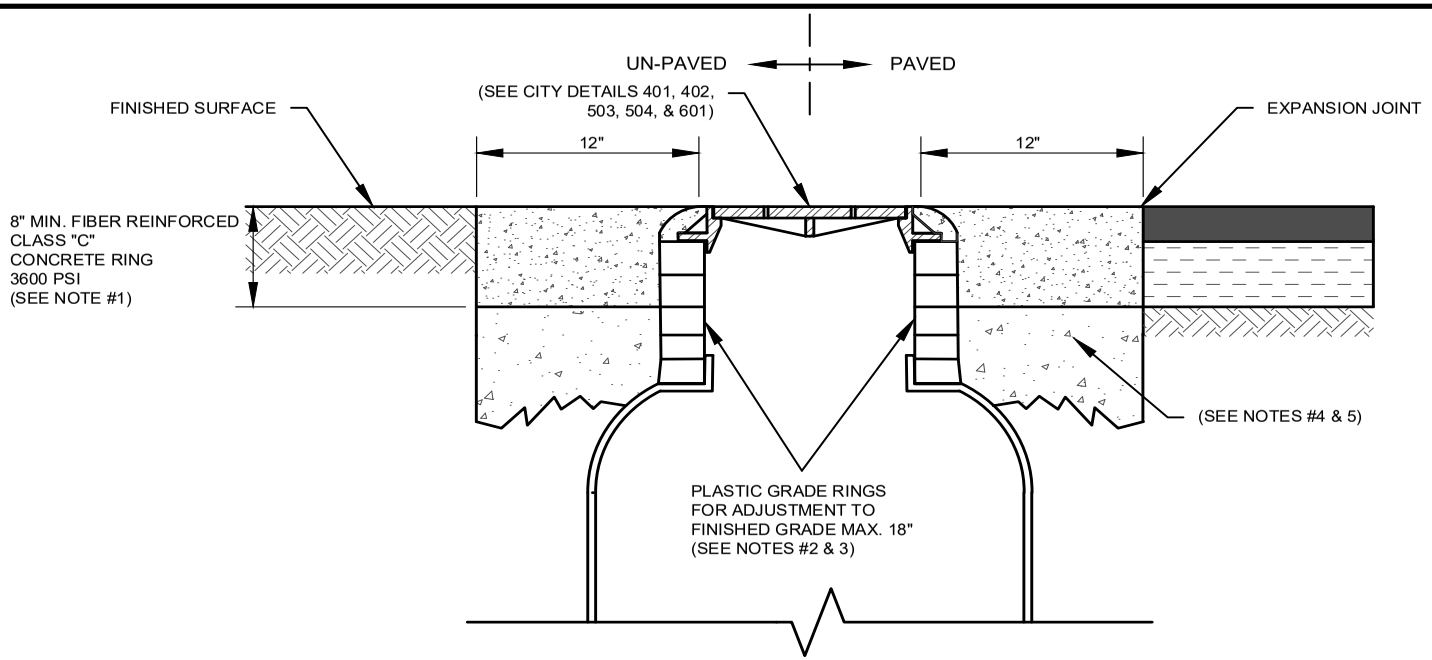


EXISTING MANHOLE BARREL ADJUSTMENT

NOTES:

1. INSTALL 12" MIN. FIBER REINFORCED CLASS "C" CONCRETE RING, 3600 PSI, WHEN MANHOLE IS LOCATED IN AN ARTERIAL R.O.W.
2. GRADE RINGS TO MEET ASTM STANDARD A48 AND TO BE 2", 4", OR 6" THICKNESS AS REQUIRED. INSTALL ASPHALT TAR IN THICK, UNIFORM COATING OVER ALL OUTER ADJUSTMENT RING SURFACES AND JOINTS.
3. ENGINEERING SERVICES REPRESENTATIVE AND UTILITY SERVICES REPRESENTATIVE MAY ALLOW GREATER ADJUSTMENT RING DEPTH TO ACCOMMODATE PAVING STRUCTURES.
4. REMOVE ALL MATERIAL EXCAVATED FROM SITE AND EXCAVATION, AND FILL TO FINISHED BASE ELEVATION WITH FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT).
5. MANUFACTURED WATERTIGHT CONNECTOR, CORE DRILL AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 317
		EXISTING MANHOLE BARREL ADJUSTMENT		

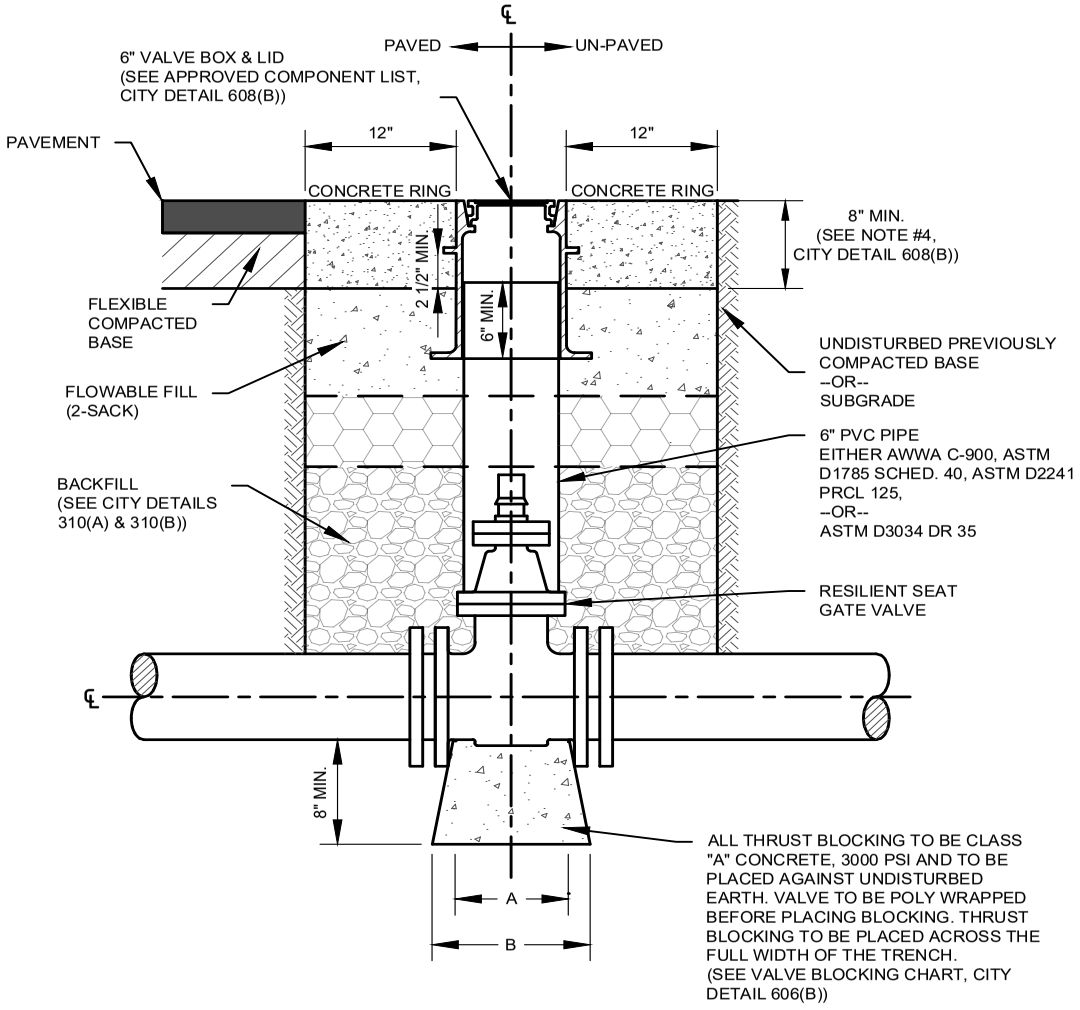


NEW MANHOLE RING & COVER ADJUSTMENT

NOTES:

1. INSTALL 12" MIN. FIBER REINFORCED CLASS "C" CONCRETE RING, 3600 PSI, WHEN MANHOLE IS LOCATED IN AN ARTERIAL R.O.W.
2. GRADE RINGS TO MEET ASTM STANDARD A48 AND TO BE 2", 4", OR 6" THICKNESS AS REQUIRED. INSTALL ASPHALT TAR IN THICK, UNIFORM COATING OVER ALL OUTER ADJUSTMENT RING SURFACES AND JOINTS.
3. ENGINEERING SERVICES REPRESENTATIVE AND UTILITY SERVICES REPRESENTATIVE MAY ALLOW GREATER ADJUSTMENT RING DEPTH TO ACCOMMODATE PAVING STRUCTURES.
4. REMOVE ALL MATERIAL EXCAVATED FROM SITE AND EXCAVATION.
5. FILL ANY OVER-EXCAVATION WITH FLOWABLE FILL 2-SACK (2-SACK = 188 LBS/CY, PORTLAND CEMENT).
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 318
		NEW MANHOLE RING & COVER ADJUSTMENT		



MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		TYPICAL VALVE AND VALVE BOX		608(A)

APPROVED COMPONENT LIST			
NO.	VALVES	VALVE COVERS	VALVE BOX
1	MUELLER 2360 M/J	MUELLER 2360 FL X FL	BASS & HAYS STANDARD 390-1 "SHORTY"
2	M & H 4067 M/J	M & H 4067-0	OR APPROVED EQUAL
3	CL0W 2838 M/J	CL0W 2840 FL X FL	
4	OR APPROVED EQUAL	OR APPROVED EQUAL	

VALVE BLOCKING CHART		
PIPE SIZE	A	B
4"	5.0"	10.5"
6"	6.5"	1'-.0"
8"	6.5"	1'-.0"
10"	8.0"	1'-1.0"
12"	8.5"	1'-2.0"

NOTES:

1. FOR VALVES ON WATER MAIN PIPES LARGER THAN 12" SEE CITY DETAIL 609.
2. SETTING VALVE BOX TO GRADE MAY REQUIRE ADDING PVC PIPE. IF ADDITIONAL PIPE IS REQUIRED, USE BELL SECTION WITH GASKET AND SET BELL DOWN OVER EXISTING PIPE RISER. A GASKETED SELF CENTERING COLLAR MAY BE USED IN LIEU OF THE BELL SECTION.
3. CONCRETE RING TO BE CITY OF MIDLAND CLASS "C", 3600 PSI, UNLESS OTHERWISE NOTED.
4. USE FIBER REINFORCEMENT FOR ALL CONCRETE , WHETHER PAVEMENT OR THRUST BLOCKING.
5. 12" MINIMUM FOR CONCRETE RING IN AN ARTERIAL ROADWAY.
6. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT.) REQUIRED BENEATH ALL CONCRETE RINGS.
7. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT.) REQUIRED FOR ALL OVER EXCAVATION BACKFILL.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services

DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018

SCALE: NTS

DETAIL: 608(B)

TYPICAL VALVE AND VALVE BOX DETAILS

Pre-Bid Teleconference Meeting Attendance

BPU18-03

"A" Street Mill And Inlay Paving Project

Date: 11-04-2020 - 4:00 PM

☑	Name *(Please Print)*	Company Name *(Please Print)*	Phone Number	Fax Number	Email
√	Josh Ferguson	City of Midland	(432) 241-5078		jferguson@midlandtexas.gov
✓	Matt Carr	City of Midland			mcarr@midlandtexas.gov
✓	Michael Pacelli	City of Midland			mpacelli@midlandtexas.gov
	Bobby Wojciechowski	City of Midland			bwojciechowski@midlandtexas.gov
✓	Gabriel McClelland	City of Midland			gmcclelland@midlandtexas.gov
	Jesus Perez	City of Midland			jperez@midlandtexas.gov
✓	Taha Sakrani	City of Midland			tsakrani@midlandtexas.gov
	Michael Williams	City of Midland			mwilliams@midlandtexas.gov
✓	Erika Martinez	City of Midland			emunoz@midlandtexas.gov
✓	Kenneth Ford	Jones Bros			k.ford@jonesdp.com
✓	Brent Clayton	Desert Paving			desertpaving@aol.com
✓	Jesse Ramirez	Reece Albert			jesser@reecealbertinc.com
✓	Mike Hester	Reece Albert			mikeh@reecealbertinc.com
✓	JJ Flores	FC Traffic Control			jephtef@fc-traffic.com
✓	Thomas Leffew	Torres Trucking			
✓	Iliana Guillen	Torres Trucking			torrestruckingrequests@gmail.com
✓	Weston Willis	Willis Electric			weston@willislp.com

MIDLAND
Engineering Services

ADDENDUM #02
Project Number BPU18-03

TO ALL BIDDERS ON THE SUBJECT BID: **"A" Street Mill And Inlay Paving Project**

ADDENDUM #02

DATE: November 11, 2020

1. Q/A and Clarification
2. Revised Proposal
3. Revised Pay Notes

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

CD King dba JD King
Company Name

Bidder Authorized Signature

11/18/2020
Date

Chad King
Please Print Above Name

432-209-1739
Phone

"A" Street Mill And Inlay Paving Project
Project Number BPU18-03

Q/A and Clarification

During the Pre-Bid Meeting, the following questions were raised by one or more bidders. Below is a list of the questions along with the answers and clarifications.

Clarification: All information provided in Addendum 01 for this project remains in effect unless specifically addressed in this Addendum 02.

Clarification: All addendum acknowledgement forms must be included with the bid for the bid to be considered complete. Bidders have sole responsibility for making sure they have and acknowledge all addendums provided for this project bid.

Clarification: The Proposal section of the Bid Packet has been revised. The revised version is attached to this Addendum 02. Bidders are to remove all previous versions of the Proposal section in their entirety and replace them with the attached revision.

Clarification: The Pay Notes section of the Bid Packet has been revised. The revised version is attached to this Addendum 02. Bidders are to remove all previous versions of the Pay Notes section in their entirety and replace them with the attached revision.

Clarification: The Proposal and Pay Notes have been revised to add Bid Items for 8" Milling Unclassified Asphalt Pavement, 7" Concrete Fillet, and 7" Concrete Valley Gutter. Quantities have been added for all Bid Items added, and Bid Item quantities have been revised for 7" Milling Unclassified Asphalt Pavement, 5" Milling Unclassified Asphalt Pavement, Removal & Disposal of Existing Miscellaneous Concrete, 8" Concrete Fillet, 8" Concrete Valley Gutter, and Flowable Fill / 2-Sack Backfill to account for the added bid items and other quantity corrections.

Clarification: Contractor must be willing to sign contract as is.

Clarification: Check that all insurance forms are in order when submitting bids.

Clarification: Check that all conflict of interest forms are completed if applicable.

Clarification: Contractor must fill out all bid items in the Proposal for the bid to be considered complete.

Clarification: Contractor is responsible for all construction staking.

Clarification: All invoice submittals are to be itemized and are to match the Proposal item listed.

Clarification: Contractor is responsible for all traffic control during this project.

Clarification: There is a one (1) calendar year warranty period on this project.

Clarification: It is recommended that Bidders use the USPS mailing address rather than the physical City Hall address for bid submittals that are mailed in as the physical address has experienced issues on occasion in the past. The USPS mailing address is unchanged from what is listed in the original bid packet and the pre-bid teleconference meeting agenda.

Clarification: One (1) lane of travel in each direction, north and south, must be maintained at all times at a minimum on 'A' Street where 2-way traffic typically exists.

Clarification: There will be no more than three (3) consecutive intersecting street closures allowed at a time in series for this project.

Clarification: Contractor is responsible for notifying all adjacent properties of any planned service interruptions no less than two (2) business days in advance of any such interruptions. Service interruptions are to be kept as short as is reasonably possible. This requirement does not apply in emergency situations.

Clarification: Contractor is responsible for maintaining access to all adjacent properties at all times, barring those times when actual construction activity necessary to complete the work is taking place in front of driveway approaches or similar points of access. When such work is not occurring then access must be restored by means of traffic rated steel plates or other equivalent means until such time as the work is completed.

Clarification: Saw-cutting is considered subsidiary to the bid items listed in the Proposal.

Clarification: All concrete placed is to be Class "C" 3600 PSI concrete unless otherwise noted in the construction drawing set or addendums. Reinforcement is to be per the construction drawing set or addendums.

Clarification: The "A" Street utility bond project may still be in progress at the time that this project is awarded and ready to start construction. If this occurs then the utility project and construction activity will have precedence on the job site, and the construction activity for this project will be restricted to areas that do not interfere with the utility project operations until the utility project is complete. In general, this project would not be allowed to start construction activity until the utility project construction activity has moved north of the "A" Street and Ohio Avenue intersection.

Question: For the Labor Markup percentage, does the percentage include taxes and other costs that go with having an employee working on site?
Answer: The Labor Mark-up bid item is intended to cover the full cost to the employer for their work crew to perform the labor covered by this bid item plus the percentage based off of that full cost.

Question: Missing the sleeper slab detail.
Answer: The sleeper slab transition detail has been attached to this Addendum 02.

Question: Missing the storm drain manhole adjustment.

Answer: Storm drain manholes are adjusted the same way as wastewater manholes. City Details 317 and 318 found attached to Addendum 01 address this.

Question: Is the conduit to be bored or trenched?
Answer: This will be left up to the contractor. It was assumed that open trench would be the preferred method of installation, but if the contractor chooses to perform a bore installation the City has no objections so long as the final installation complies with the design.

Question: Request that the City not round quantity numbers in the Proposal from what is in the quantity sheet in the future if it isn't needed. Makes calculations harder.
Answer: Understood. This will be taken into consideration on future project bids.

Question: South of Wall Street is one-way traffic so can't handle one lane each way?
Answer: North of Wall Street the "A" Street road is an arterial and is wide enough to keep one lane each way for traffic. South of Wall Street may have places where full closures may be allowed.

Question: Will you be adding a concrete spec and detail for the concrete paving and sleeper slabs?
Answer: The sleeper slab transition detail has been attached to this Addendum 02. Concrete for the sleeper slab transition will be the same as the concrete pavement section for this project per the detail.

Question: Bid item #M2, what is required for the SWPPP? No plan sheets shown what and where.
Answer: It is expected that the erosion control measures for this project will comply with the Erosion Control notes found on Sheets 5 and 6 of the construction drawing set and consist primarily of gravel or sand bags placed in curb or pavement flowlines at the downstream limits of the project area work zones along with one or more concrete washouts and any inlet protections that are needed in addition to the usual activity such as sweeping to maintain a reasonably clean project area. As this is primarily a mill-inlay paving project in an existing developed area, it is anticipated that erosion control measures would not be much more extensive than this although the City always reserves the right to require more extensive erosion controls should the controls installed fail to address the needs of the site.

Question: Bid item #D1, 7" milling. Ohio / "A" street intersection is 7" concrete, Cuthbert / "A" street intersection is 8" concrete. Summary sheet total for sheet 16 seems low. Are the 8" Valley Gutter, 8" Fillet in the 5" Milling area?
Answer: The Proposal and Pay Notes have been revised to add Bid Items for 8" Milling Unclassified Asphalt Pavement, 7" Concrete Fillet, and 7" Concrete Valley Gutter. Quantities have been added for all Bid Items added, and Bid Item quantities have been revised for 7" Milling Unclassified Asphalt Pavement, 5" Milling Unclassified Asphalt Pavement, Removal & Disposal of Existing Miscellaneous Concrete, 8" Concrete Fillet, 8" Concrete Valley Gutter, and Flowable Fill / 2-Sack Backfill to account for the added bid items and other quantity corrections.

Question: Bid item #D5, No detail or locations for the sleeper slab.
Answer: Believe this question meant to refer to the Proposal's Paving Bid Item #5 rather than Demolition Bid Item #5. The sleeper slab transition detail has been attached to this Addendum 02. Sleeper slabs are to be located at joints between concrete and asphalt pavement sections. This does not apply to joints at valley gutters, fillets, or curbs. Specifically, sleeper slabs will be needed at all three sides of the "A" Street and Ohio Avenue concrete intersection as well as on all sides of the "A" Street and Cuthbert Avenue concrete intersection.

Question: Summary sheet 7, does not show quantities for Sidewalk / Ramp removal. Sheets 15 /16 only show 16 sy of sidewalk removal, where is the balance?
Answer: Bidders are directed to bid the quantities listed in the revised Proposal. It is anticipated that additional sidewalk removal and replacement will be needed at the northwest corner of the "A" Street and Cuthbert Avenue intersection to restore the sidewalk to a condition matching the existing state with the new ramp configuration.

Question: Plan sheet 4, Paving & Concrete note #4, Calls for SL-2 and Hot Applied seal, should this be "or"?
Answer: Believe this question meant to refer to Plan Sheet 4's Paving And Concrete Note #5 rather than Note #4. And yes, the requirement is for either TxDOT DMS-6310 SL-2 Seal or ASTM D 1190 Hot-Applied Single Component Joint Sealant, not for both.

Question: Plan sheet 11, Inset B, calls for prime under concrete, is this required?
Answer: No. Prime coat is not required under any concrete pavement for this project.

Question: Sheets 12, 13, 15, & 16, are the C & G removal for the fillets, and ramps subsidiary?
Answer: When existing fillets are removed the removal of the integral fillet curb is considered part of the same quantity, so yes, the integral fillet curb removal is subsidiary to the fillet removal. Where fillets do not exist but ramps are adjacent to curbs, the ramp and curb removals are covered by separate bid items and are not subsidiary to one another.

Question: Sheet 16 shows 47 sy of Misc Concrete removal, where is the balance?
Answer: Proposal has been revised to correct the Bid Item quantity for Removal & Disposal of Existing Miscellaneous Concrete. This quantity includes the removal of the existing traffic island at the northeast corner of the "A" Street and Cuthbert Avenue intersection.

Question: Detail for Type 6 ramp?
Answer: Type 6 ramps should actually be described as Type 1 ramps as seen on Sheet 29 of the construction drawing set without the flares on either side of the ramp. Utilize this configuration wherever Type 6 ramps are called for.

Question: Sheet 4, Paving & Concrete, Note 7, Rebar reinforcing only to be used when specifically called for on plans. I only see rebar in the fillet corner detail. Do you want rebar anywhere else?
Answer: Yes. Rebar reinforcement is to be used in all concrete pavement and valley gutters. Rebar reinforcement is to be #4 Rebar set at 16" OCEW.

Question: Do you have the jointing locations for the 7" & 8" concrete pavement?
Answer: All concrete pavement jointing is to comply with the Paving And Concrete Note #14 found on Sheet 5 of the construction drawing set. Valley gutters are to have a center saw-cut joint at the mid-point. There is also to be a joint between all fillet edges and concrete pavement edges just as there are between fillets and valley gutters. All such joints are to be sealed per the construction drawings and addendums.

Question: Bid item P21, area seems long?
Answer: Proposal has been revised to correct the Bid Item quantity for Flowable Fill / 2-Sack Backfill.

Question: On the fillets, and HC Ramps, can you clarify how the removal of existing (Curb, Sidewalk, Miscellaneous Concrete, Asphalt Pavement) is paid for?
Answer: The Proposal Demolition Bid Items #1 and #2 for Milling Unclassified Asphalt Pavement include removals for all existing asphalt pavement by milling. Demolition Bid Item #3 for Removal & Disposal of Existing Concrete Curb & Gutter includes removal of existing concrete curbs except for the integral fillet curb. Demolition Bid Item #4 for Removal & Disposal of Existing Concrete Sidewalk & Ramps includes removal of existing sidewalks and ramps, but not any adjacent curb. Demolition Bid Item #5 for Removal & Disposal of Existing Miscellaneous Concrete includes removal of existing concrete pavement, fillets and the integral fillet curb, valley gutters, approaches, and other concrete flatwork that is not part of the curbs, sidewalks, or ramps.

Question: SE of the "A" & Ohio intersection, do you want any backfill where the asphalt pavement is removed?
Answer: See Note 1 on Sheet 13 of the construction drawing set.

Question: Where new Curb & Gutter is replacing laydown curb, any backfill?
Answer: It is expected that the existing backfill will be used without needing to be excavated and replaced. Proof rolling will be used to identify any problem areas that may exist.

PROPOSAL

TO: Honorable Mayor and City Council
City of Midland
Midland, Texas

Gentlemen: The undersigned bidder, having examined the drawings, specifications and contract documents, the location of the proposed work, and being fully advised as to the extent and character of the work, proposes to furnish all material, equipment, and to perform all labor and work necessary for the completion of the construction of the work described by and in accordance with the attached drawings, specifications, and contract, for the following prices, to wit:

Project Name: "A" Street Mill And Inlay Paving Project

Project Number: BPU18-03

Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	4 MO	Mobilization, furnished, installed, complete and in place, for the sum of: _____ dollars and _____ cents per month. (Pay Note M1)	$_____	$_____
2)	4 MO	Erosion/Sediment Control, furnished, installed, complete and in place, for the sum of: _____ dollars and _____ cents per month. (Pay Note M2)	$_____	$_____
3)	4 MO	Traffic Control, furnished, installed, complete and in place, for the sum of: _____ dollars and _____ cents per month. (Pay Note M3)	$_____	$_____
4)	4 MO	Job Site Safety, furnished, installed, complete and in place, for the sum of: _____ dollars and _____ cents per month. (Pay Note M4)	$_____	$_____
5)	N/A	Material Mark-up, complete and in place, for the sum of: _____ percent. (Pay Note M5)	%_____	$_N/A_____

Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
6)	N/A	Labor Mark-up (Regular Work Hours), complete and in place, for the sum of: _____ percent. (Pay Note M6)	%_____	$_N/A_____
7)	N/A	Equipment Rental Mark-up (Non-Standard Equipment Only), complete and in place, for the sum of: _____ percent. (Pay Note M7)	%_____	$_N/A_____
Total Miscellaneous Items 1-7		$_____		

Demolition Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	3,799 SY	8" Milling Unclassified Asphalt Pavement, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note D1)	$_____	$_____
2)	2,862 SY	7" Milling Unclassified Asphalt Pavement, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note D1)	$_____	$_____
3)	26,030 SY	5" Milling Unclassified Asphalt Pavement, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note D1)	$_____	$_____
4)	1,050 LF	Removal & Disposal of Existing Concrete Curb & Gutter, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note D2)	$_____	$_____
5)	50 SY	Removal & Disposal of Existing Concrete Sidewalk & Ramps, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note D3)	$_____	$_____
6)	60 SY	Removal & Disposal of Existing Miscellaneous Concrete, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note D4)	$_____	$_____
Total Demolition Items 1-6		$_____		

Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	3,280 SY	8" Continuously Reinforced Concrete Pavement, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P1)	$_____	$_____
2)	700 SY	7" Continuously Reinforced Concrete Pavement, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P1)	$_____	$_____
3)	2,830 TON	2" Type D HMAC Asphalt Pavement Surface Course (PG70-22, 110 LBS / SY @ 1" Thick), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per ton. (Pay Note P2)	$_____	$_____
4)	4,240 TON	3" Type C HMAC Asphalt Pavement Surface Course (PG64-22, 110 LBS / SY @ 1" Thick), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per ton. (Pay Note P3)	$_____	$_____
5)	490 SY	Concrete-Asphalt Pavement Transition Sleeper Slab, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P4)	$_____	$_____
6)	5,140 GAL	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per gallon. (Pay Note P5)	$_____	$_____
7)	2,570 GAL	Tack Coat (MC-30 or AEP, 0.10 Gal / SY), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per gallon. (Pay Note P6)	$_____	$_____

Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
8)	340 SY	11" Concrete Median, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P7)	$_____	$_____
9)	260 SY	11" Concrete Directional Island, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P8)	$_____	$_____
10)	101 SY	8" Concrete Fillet, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P9)	$_____	$_____
11)	540 SY	7" Concrete Fillet, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P9)	$_____	$_____
12)	158 SY	8" Concrete Valley Gutter, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P10)	$_____	$_____
13)	1,282 SY	7" Concrete Valley Gutter, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P10)	$_____	$_____
14)	370 SY	6" Concrete Alley Approach, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P11)	$_____	$_____
15)	590 LF	Type A Concrete Curb & Gutter, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note P12)	$_____	$_____

Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
16)	510 LF	Type D Concrete Curb & Gutter, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note P12)	$_____	$_____
17)	11 LF	Type I Concrete Curb & Gutter, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note P12)	$_____	$_____
18)	570 SY	Concrete Pedestrian Access Ramp, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P13)	$_____	$_____
19)	1,150 SY	4" Concrete Sidewalk, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P14)	$_____	$_____
20)	4 EA	Storm Inlet Ring & Cover Adjustment, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per each. (Pay Note P15)	$_____	$_____
21)	13 EA	Manhole Ring & Cover Adjustment, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per each. (Pay Note P15)	$_____	$_____
22)	66 EA	Water Valve Box Ring & Cover Adjustment, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per each. (Pay Note P15)	$_____	$_____
23)	115 SY	Flowable Fill / 2-Sack Backfill, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P16)	$_____	$_____

Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
Total Paving Items 1-23		$_____		

Traffic Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	11 EA	Ground Box (Type C) (per TxDOT Item 624-6007), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
2)	10 EA	Remove Ground Box (per TxDOT Item 624-6028), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
3)	1,770 LF	Conduit (2", PVC, Schedule 80, Trenched) (per TxDOT Item 618-6046), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
4)	477 LF	Electrical Conductor (6 AWG, Bare) (per TxDOT Item 620-6009), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
5)	3 EA	Remove Small Sign Assembly (per TxDOT Item 644-6076), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
6)	6 EA	Install Highway Traffic Signal (System) (per TxDOT Item 680-6003), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
7)	477 LF	Traffic Signal Cable (Type A, 14 AWG, 3 conductor) (per TxDOT Item 684-6029), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
8)	6 EA	Pedestrian Pole Assembly (per TxDOT Item 687-6001), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____

Traffic Items				
Item No.	Quantity	Description	Unit Price	Total Amount
9)	1 EA	Remove Pedestrian Pole Assembly (per TxDOT Item 687-6005), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
10)	37 EA	Pedestrian Detection Push Button (Standard) (per TxDOT Item 688-6002), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1, T2)	$_____	$_____
11)	14 EA	Pedestrian Signal Section (LED, Countdown) (per TxDOT Item 682-6018), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
12)	2 EA	Remove Pedestrian Signal LED Traffic Signal Lamp Unit (per TxDOT Item 690-6094), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
13)	41 LF	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Solid, 100 mil) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
14)	1,319 LF	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Broken, 100 mil) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
15)	1,541 LF	Retroreflectorized Pavement Markings (Type I, White, 8 inch, Solid, 100 mil) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____

Traffic Items				
Item No.	Quantity	Description	Unit Price	Total Amount
16)	2,033 LF	Retroreflectorized Pavement Markings (Type I, White, 24 inch, Solid, 100 mil) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
17)	6,520 LF	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Solid, 100 mil) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
18)	863 LF	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Broken, 100 mil) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
19)	19 EA	Retroreflectorized Pavement Markings (Type I, White, Arrow, 100 mil) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
20)	34 EA	Retroreflectorized Pavement Markings (Type I, White, 18 inch, Yield Triangle, 100 mil) (per TxDOT Item 666 or 668), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
21)	430 LF	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Solid, 2 coats) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____

Traffic Items				
Item No.	Quantity	Description	Unit Price	Total Amount
22)	41 LF	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Broken, 2 coats) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
23)	168 LF	Retroreflectorized Pavement Markings (Type II, White, 8 inch, Solid, 2 coats) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
24)	328 LF	Retroreflectorized Pavement Markings (Type II, White, 24 inch, Solid, 2 coats) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per linear foot. (Pay Note T1)	$_____	$_____
25)	623 EA	Retroreflectorized Pavement Markings (Type II, Yellow, 4 inch, Solid, 2 coats) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
26)	6 EA	Retroreflectorized Pavement Markings (Type II, White, Arrow, 2 coats) (per TxDOT Item 666), complete, for the sum of: _____dollars and _____cents per each. (Pay Note T1)	$_____	$_____
Total Traffic Items 1-26		$_____		

Price For:	
1. Miscellaneous Items	$_____
2. Demolition Items	$_____
3. Paving Items	$_____
4. Traffic Items	$_____
Total Price	$_____

In addition to providing the individual prices for the items above, Contract shall write the total bid amount in the sum of

_____dollars

and _____ cents total.

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the contract documents pertaining to the work covered by the above bid. The selected contractor will receive written notice to proceed.

Bidder agrees to substantially complete all work within _120_ calendar days after receipt of notice to proceed.

PUBLIC INFORMATION

To the extent that Bidder is submitting a bid for a contract described by Section 552.371 of the Texas Government Code, Bidder agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this bid, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

Enclosed herewith in this proposal is a cashier's check, cash or bid bond on a form approved by the City Attorney, for

_____dollars

and _____ cents total. ($_____)

which it is agreed shall be collected and retained by the owner as liquidated damages in the event this proposal is accepted by the Owner within thirty days (30) after the date advertised for the reception of bids and the undersigned fails to execute the contract and required bonds with the owner, under the conditions thereof, within (15) days after the date said proposal is accepted; otherwise said check or bond shall be returned to the undersigned on demand.

_____

Name of Contractor

Submitted By	Print Name and Title	
Mailing Address		
City	State	Zip

PAY NOTES

"A" Street Mill And Inlay Paving Project

Bid Item		Pay Quantity Note
Miscellaneous Items		
1	Mobilization	M1
2	Erosion/Sediment Control	M2
3	Traffic Control	M3
4	Job Site Safety	M4
5	Material Mark-up	M5
6	Labor Mark-up	M6
7	Equipment Rental Markup	M7
Demolition Items		
1	8" Milling Unclassified Asphalt Pavement	D1
2	7" Milling Unclassified Asphalt Pavement	D1
3	5" Milling Unclassified Asphalt Pavement	D1
4	Removal & Disposal of Existing Concrete Curb & Gutter	D2
5	Removal & Disposal of Existing Concrete Sidewalk & Ramps	D3
6	Removal & Disposal of Existing Miscellaneous Concrete	D4
Paving Items		
1	8" Continuously Reinforced Concrete Pavement	P1
2	7" Continuously Reinforced Concrete Pavement	P1
3	2" Type D HMAC Asphalt Pavement Surface Course (PG70-22, 110 LBS / SY @ 1" Thick)	P2
4	3" Type C HMAC Asphalt Pavement Surface Course (PG64-22, 110 LBS / SY @ 1" Thick)	P3
5	Concrete-Asphalt Pavement Transition Sleeper Slab	P4
6	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	P5
7	Tack Coat (MC-30 or AEP, 0.10 Gal / SY)	P6
8	11" Concrete Median	P7
9	11" Concrete Directional Island	P8
10	8" Concrete Fillet	P9
11	7" Concrete Fillet	P9
12	8" Concrete Valley Gutter	P10
13	7" Concrete Valley Gutter	P10
14	6" Concrete Alley Approach	P11
15	Type A Concrete Curb & Gutter	P12
16	Type D Concrete Curb & Gutter	P12
17	Type I Concrete Curb & Gutter	P12
18	Concrete Pedestrian Access Ramp	P13
19	4" Concrete Sidewalk	P14
20	Storm Inlet Ring & Cover Adjustment	P15
21	Manhole Ring & Cover Adjustment	P15
22	Water Valve Box Ring & Cover Adjustment	P15
23	Flowable Fill / 2-Sack Backfill	P16

Traffic Items

1	Ground Box (Type C) (per TxDOT Item 624-6007)	T1
2	Remove Ground Box (per TxDOT Item 624-6028)	T1
3	Conduit (2", PVC, Schedule 80, Trenched) (per TxDOT Item 618-6046)	T1
4	Electrical Conductor (6 AWG, Bare) (per TxDOT Item 620-6009)	T1
5	Remove Small Sign Assembly (per TxDOT Item 644-6076)	T1
6	Install Highway Traffic Signal (System) (per TxDOT Item 680-6003)	T1
7	Traffic Signal Cable (Type A, 14 AWG, 3 conductor) (per TxDOT Item 684-6029)	T1
8	Pedestrian Pole Assembly (per TxDOT Item 687-6001)	T1
9	Remove Pedestrian Pole Assembly (per TxDOT Item 687-6005)	T1
10	Pedestrian Detection Push Button (Standard) (per TxDOT Item 688-6002)	T1, T2
11	Pedestrian Signal Section (LED, Countdown) (per TxDOT Item 682-6018)	T1
12	Remove Pedestrian Signal LED Traffic Signal Lamp Unit (per TxDOT Item 690-6094)	T1
13	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Solid, 100 mil) (per TxDOT Item 666)	T1
14	Retroreflectorized Pavement Markings (Type I, White, 4 inch, Broken, 100 mil) (per TxDOT Item 666)	T1
15	Retroreflectorized Pavement Markings (Type I, White, 8 inch, Solid, 100 mil) (per TxDOT Item 666)	T1
16	Retroreflectorized Pavement Markings (Type I, White, 24 inch, Solid, 100 mil) (per TxDOT Item 666)	T1
17	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Solid, 100 mil) (per TxDOT Item 666)	T1
18	Retroreflectorized Pavement Markings (Type I, Yellow, 4 inch, Broken, 100 mil) (per TxDOT Item 666)	T1
19	Retroreflectorized Pavement Markings (Type I, White, Arrow, 100 mil) (per TxDOT Item 666)	T1
20	Retroreflectorized Pavement Markings (Type I, White, 18 inch, Yield Triangle, 100 mil) (per TxDOT Item 666 or 668)	T1
21	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Solid, 2 coats) (per TxDOT Item 666)	T1
22	Retroreflectorized Pavement Markings (Type II, White, 4 inch, Broken, 2 coats) (per TxDOT Item 666)	T1
23	Retroreflectorized Pavement Markings (Type II, White, 8 inch, Solid, 2 coats) (per TxDOT Item 666)	T1
24	Retroreflectorized Pavement Markings (Type II, White, 24 inch, Solid, 2 coats) (per TxDOT Item 666)	T1
25	Retroreflectorized Pavement Markings (Type II, Yellow, 4 inch, Solid, 2 coats) (per TxDOT Item 666)	T1
26	Retroreflectorized Pavement Markings (Type II, White, Arrow, 2 coats) (per TxDOT Item 666)	T1

PAY QUANTITY NOTES

M1 Includes the necessary equipment, labor, materials, and incidentals for all Mobilization to the job site complete and in place. Measurement and payment to be made per month.

M2 Includes the necessary equipment, labor, materials, and incidentals to implement the Erosion Control Plan per the construction drawings and City of Midland standards and specifications. Measurement and payment to be made per month.

M3 Includes the necessary equipment, labor, materials, and incidentals to implement the Traffic Control per the approved Traffic Control Plan. Any required traffic control devices are to meet the City of Midland Traffic Division Standards. Measurement and payment to be made per month.

M4 Includes the necessary equipment, labor, materials, and incidentals to implement Job Site Safety and to provide a safe work environment for the project work area (including all personal protection equipment, trench safety, etc.) per the construction drawings and in compliance with all applicable Federal, State, and Local requirements or regulations including those of OSHA and the City of Midland. JOB SITE SAFETY IS THE RESPONSABILITY OF THE CONTRACTOR. Measurement and payment to be made per month.

M5 Includes the Material Mark-up for materials and material sizes (pipe, valve, manhole, etc.) required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of the material in question plus the set percent increase established by this bid item. The Contractor must provide a copy of the invoice for the material cost from the supplier to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any material. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

M6 Includes the Labor Mark-up (Regular Work Hours) for labor required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of labor in question plus the set percent increase established by this bid item. The Contractor must provide a typical hourly pay rate for work crews prior to the percent increase along with the number of workers on the crew and the number of hours worked by the crew for the project in question to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any labor. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

M7 Includes the Equipment Rental Mark-up (non-standard equipment only) required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of the equipment rental in question plus the set percent increase established by this bid item. The Contractor must provide a copy of the invoice for the rented equipment from the equipment supplier to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any rented equipment. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

D1 Includes the necessary equipment, labor, materials, and incidentals for Milling Unclassified Asphalt Pavement per the construction drawings and City of Midland standards and specifications, including all appurtenances. Pavement material is to be removed in its entirety at the indicated depth. No additional compensation will be made for increased pavement depth removal. Pavement edges are to be clean, straight, and clearly defined edges free of breaks. Measurement and payment to be made per square yard measured along the ground surface.

D2 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Concrete Curb & Gutter per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per linear foot measured along the back of curb.

D3 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Concrete Sidewalk & Ramps per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

D4 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Miscellaneous Concrete per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P1 Includes the necessary equipment, labor, materials, and incidentals for placement of Continuously Reinforced Concrete Pavement per the construction drawings and City of Midland standards and specifications, including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P2 Includes the necessary equipment, labor, materials, and incidentals for the placement of Type "D" HMAC Asphalt Pavement Surface Course (PG 70-22, 110 LBS / SY at 1" thick) per the construction drawings and City of Midland standards and specifications, including all placement, compaction, and appurtenances. Measurement and payment to be made per ton of material placed.

P3 Includes the necessary equipment, labor, materials, and incidentals for the placement of Type "C" HMAC Asphalt Pavement Surface Course (PG 64-22, 110 LBS / SY at 1" thick) per the construction drawings and City of Midland standards and specifications, including all placement, compaction, and appurtenances. Measurement and payment to be made per ton of material placed.

P4 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete-Asphalt Pavement Transition Sleeper Slab per the construction drawings and City of Midland standards and specifications, including all forming, reinforcement, placement, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P5 Includes the necessary equipment, labor, materials, and incidentals for application of Bituminous Prime Coat (MC-30, or AEP, 0.20 GAL / SY) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per gallon of material applied at the designated rate.

P6 Includes the necessary equipment, labor, materials, and incidentals for application of Tack Coat (MC-30 or AEP, 0.10 GAL / SY) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per gallon of material applied at the designated rate.

P7 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Median per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P8 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Directional Island per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P9 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Fillet per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Curb section is formed and poured monolithically with fillet and is not a separate bid item. Measurement and payment to be made per square yard measured along the ground surface.

P10 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Valley Gutter per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P11 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Alley Approach per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. Pedestrian access ramps at the alley approach are considered part of the approach and are not a separate bid item. Measurement and payment to be made per square yard measured along the ground surface.

P12 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Curb & Gutter per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, finishing, and appurtenances. Measurement and payment to be made per linear foot measured along the back-of-curb.

P13 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Pedestrian Access Ramp per the construction drawings and City of Midland standards and specifications, including all forming, reinforcement, placement, jointing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

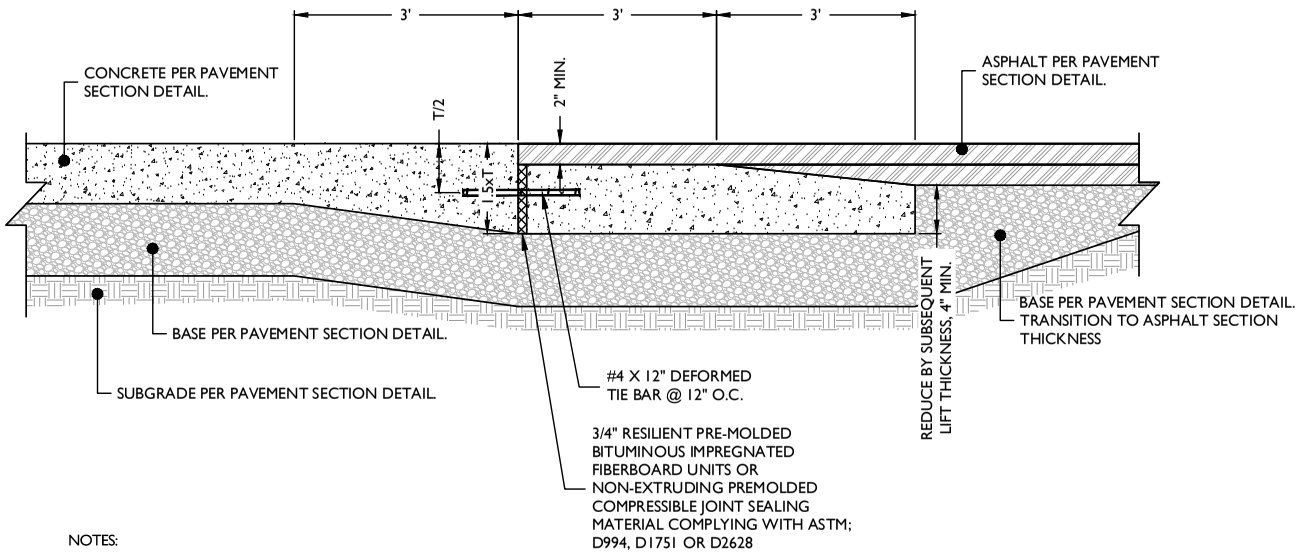
P14 Includes the necessary equipment, labor, materials, and incidentals for placement of Concrete Sidewalk per the construction drawings and City of Midland standards and specifications, including all forming, reinforcement, placement, jointing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P15 Includes the necessary equipment, labor, materials, and incidentals for Ring & Cover Adjustment per the construction drawings and City of Midland standards and specifications including all forming, reinforcement, placement, jointing, sealing, finishing, and appurtenances. This includes a minimum 1.0' wide concrete collar whose width is measured from the outer edge of the cover to the outer edge of the concrete ring. Measurement and payment to be made per each adjustment made.

P16 Includes the necessary equipment, labor, materials, and incidentals for installation of Flowable Fill / 2-Sack Backfill (Portland Cement 2 Sack = 188 LBS/CY) per the construction drawings and City of Midland standards and specifications, including all reinforcement, placement, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

T1 Includes the necessary equipment, labor, materials, and incidentals to perform the work for the pay item per the construction drawings and the most recent Texas Department of Transportation (TxDOT) standards and specifications, including all appurtenances. Measurement and payment to be made as per the TxDOT-specified method of measurement for the unit listed herein.

T2 City to provide APS 4-wire system. Contractor to install under this pay item.



NOTES:

- CONCRETE MATERIALS AND REINFORCEMENT PER THE PAVEMENT SECTION DETAIL.
- THE MAXIMUM CONTROL JOINT SPACING SHOULD BE HELD AT A RANGE FROM 24 TO 36 TIMES THE SLAB THICKNESS, WITH A MAXIMUM LENGTH TO WIDTH RATIO OF 1.5.

1 SLEEPER SLAB TRANSITION

N.T.S.

CITY OF MIDLAND
"A" STREET MILL AND INLAY PAVING PROJECT
FROM INDIANA AVE TO CUTHBERT AVE

OCTOBER 2020

CONTRACTOR _____

DATE CONTRACTOR BEGAN WORK _____

DATE WORK WAS COMPLETED _____

DATE WORK WAS ACCEPTED _____

FINAL CONTRACT COST _____

MAYOR
PATRICK PAYTON

COUNCIL MEMBERS

SCOTT DUFFORD	DISTRICT 1
JOHN NORMAN	DISTRICT 2
JACK LADD	DISTRICT 3
LORI BLONG	DISTRICT 4
SPENCER ROBNETT	AT LARGE
MICHAEL TROST	AT LARGE

INTERIM CITY MANAGER
ROBERT PATRICK

ENGINEERING SERVICES DIRECTOR
JOSE E. ORTIZ

CITY ENGINEER
MATT C. CARR, P.E.
OFFICE: (432) 685-7286

TRANSPORTATION MANAGER
GABE McCLELLAND
OFFICE: (432) 685-7983

SHEET INDEX

SHEET NO.			DESCRIPTION
1			COVER PAGE
2			PROJECT LAYOUT
3	–	6	GENERAL NOTES
7			QUANTITY SUMMARY
8			SURVEY CONTROL DATA
9			HORIZONTAL ALIGNMENT DATA
10	–	11	TYPICAL SECTIONS
12	–	16	PLAN SHEETS
17	–	20	TRAFFIC SIGNAL IMPROVEMENTS
21	–	33	STANDARD DETAILS
34	–	37	PAVEMENT MARKING PLANS

CITY OF MIDLAND
APPROVED
10.20.2020
ENGINEERING

AUTHORIZATION TO CONSTRUCT CITY INFRASTRUCTURE

The issuance or granting of this APPROVAL shall not be construed to be an authorization for any violation of any of the provisions of the City Code, of any City Ordinance, of the City Standard Details & Specifications, or of any other ordinance or adopted policy of the City of Midland jurisdiction. APPROVALS presuming to give authority to violate or cancel the provisions of of the City Code, of any City Ordinance, of the City Standard Details & Specifications, or of any other ordinance or adopted policy of the City of Midland jurisdiction shall not be valid. The issuance of this APPROVAL, based on the construction drawings and other data submitted to the Engineering Services Department shall not prevent the Director of Engineering Services Department from requiring the correction of errors in the construction drawings and other data. The Director of Engineering Services Department is authorized to deny acceptance or use of infrastructure where such infrastructure is in violation of the City Code, of any City Ordinances, of the City Standard Details & Specifications, or of any other ordinance or adopted policy of the City of Midland jurisdiction.

SUBMITTED Pedro Carrasco Jr. 10/21/2020
ENGINEER

RECOMMENDED Matt Carr 10/21/2020
CITY ENGINEER

RECOMMENDED Jose E. Ortiz 10/21/2020
ENGINEERING SERVICES DIRECTOR

TDLR INSPECTION NO. _____

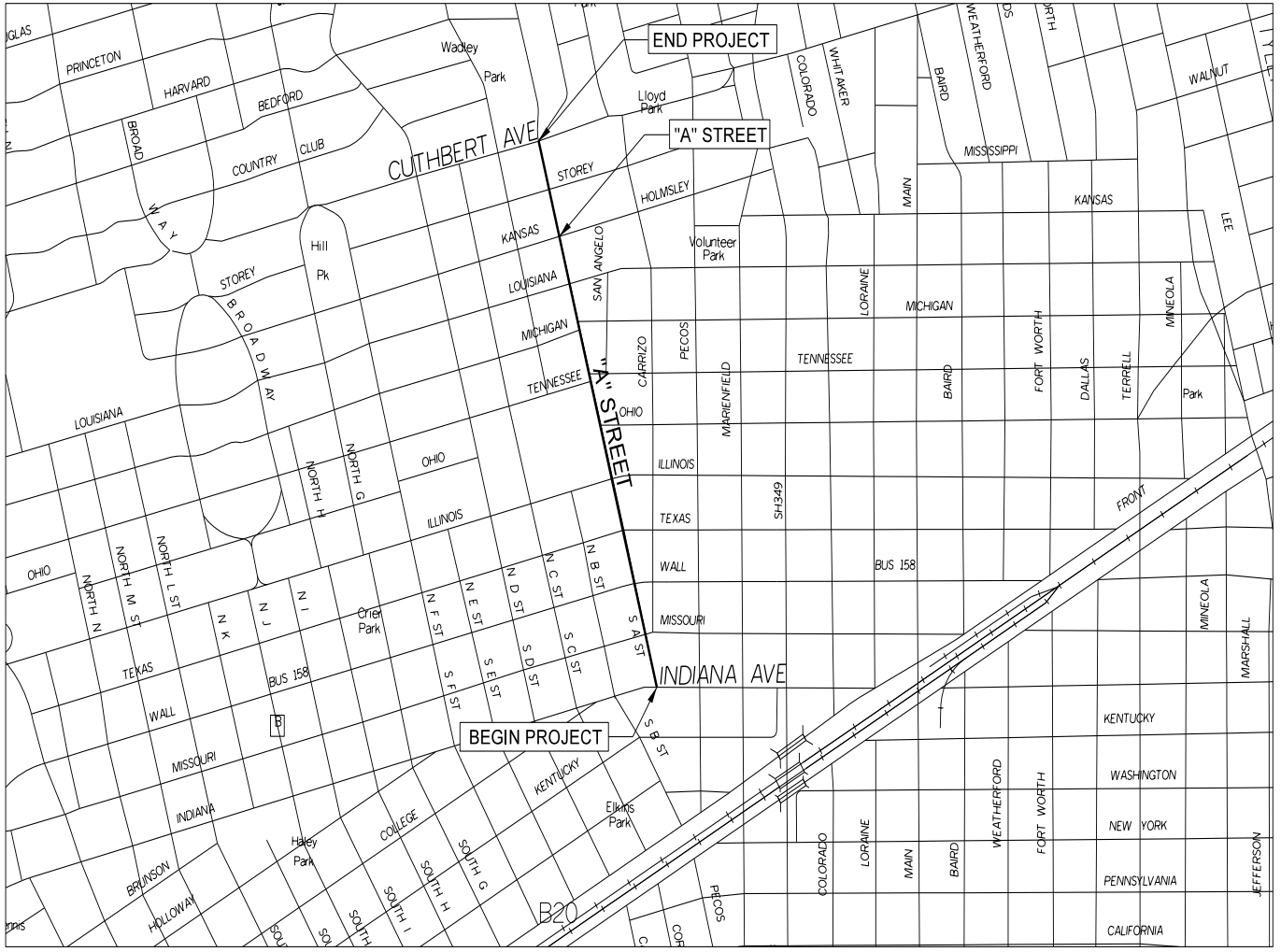
811 Know what's below. Call before you dig.

MIDLAND Feel the Energy!

STATE OF TEXAS
PEDRO CARRASCO JR.
98380
LICENSED PROFESSIONAL ENGINEER
10/21/2020
Pedro Carrasco Jr.

Kimley»Horn
F-928

"A" STREET PROJECT LAYOUT



LIST OF STREETS			
NAME	FROM	TO	LENGTH MILE
"A" STREET	INDIANA AVE	CUTHBERT AVE	0.8

PACKET

7.604

December 15, 2020

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

"A" STREET
PROJECT LAYOUT

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
2

BENCHMARK:

ALL BEARINGS, DIMENSIONS, AND COORDINATES SHOWN IN THE CONSTRUCTION DRAWING SET ARE RELATED TO THE TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS CENTRAL ZONE, NORTH AMERICAN DATUM 1983. ALL ELEVATIONS ARE RELATED TO THE NATIONAL GEODETIC VERTICAL DATUM 1988.

HORIZONTAL AND VERTICAL MEASUREMENTS, BASED ON THE STATE AND NATIONAL SYSTEMS SPECIFIED ABOVE, ARE SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND SURVEY CONTROL.

GENERAL:

1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF MIDLAND AND TXDOT SPECIFICATIONS. CONTRACTOR TO CONTACT THE CITY OF MIDLAND ENGINEERING SERVICES AT 432-685-7415 48 HOURS IN ADVANCE TO COORDINATE WORK.

2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A PROJECT SCHEDULE TO CITY STAFF PRIOR TO CONSTRUCTION. THE SCHEDULE WILL OUTLINE THE ANTICIPATED START AND END DATES FOR EACH PHASE OF THE MILL AND INLAY PROJECT.

3. CONTRACTOR IS RESPONSIBLE FOR OBSERVING AND COMPLYING WITH ALL FEDERAL AND STATE REGULATIONS AND REQUIREMENTS.

4. THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING UTILITY INFORMATION PRIOR TO CONSTRUCTION AND NOTIFYING THE CITY ENGINEER OF ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND PROJECT CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL FRANCHISE CONFLICTS AND RELOCATIONS WITH CITY AND FRANCHISE OWNERS.

5. THE INTENT OF THE MILL/OVERLAY PROJECT AT ALL ADJACENT STREET AND INTERSECTIONS IS SURFACE IMPROVEMENTS. THE CONTRACTOR WILL ENSURE POSITIVE SURFACE DRAINAGE IN THE MILL AND INLAY AREAS WITH SPECIAL ATTENTION TO SURFACE DRAINAGE WITHIN ALL INTERSECTIONS.

6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL REQUIRED TESTING FOR ANY AND ALL MATERIALS AND WORKMANSHIP PERFORMED OR INSTALLED AS PART OF THE PROJECT'S WORK. THE COST OF ALL SUCH TESTING SHALL BE BORNE SOLELY BY THE CONTRACTOR. THE COST OF TESTING REWORK RESULTING FROM A FAILED TEST WILL ALSO BE BORNE BY THE CONTRACTOR. CONTRACTOR'S COOPERATION WILL BE REQUIRED FOR MATERIAL SAMPLING BY THE CITY'S MATERIAL TESTING CONSULTANT.

7. ANY ISSUES, CONFLICTS, OR DISCREPANCIES ENCOUNTERED IN THE FIELD THAT CONFLICT WITH THE DESIGN DRAWINGS ARE TO BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER PRIOR TO MAKING ANY DESIGN CHANGES IN THE FIELD.

8. OSHA REQUIREMENTS AND ALL OTHER APPLICABLE FEDERAL, STATE, OR CITY OF MIDLAND SAFETY REQUIREMENTS ARE TO BE FOLLOWED AND COMPLIED WITH AT ALL TIMES.

REQUIRED TESTING AND PROOF OF REPORTING WILL INCLUDE:

BASE – ALL BASE COURSES WILL BE PROOF ROLLED IN ACCORDANCE WITH CITY OF MIDLAND STANDARDS. ALL AREAS IDENTIFIED AS FAILING DURING PROOF ROLLING ARE TO BE REPAIRED IN A METHOD APPROVED BY THE ENGINEER.

ASPHALT HOT MIX – A NUCLEAR GAGE DENSITY TEST WILL BE REQUIRED FOR EVERY 250 LINEAR FEET OF ASPHALT PASS. THE ACCEPTABLE FIELD DENSITY RANGE FOR CONSTRUCTION OF THIS PROJECT WILL BE 93% - 98% WITH A TARGET DENSITY OF 96.5%. TEST RESULTS WILL BE GIVEN TO THE CITY ENGINEER UPON COMPLETION OF EACH TEST.

CONCRETE – 1 SLUMP TEST FOR EVERY CYLINDER SET (3 TEST CYLINDERS), AND NO LESS THAN 1 CYLINDER SET PER DAY WHEN CONCRETE IS PLACED. TEST RESULTS SHALL BE GIVEN TO THE ENGINEER UPON COIMPLETION OF EACH TEST. 1 CYLINDER SET FOR EVERY:

A. 50 CY OF CONCRETE PLACED ON CONCRETE STREET INTERSECTION
B. 2 SETS OF FILLETS AND VALLEY GUTTERS AT STREET APPROACHES (1 SET = 2 FILLETS AND 1 VALLEY GUTTER)
C. THERE WILL BE NO TESTING FOR CURB, RAMPS, AND SIDEWALKS.

7. THE ALIGNMENT SHOWN ON THE PLANS IS THE CONTROL FOR CONTRACTOR STAKING. REFER TO HORIZONTAL ALIGNMENT DATA SHEET. ESTABLISH REFERENCE POINTS FOR THE CONTROL PRIOR TO REMOVING THE EXISTING SURFACE AND PAVEMENT MARKINGS.

EXISTING INFRASTRUCTURE:

1. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL EXISTING INFRASTRUCTURE, BOTH PUBLIC AND PRIVATE (INCLUDING CAST IRON FEATURES), FROM ANY DAMAGE DUE TO CONSTRUCTION ACTIVITY NOT CALLED FOR IN THE CONSTRUCTION DRAWING SET. THE CONTRACTOR WILL REPLACE OR REPAIR, AS DIRECTED BY THE CITY, ANY STRUCTURES DAMAGED DURING THE LIFE OF THE CONTRACT. NO PAYMENT WILL BE MADE FOR REPAIR OR REPLACEMENT OF DAMAGED ITEMS.

2. REPLACEMENT OF CAST IRON RING & COVER (R&C) AND VALVE BOXES WILL BE ACCOMPLISHED BY REMOVING ALL NECESSARY CONCRETE/ASPHALT AND SALVAGING THE EXISTING R&C AND VALVE BOX (PRIOR TO THE MILLING OPERATION). UPON COMPLETION OF THE REMOVAL, THE AFFECTED AREAS WILL BE PLATED AND PREPARED FOR ASPHALT PLACEMENT. ONCE THE ASPHALT SURFACE COURSE HAS BEEN COMPLETED, THE ASPHALT WILL BE SAW CUT AND THE R&C OR VALVE BOX

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

"A" STREET
GENERAL NOTES
SHEET 1 OF 4

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET 3

10.20.2020 &[Date]

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

ADJUSTED TO THE APPROPRIATE GRADE AND CONSTRUCTED IN ACCORDANCE WITH STANDARD CITY SPECIFICATIONS. ALL CONCRETE RINGS AROUND UTILITY COVERS ARE TO BE 1' MINIMUM WIDTH MEASURED FROM OUTER EDGE OF UTILITY COVER.

3. EXISTING PAVEMENT DAMAGED DURING CONSTRUCTION ACTIVITIES WILL BE REPAIRED OR REPLACED WITH SAME PAVEMENT SECTION OR BETTER THAN THE EXISTING PAVEMENT SECTION.

4. ALL EXISTING MANHOLES AND VALVES ARE TO BE ADJUSTED TO FINISHED ROADWAY ELEVEATION, MATCHING THE FINISH CROSS-SLOPE, INCLUDING CONCRETE RINGS AS PER STANDARD DETAILS.

MILLING:

1. MILLING AND CLEANING OF EXISTING PAVEMENT – MILL DESIGNATED AREA TO A DEPTH OF 5" TO 7", DEPENDING ON LOCATIONS SPECIFIED IN THE PLANS, USING A SELF-PROPELLED ASPHALT PLANNER. CARE SHOULD BE TAKEN TO ENSURE THAT THE SPECIFIED DEPTH AND CROSS-SLOPE IS MAINTAINED. PERFORM MILLING OPERATION, INCLUDING REMOVAL OF THE MILLED MATERIAL, IN A MANNER THAT PREVENTS DUST AND OTHER PARTICULATE MATTER FROM ESCAPING INTO THE AIR. MILLINGS WILL BECOME THE PROPERTY OF THE CONTRACTOR AND ARE TO BE HAULED AWAY AND DISPOSED OF ACCORDING TO LOCAL, STATE, AND FEDERAL REGULATIONS.

2. ENSURE THAT THE MILLED AREA IS FREE FROM GOUGES, CONTINUOUS GROOVES, RIDGES, AND DELAMINATED AREAS AND HAS A UNIFORM TEXTURE. CORRECT DEVIATIONS GREATER THAN 1/4 INCH IN 16 FT. MEASURED LONGITUDINALLY OR GREATER THAN 1/4 INCH OVER THE ENTIRE WIDTH OF THE CROSS SECTION. CORRECT BY LOOSENING, ADDING OR REMOVING MATERIAL AND RECOMPACT, AS NECESSARY. IF PAVEMENT BELOW THE SPECIFIED MILLING LEVEL BECOMES DISLODGED OR DELAMINATED, REMOVE AND REPLACE. WHEN THE UNDERLYING ROCK BASE IS EXPOSED AFTER MILLING, THE SURFACE WILL BE FINISHED TO A SMOOTH SURFACE BY BLADING, WATER, AND COMPACTING. ALL MILLED SURFACES WILL BE PROOF - ROLLED IN ACCORDANCE WITH CITY OF MIDLAND STANDARDS PRIOR TO THE APPLICATION OF A TACK COAT. ALL AREA IDENTIFIED AS FAILING DURING PROOF - ROLLING ARE TO BE REPAIRED PRIOR TO PAVING.

3. EXCEPT WHERE CONCRETE VALLEY GUTTERS EXIST, SAW CUT AT THE LIMITS OF PAVING AT INTERSECTIONS AND AT OTHER LIMITS REQUIRING A NEAT EDGE BETWEEN NEW AND EXISTING PAVEMENT. BLADE AND/OR CLEAN WITH MECHANICAL SWEEPER THE MILLED AREA BEFORE OPENING TO TRAFFIC OR BEFORE THE SUBSEQUENT TACK COAT AND RESURFACING.

4. WHEN THE MILLED SURFACE IS OPENED TO TRAFFIC A "WEDGE" OF MATERIAL WILL BE PLACED LONGITUDINALLY BETWEEN LANES, AT INTERSECTIONS AND AT DRIVEWAYS. THE "WEDGE" WILL BE REMOVED AND PROPERLY DISPOSED OF PRIOR TO PAVING OPERATIONS. MATERIAL WILL BE AS APPROVED BY ENGINEER. AT TRANSVERSE EDGES OF MILLED AREAS, PROVIDE A SMOOTH TRANSITION FROM THE MILLED SURFACE TO THE EXISTING PAVEMENT.

PAVING AND CONCRETE:

1. RAMPS WILL BE ADA COMPLIANT AND BUILT TO THE CITY OF MIDLAND STANDARD SPECIFICATIONS AND DETAILS.

2. PRIOR TO PAVING ACTIVITIES, ALL EXISTING BASE COURSE OR REMAINING MATERIAL WILL BE PROOF ROLLED WITH A MINIMUM 25 TON PNEUMATIC ROLLER.

3. SAWCUT AND REMOVE EXISTING ASPHALTIC PAVEMENT AT PROJECT OR DAILY LIMITS BY AN APPROVED METHOD. BEFORE PAVING, THE EXISTING SURFACE WILL BE SAW CUT AT LEAST 6 INCHES BEYOND ALL SIDES OF THE MILLED AREA, OR THE LIMITS OF BROKEN OR UNDERMINED PAVEMENT. SQUARE OFF EDGES OF THE SURFACE PAVEMENT TO A 90 DEGREE ANGLE TO THE ROADWAY CENTERLINE. OFFSET THE JOINT IN THE SURFACE COURSE FROM THE LANE LINES BY 6 INCHES. WHEN CONSTRUCTING A JOINT BETWEEN LANES OF OPPOSING TRAFFIC, OFFSET THE JOINT BY 6 INCHES INTO EITHER LANE.

4. ENSURE FINISHED SURFACE OF HOTMIX PAVEMENT IS PLACED FLUSH WITH THE LIP OF EXISTING AND PROPOSED CURB.

5. ALL CONCRETE PAVEMENT JOINTS MUST BE SEALED WITH TEXAS DEPARTMENT OF TRANSPORTAION (TxDOT) DMS-6310 SL-2 SEAL AND, AN AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) D 1190 HOT-APPLIED SINGLE COMPONENT JOINT SEALANT, OR A CITY OF MIDLAND APPROVED EQUAL. THIS DOES NOT INCLUDE PEDESTRIAN ACCESS RAMPS, SIDEWALKS, OR JOINTS BETWEEN CURBS.

6. USE AND PLACE APPROVED EXPANSION JOINT MATERIAL BETWEEN THE EXISTING CURB AND THE PROPOSED CURBS.

7. USE POLYPROPYLENE FIBER REINFORCING WHEN REQUIRED AT A RATE OF 1.5 LBS/CY IN LIEU OF WIRE REINFORCING. REBAR REINFORCEMENT ONLY TO BE USED WHEN SPECIFICALLY CALLED FOR ON PLANS.

8. PRIME COAT WILL BE APPLIED AS PER CITY STANDARD SPECIFICATION ON TOP OF ALL PREPARED BASE COURSE SURFACES. PRIME COAT MATERIAL WILL BE MEASURED BY THE GALLON OF ASPHALT BEFORE DILUTION. WATER WILL NOT BE INCLUDED IN THE MEASUREMENT FOR PAYMENT.

9. TACK COAT WILL BE UNIFORMLY SPRAYED USING THE MATERIALS AND METHODS OUTLINED IN THE CITY OF MIDLAND'S STANDARD SPECIFICATIONS. UNIFORMLY APPLY TACK COAT TO ALL LONGITUDINAL AND TRANSVERSE JOINTS. CORRECT UNCOATED OR LIGHTLY COATED AREAS. BLOT AREAS SHOWING AN EXCESS OF TACK COAT WITH SAND OR OTHER SIMILAR MATERIAL AND REMOVE BLOTTING MATERIAL BEFORE PAVING.

10. MAINTAIN SUBGRADE OR BASE IN A SMOOTH, CLEAN, COMPACTED CONDITION, AND TO ESTABLISHED LINE AND GRADE, UNTIL CONCRETE IS PLACED. KEEP SUBGRADE OR BASE DAMP WITH WATER UNTIL PAVEMENT CONCRETE IS PLACED.

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

"A" STREET
GENERAL NOTES
SHEET 2 OF 4

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
4

10.20.2020 &[Date]

11. CONSTRUCT HYDRAULIC CEMENT CONCRETE PAVEMENT, CONCRETE FLATWORK, CONCRETE FILLETS, AND CURB-AND-GUTTERS TO LINES AND GRADES SHOWN ON THESE CONSTRUCTION DRAWINGS AND SPECIFICATIONS. SET AND MAINTAIN A GUIDELINE TO MONITOR GUTTER LINE.

12. PROVIDE CONCRETE WITH A CITY STANDARD SLUMP UNLESS OTHERWISE NOTED ON THE PLANS.

13. PROVIDE CONCRETE WITHIN 45 MINUTES OF BATCHING. USE VIBRATORY EQUIPMENT TO CONSOLIDATE CONCRETE; DO NOT USE VIBRATORY EQUIPMENT TO DISTRIBUTE CONCRETE. SEGREGATED CONCRETE IS SUBJECT TO REJECTION.

14. SAWCUT ALL CONTROL JOINTS. JOINT SPACING TO BE MINIMUN 10'X10' AND MAXIMUM 15'X15' TYPICALLY. PLAN JOINT LAYOUT AROUND CURB RETURNS AND OTHER IRREGULAR FEATURES SUCH THAT JOINTS ARE PERPENDICULAR TO CURBS OR CONCRETE EDGES.

15. CURB-AND-GUTTERS CAN BE MANUALLY FORMED OR SLIPFORMED AND ARE TO BE PLACED SEPARATELY FROM PAVEMENTS EXCEPT FOR FILLETS OR IF OTHERWISE INDICATED IN CONSTRUCTION DRAWINGS. FOR FACE AND GUTTER, USE A TEMPLATE CONFORMING TO LINES AND DIMENSIONS SHOWN FOR APPROPRIATE CURB TYPE ON CITY OF MIDLAND STANDARD DETAIL DRAWINGS.

16. WHEN PLACED SEPARATELY FROM PAVEMENTS, TOOL JOINTS IN CURB-AND-GUTTERS, TAKING CARE NOT TO PULL PLASTIC CONCRETE OUT OF LINE WHEN RELEASING TOOL. IF PAVEMENT IS CONCRETE, MATCH JOINT LOCATIONS WITH PAVEMENT JOINTS. OTHERWISE, SPACE TOOLED CONTROL JOINTS NO MORE THAN 10' AND NO LESS THAN 2' IN CURB-AND-GUTTERS; SUBSTITUTE AN EXPANSION JOINT FOR EVERY 6TH CONTROL JOINT. PROVIDE EXPANSION JOINT BETWEEN NEW CURB-AND-GUTTERS AND EXISTING CURB-AND GUTTERS.

PAVEMENT MARKING:

1. IF REQUIRED TO REMOVE EXISTING PAVEMENT MARKINGS AND MARKERS, CONTRACTOR IS TO REPAIR EXCESSIVE DAMAGE TO THE PAVEMENT WITH AN APPROVED MATERIAL AT THE CONTRACTOR'S EXPENSE.

2. WHEN REQUIRED, REMOVED PAVEMENT MARKERS WILL BE DISPOSED OF PROPERLY.

3. THE CONTRACTOR WILL BE RESPONISBLE FOR THE REMOVAL AND PROPER DISPOSAL OF TEMPORARY MARKER TABS FROM THE PROJECT IN COORDINATION WITH THE PLACEMENT OF NEW MARKINGS.

4. NON-REMOVABLE WORK ZONE PAVEMENT MARKINGS WILL BE PAINT IN ACCORDANCE WITH TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) ITEM 666, TYPE II, OR OTHER APPROVED MATERIALS.

5. PERMANENT PAVEMENT MARKINGS WILL BE THERMOPLASTIC IN ACCORDANCE WITH TXDOT ITEM 666, TYPE I. FOR LONG-LINE MARKINGS, AND EITHER ITEM 666, TYPE 1, OR ITEM 668, FOR SHORT-LINE AND SYMBOL MARKINGS.

EROSION CONTROL:

1. CONTRACTOR WILL INSTALL BMP'S PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY ON PROJECT SITE IN COMPLIANCE WITH TCEQ AND CITY OF MIDLAND REQUIREMENTS.

2. CONTRACTOR IS TO MAINTAIN EROSION CONTROL MEASURES AT ALL TIMES. REPAIRS TO EXISTING EROSION CONTROL MEASURES ARE TO BE MADE IMMEDIATELY UPON DISCOVERY THAT SUCH REPAIRS ARE NEEDED.

3. CONTRACTOR IS TO MAINTAIN A REASONABLY CLEAN PROJECT SITE AT ALL TIMES. ANY SEDIMENT, DEBRIS, ETC. OUTSIDE THE PROJECT SITE ARE TO BE REMOVED PROMPTLY.

4. ANY ON-SITE STORAGE OF SPOILS, MATERIALS, OR EQUIPMENT ARE TO BE LOCATED WITHIN THE EXISTING "A" STREET RIGHT-OF-WAY DESIGNATED AS PART OF THE WORK ZONE AREA.

5. CONCRETE TRUCKS CANNOT UNDER ANY CIRCUMSTANCE WASHOUT IN ANY EXCAVATIONS OR TRENCHES THAT MAY EXIST IN THE PROJECT SITE AREA. CONTRACTOR IS TO PROVIDE A WASHOUT CONTAINER FOR CONCRETE TRUCKS AND MUST REMOVE ALL WASHOUT AND SPOILS FROM THE PROJECT SITE.

6. CONTRACTOR MUST REMOVE AND DISPOSE OF ACCUMULATED SILT AND SEDIMENT FROM EROSION CONTROLS WHEN IT REACHES A DEPTH EQUAL TO HALF (1/2) THE HEIGHT OF THE EROSION CONTROL MEASURE OR IMPAIRS THE EFFECTIVENESS OF THE EROSION CONTROL MEASURE.

7. INSPECT ALL EROSION CONTROL MEASURES AT PROJECT SITE A MINIMUM OF ONCE (1) EVERY FOURTEEN (14) DAYS AND IMMEDIATELY AFTER EVERY RAINFALL OR STORM EVENT.

8. ALL STOCKPILED SOILS ARE TO BE SURROUNDED BY SILT FENCE, SAND BAGS, OR AN EQUIVALENT MEASURE APPROVED BY THE ENGINEER.

9. ALL TEMPORARY EROSION CONTROL MEASURES MUST BE REMOVED FROM SITE UPON COMPLETION OF CONSTRUCTION AND SITE STABILZATION.

10. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ANY AND ALL OFF-SITE SILTATION CAUSED BY THEIR OPERATIONS AND/OR FAILURE OF EROSION CONTROL MEASURES AT NO ADDITIONAL COST TO THE CITY OF MIDLAND.

11. IMPLEMENT SUPPLEMENTAL EROSION CONTROL MEASURES AS NEEDED DURING STORM EVENTS. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AT THE SOLE DISCRETION OF THE ENGINEER IF AT ANY TIME THE ENGINEER BELIEVES THE EXISTING EROSION CONTROL MEASURES ARE INSUFFICIENT FOR THE NEEDS OF THE PROJECT SITE.

12. CONTRACTOR IS REQUIRED TO RETURN ADJACENT PROPERTY LAWNS TO EQUAL OR BETTER THAN EXISTING CONDITION IF DAMAGED OR DESTABILIZED BY

10.20.2020
&[Date]

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

"A" STREET
GENERAL NOTES
SHEET 3 OF 4

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
5

CONSTRUCTION ACTIVITY. THIS INCLUDES ANY NECESSARY VEGETATION, SEEDING, OR WATERING TO RESTORE EXISTING LAWNS, AND IS SUBSIDIARY TO THIS PROJECT'S OVERALL SCOPE. REVEGETATE ALL DISTRUBED AREAS THAT DO NOT RECEIVE A LAYER OF PAVEMENT, FLATWORK, STRUCTURE, OR OTHER IMPERVIOUS MATERIAL.

TRAFFIC CONTROL:

1. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH TMUTCD, TO THE CITY OF MIDLAND FOR REVIEW AND APPROVAL NO LESS THAN TWO BUSINESS DAYS BEFORE CONTRACTOR STARTS ANY CONSTRUCTION ACTIVITY. RESIDENTIAL STREETS AND MINOR COLLECTORS MAY BE CLOSED DURING CONSTRUCTION; HOWEVER, ACCESS TO PROPERTIES ADJACENT TO THE WORK ZONE WILL BE MAINTAINED AT ALL TIMES UNLESS OTHERWISE APPROVED BY THE ENGINEER. A MINIMUM OF TWO TRAVEL LANES (ONE IN EACH DIRECTION) ARE TO REMAIN OPEN AT ALL TIME ON ALL ARTERIAL STREETS.

2. STOP EQUIPMENT FOR TRAFFIC WHEN CROSSING ANY TRAFFIC LANES. FURNISH FLAGGERS TO WARN EQUIPMENT OPERATORS OF APPROACHING TRAFFIC, UNLESS OTHERWISE DIRECTED.

3. PLACE ORANGE FENCING AROUND SIDEWALK, WHEELCHAIR RAMPS AND OTHER PEDESTRIAN AREAS THAT POSE A HAZARD TO PEDESTRIAN TRAFFIC AS DIRECTED. PLACE A WARNING SIGN – SUCH AS R9-8, R9-9, R9-10, R9-11, AND/OR R9-11A – AT THE NEAREST "TEE" OR "WYE" INTERSECTION IN EACH DIRECTION FROM SUCH HAZARDS TO WARN PEDESTRIANS OF THE CLOSURE AND TO POSSIBLY CHOOSE AN ALTERNATE ROUTE. MOUNT THE WARNING SIGN ON A SAW-HORSE OR STAND THAT IS STABLE IN HIGH WINDS.

FINAL CLEANUP:

1. CONTRACTOR IS TO MAKE ALL REASONABLE EFFORT TO CLEAN AND RESTORE PROJECT SITE TO ORIGINAL OR BETTER CONDITION AT THE CONCLUSION OF CONSTRUCTION ACTIVITY. THIS INCLUDES BUT IS NOT LIMITED TO STREET SWEEPING AND OTHER SEDIMENT REMOVAL, REMOVAL OF CONSTRUCTION MATERIAL AND DEBRIS.

2. AFTER CONSTRUCTION, RESTORE ADJACENT SURFACES TO A CONDITION APPROVED BY THE ENGINEER. THIS WORK IS SUBSIDIARY TO MOBILIZATION.

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

"A" STREET
GENERAL NOTES
SHEET 4 OF 4

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET 6

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

10.20.202

SUMMARY OF ROADWAY ITEMS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	CURB& GUTTER REMOVAL	MISC CONCRETE REMOVAL	MILLING (5")	MILLING (7")	PRIME COAT (MC-30 OR AEP)	PRIME COAT (MC-30 OR AEP)	TACK COAT	HOTMIX TY D(2")	HOTMIX TY C(3")	CONCPVMT (CONTREINF - CRCP) (7")	CONCPVMT (CONTREINF - CRCP) (8")	CONC SIDEWALK (4 IN)	TYPE A CURBAND GUTTER	TYPE D LAY-DOWN CURBAND GUTTER	TYPE 1 SAW-TOOTH CURBAND GUTTER	CONCRETE FILLET	CONCRETE VALLEY GUTTER	CONCRETE DRIVEWAY (ALLEY)	CURBRAMPS
UNIT	LF	SY	SY	SY	SY	GAL	GAL	TON	TON	SY	SY	SY	LF	LF	LF	SY	SY	SY	SY
RATE						0.2 GAL/SY	0.1 GAL/SY	220 LB/SY	330 LB/SY										
PP1 OF 4	545		6249		5703	1141	570	627	941			107	222	296		106	384	80	119
PP2 OF 4	289		8185	694	7232	1446	723	796	1193	694		264	367		11	113	451		163
PP3 OF 4	97	5	9302		8614	1723	861	948	1421			401		98		184	362	153	184
PP4 OF 4	112	71	8006	3526	4141	828	414	456	683		3275	323		112		101	240	135	97
GRANDTOTAL	1043	76	31742	4220	25690	5138	2569	2826	4239	694	3275	1095	589	506	11	504	1437	368	563

SUMMARY OF ROADWAY ITEMS CONTINUED

	20	21	22	23	24	25	26	27	28	29	30	31	32	33
	11"FIBER REINFORCED CONC MEDIAN	CONCRETE DIRECTION AL ISLAND	* GROUNDBOX TY C (624-6007)	* REMOVE GROUNDBOX (624-6028)	* CONDT (PVC) (SCH80) (2") (TRENCHED) (618-6046)	* ELEC CONDR (NO.6) BARE (620-6009)	* REMOVESM RDSN ASSM (644-6076)	* INSTALL HWYTRF SIG (SYSTEM) (680-6003)	* TRF SIG CBL (TY A) (14 AWG)(3 CONDR) (684-6029)	* PEDPOLE ASSEMBLY (687-6001)	* REMOVEPED POLE ASSM (687-6005)	* (1) PEDDETECT PUSH BUTTON (STANDARD) (688-6002)	* PEDSIG SEC (LED) (COUNTDOWN) (682-6018)	* REMOVPED SIG LED TRAF SIG LAMP UNIT (690-6094)
UNIT	SY	SY	EA	EA	LF	LF	EA	EA	LF	EA	EA	EA	EA	EA
RATE														
PP1 OF 4	57		2	3	273	119	1	1	119	1		8	2	
PP2 OF 4	153		7	5	895	207		2	207	2	1	16	2	2
PP3 OF 4	125		2	2	602	151	2	2	151	3		13	10	
PP4 OF 4		251						1						
GRANDTOTAL	335	251	11	10	1770	477	3	6	477	6	1	37	14	2

SUMMARY OF PAVEMENT MARKING ITEMS

	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	REFL PAV MRKTY I (W)(4 IN) (SLD) (100 MIL)	REFL PAV MRKTY I (W) (4 IN) (BRK) (100 MIL)	REFL PAV MRKTY I (W) (8 IN) (SLD) (100 MIL)	REFL PAV MRKTY I (W) (24 IN) (SLD) (100 MIL)	REFL PAV MRKTY I (Y) (4 IN) (SLD) (100 MIL)	REFL PAV MRKTY I (Y) (4 IN) (BRK) (100 MIL)	REFL PAV MRKTY I (W) (ARROW)(100 MIL)	RELF PAV MRKTY I (W) (18 IN) (YLD TRI) (100 MIL)	REFL PAV MRKTY II (W)(4 IN) (SLD)	REFL PAV MRKTY II (W)(4 IN) (BRK)	REFL PAV MRKTY II (W)(8 IN) (SLD)	REFL PAV MRKTY II (W)(24 IN) (SLD)	REFL PAV MRKTY II (Y) (4 IN) (SLD)	REFL PAV MRKTY II (W) (ARROW)
UNIT	LF	LF	LF	LF	LF	LF	EA	EA	LF	LF	LF	LF	EA	EA
PP1 OF 4		114	575	684	1767	52	8							
PP2 OF 4		464	650	720	1924	312	5	34						
PP3 OF 4	41	466	218	594	1735	309	4							
PP4 OF 4		275	98	35	1094	190	2		430	41	168	328	623	6
GRANDTOTA	41	1319	1541	2033	6520	863	19	34	430	41	168	328	623	6

NOTES:

1. CITY TO PROVIDE APS 4-WIRE SYSTEM. CONTRACTOR TO INSTALL. QUANTITY SHOWN FOR CONTRACTOR INFORMATION ONLY.

* DENOTES TXDOT BID ITEM (XXX-XXXX)

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

No.	Revision	By	Date

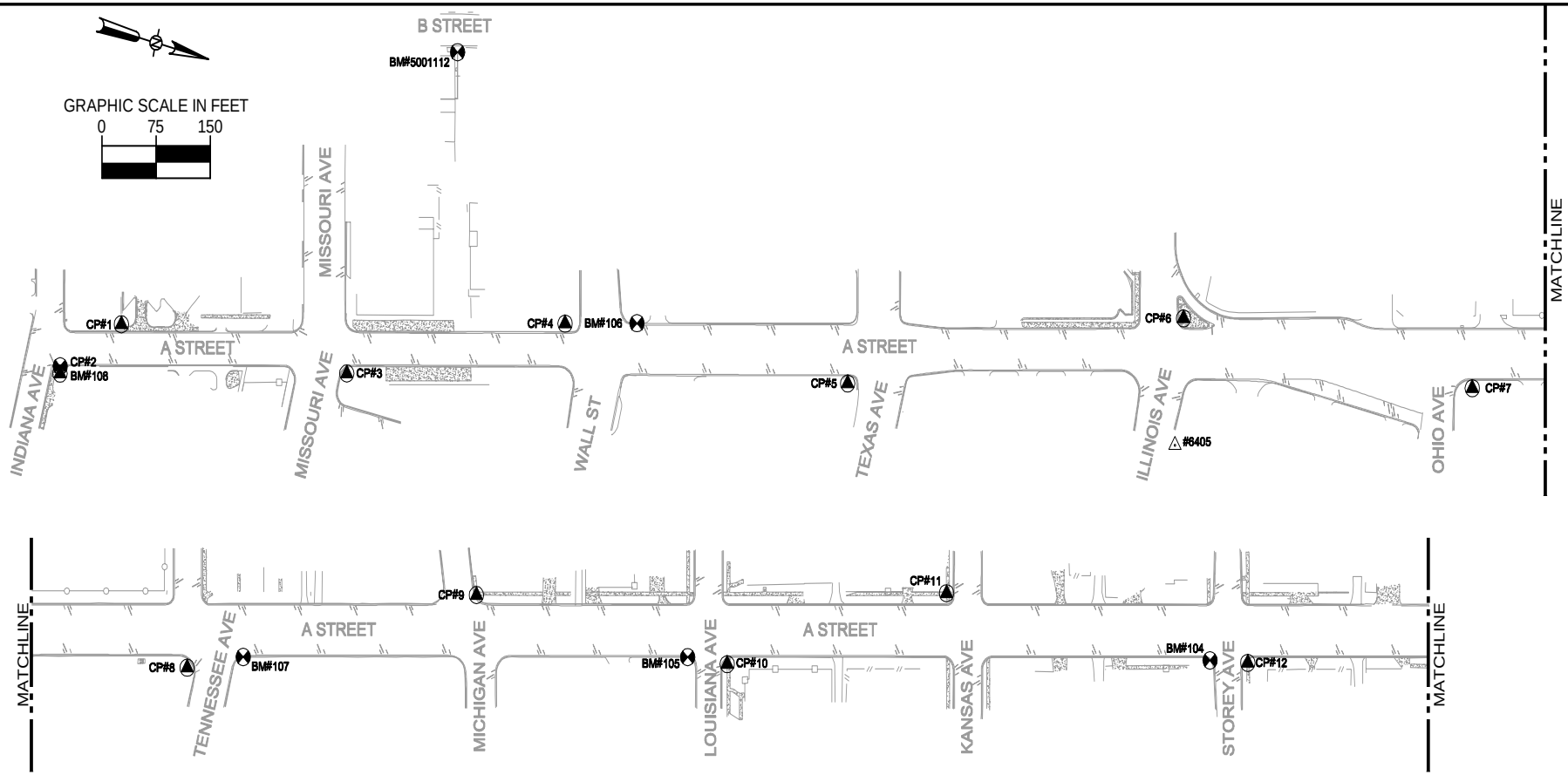
10/20/2020
Blake Comeaux, Jr.

MIDLAND Feel the Energy!

"A" STREET
QUANTITY SUMMARY

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
7



CONTROL POINT TABLE			
Point #	Northing	Easting	Elevation
1	10693815.64	1754510.26	2785.850
2	10693748.00	1754586.93	2785.720
3	10694131.89	1754486.28	2785.190
4	10694409.70	1754354.20	2787.290
5	10694805.50	1754322.35	2785.830
6	10695236.17	1754131.80	2784.310
7	10695643.31	1754109.00	2783.276
8	10695951.31	1754032.93	2784.280
9	10696317.48	1753850.42	2785.530
10	10696673.47	1753839.84	2785.534
11	10696946.49	1753683.74	2784.440
12	10697370.21	1753656.15	2781.710
13	10697742.10	1753467.36	2777.280

BENCHMARK TABLE				
Point #	Northing	Easting	Elevation	Description
104	10697319.01	1753666.66	2782.320	2" Alum. cap on southeast curb at the curb radius.
105	10696618.45	1753845.88	2785.480	2" Alum. cap on southeast curb at south end of curb radius.
106	10694505.77	1754328.53	2787.300	2" Alum. cap on northwest curb at north end of radius.
107	10696023.20	1754001.30	2784.620	2" Alum. cap on northeast curb at north end of radius.
108	10693746.05	1754578.64	2785.889	2" Alum. cap on northeast curb at north end of radius.
109	10698267.68	1753468.62	2776.770	2" Alum. cap
5001112	10694186.12	1754087.56	2788.297	2" Alum. cap

△ MONUMENT 6405 CITY OF MIDLAND 1988

NEAREST EXISTING BENCHMARK TO PROJECT SITE LOCATED AT INTERSECTION OF A STREET AND WEST ILLINOIS AVENUE. BENCHMARK IS LOCATED ON THE NORTH CORNER PAST THE END OF RADIUS. BENCHMARK ELEVATION IS 2782.04' BASED ON NGVD29. CONVERSION FACTOR FOR MIDLAND, TEXAS IS +1.22'.

No. | Revision | By | Date

STATE OF TEXAS REGISTERED JUSTIN CANTWELL 6331 PROFESSIONAL LAND SURVEYOR 2/6/2020

MIDLAND Feel the Energy!

"A" STREET

SURVEY CONTROL DATA

DATE: FEBRUARY 2020
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET 8

PACKET 7.610 December 15, 2020

Kimley»Horn Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-585-1080

K:\LUB_UTILITIES\064465308_MIDLAND A STREET\CADD\SHEETS\ROW_CONTROL LAYOUT.DWG 2/6/2020 8:28 AM

Chain MASCL contains:
MASCLP01 MASCLP02 MASCLP03 MASCLP04 MASCLP05 MASCLP06 MASCLP07 MASCLP08 MASCLP-09 MASCLP10 MASCLP11 MASCLP12 MASCLP13 MASCLP14 MASCLP15 MASCLP16 MASCLP17 MASC-LP18 MASCLP19 MASCLP20 CUR MASCL-1

Beginning chain MASCL description

==========

Point MASCLP01 N 10,693,716.56 E 1,754,565.31 Sta 100+00.00

Course from MASCLP01 to MASCLP02 N 14^33' 44.92" W Dist 338.42

Point MASCLP02 N 10,694,044.11 E 1,754,480.22 Sta 103+38.42

Course from MASCLP02 to MASCLP03 N 14^45' 17.56" W Dist 113.25

Point MASCLP03 N 10,694,153.62 E 1,754,451.37 Sta 104+51.66

Course from MASCLP03 to MASCLP04 N 14^30' 02.10" W Dist 265.21

Point MASCLP04 N 10,694,410.39 E 1,754,384.97 Sta 107+16.88

Course from MASCLP04 to MASCLP05 N 14^41' 53.03" W Dist 100.79

Point MASCLP05 N 10,694,507.87 E 1,754,359.40 Sta 108+17.66

Course from MASCLP05 to MASCLP06 N 14^32' 41.81" W Dist 301.25

Point MASCLP06 N 10,694,799.47 E 1,754,283.74 Sta 111+18.92

Course from MASCLP06 to MASCLP07 N 14^50' 43.86" W Dist 151.48

Point MASCLP07 N 10,694,945.89 E 1,754,244.93 Sta 112+70.40

Course from MASCLP07 to MASCLP08 N 14^38' 24.75" W Dist 196.41

Point MASCLP08 N 10,695,135.92 E 1,754,195.29 Sta 114+66.80

Course from MASCLP08 to MASCLP09 N 14^44' 19.31" W Dist 207.77

Point MASCLP09 N 10,695,336.86 E 1,754,142.43 Sta 116+74.58

Course from MASCLP09 to MASCLP10 N 13^36' 23.80" W Dist 306.06

Point MASCLP10 N 10,695,634.33 E 1,754,070.42 Sta 119+80.64

Course from MASCLP10 to MASCLP11 N 14^39' 01.60" W Dist 282.49

Point MASCLP11 N 10,695,907.64 E 1,753,998.98 Sta 122+63.12

Course from MASCLP11 to MASCLP12 N 14^25' 22.73" W Dist 135.74

Point MASCLP12 N 10,696,039.10 E 1,753,965.17 Sta 123+98.87

Course from MASCLP12 to MASCLP13 N 14^36' 23.42" W Dist 228.48

Point MASCLP13 N 10,696,260.20 E 1,753,907.55 Sta 126+27.35

Course from MASCLP13 to MASCLP14 N 14^38' 22.27" W Dist 120.71

Point MASCLP14 N 10,696,376.99 E 1,753,877.04 Sta 127+48.06

Course from MASCLP14 to MASCLP15 N 14^34' 58.20" W Dist 235.97

Point MASCLP15 N 10,696,605.35 E 1,753,817.63 Sta 129+84.03

Course from MASCLP15 to MASCLP16 N 14^46' 50.74" W Dist 70.57

Point MASCLP16 N 10,696,673.59 E 1,753,799.63 Sta 130+54.59

Course from MASCLP16 to MASCLP17 N 14^36' 19.27" W Dist 284.90

Point MASCLP17 N 10,696,949.28 E 1,753,727.78 Sta 133+39.50

Course from MASCLP17 to MASCLP18 N 14^41' 38.09" W Dist 73.69

Point MASCLP18 N 10,697,020.56 E 1,753,709.09 Sta 134+13.18

Course from MASCLP18 to MASCLP19 N 14^38' 20.77" W Dist 274.28

Point MASCLP19 N 10,697,285.94 E 1,753,639.77 Sta 136+87.46

Course from MASCLP19 to MASCLP20 N 14^33' 45.86" W Dist 86.43

Point MASCLP20 N 10,697,369.59 E 1,753,618.04 Sta 137+73.90

Course from MASCLP20 to PC MASCL-1 N 14^39' 49.31" W Dist 284.78

Curve Data

——

Curve MASCL-1
P.I. Station 141+66.77 N 10,697,750.30 E 1,753,521.16
Delta = 5^32' 47.22" (RT)
Degree = 2^34' 04.08"
Tangent = 108.08
Length = 216.00
Radius = 2,231.32
External = 2.62
Long Chord = 215.92
Mid. Ord. = 2.61
P.C. Station 140+58.68 N 10,697,645.10 E 1,753,545.95
P.T. Station 142+74.68 N 10,697,857.41 E 1,753,506.65
C.C. N 10,698,156.91 E 1,755,717.78
Back = N 13^15' 36.92" W
Ahead = N 7^42' 49.69" W
Chord Bear = N 10^29' 13.30" W

==========

Ending chain MASCL description

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

No.	Revision	By	Date

10/20/2020

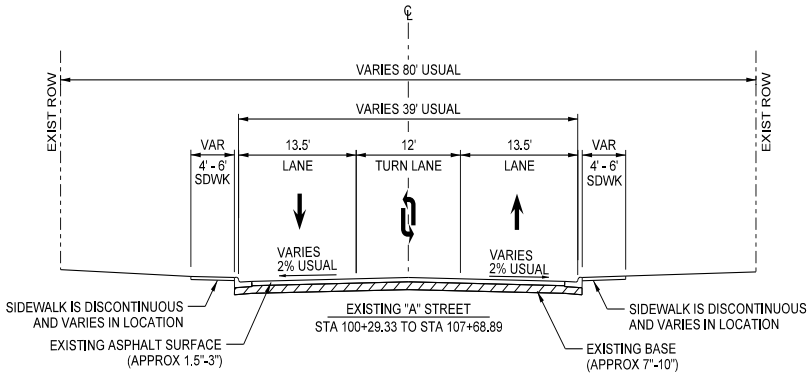
MIDLAND Feel the Energy!

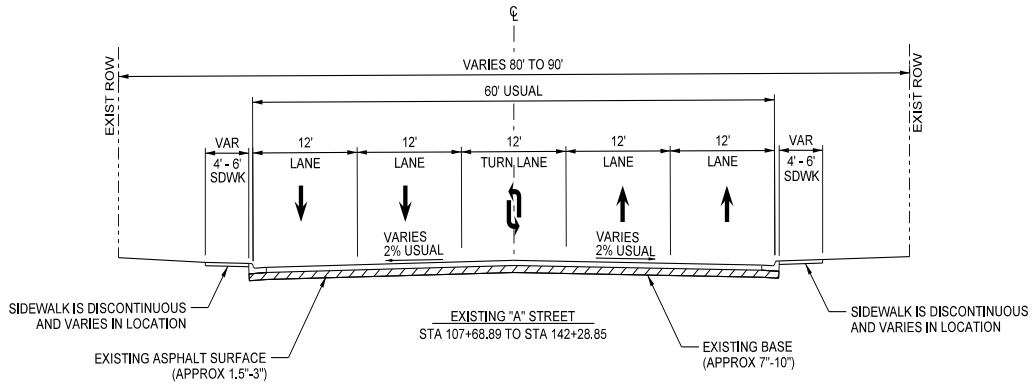
"A" STREET
HORIZONTAL ALIGNMENT DATA

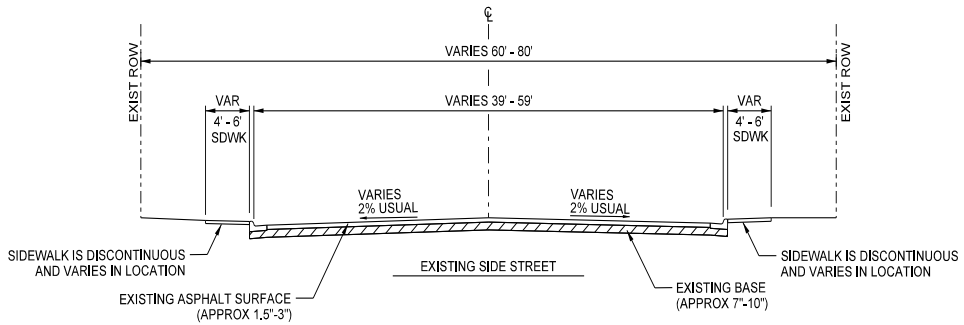
DATE:	JUNE 2019
DESIGN:	RTC
DRAWN:	TLW
CHECKED:	RTC
KHA NO.:	064465308

SHEET 9

10.20.202







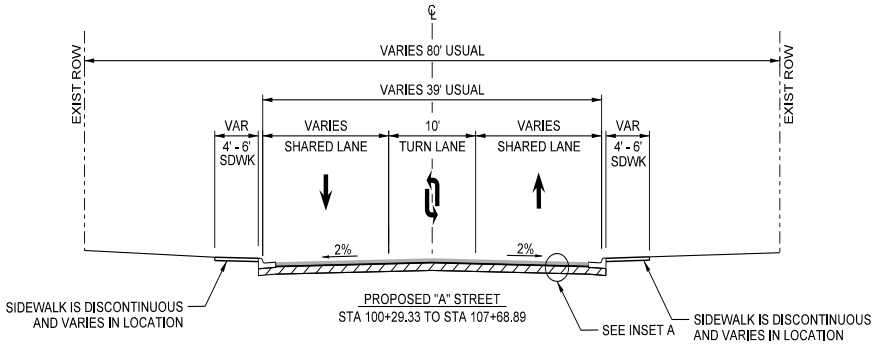
"A" STREET
TYPICAL SECTIONS

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
10

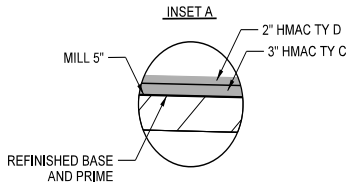
Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

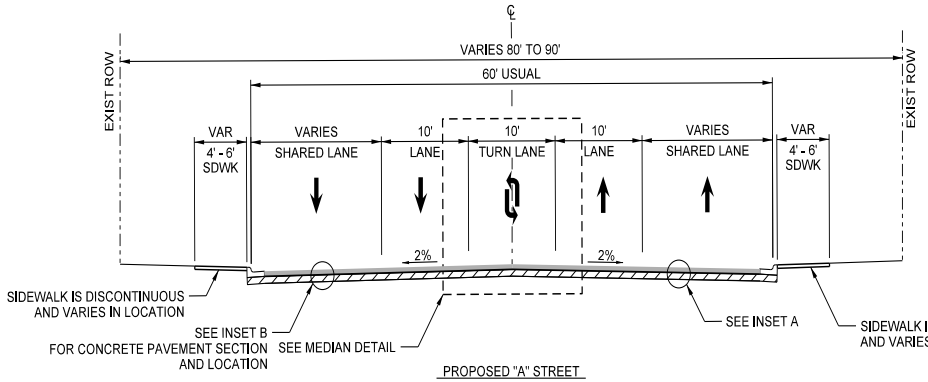
10.20.202



NOTES

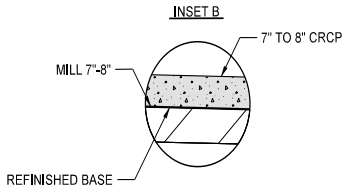
1. MILL 5"
2. REFINISH BASE AND PRIME
3. PLACE 2" HMAC TY D ON TOP OF 3" HMAC TY C



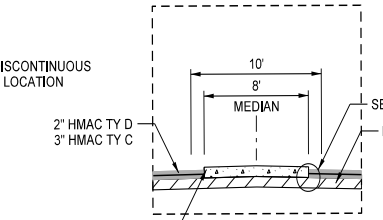


NOTES

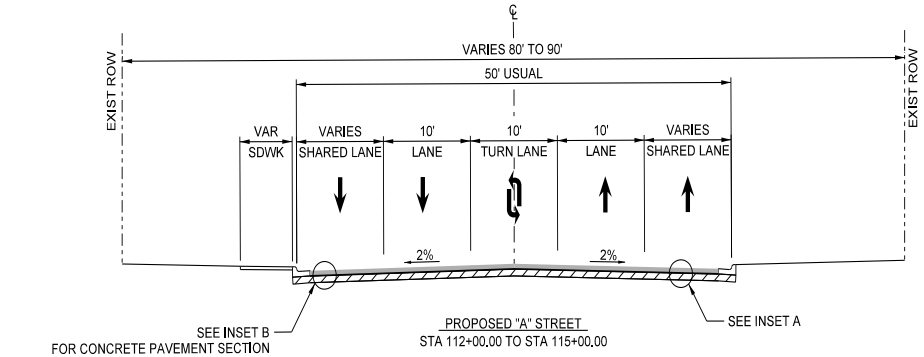
1. MILL 7" TO 8"
2. REFINISH BASE AND PRIME
3. PLACE 7" OR 8" CRCP

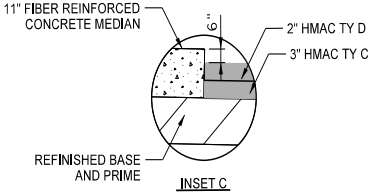


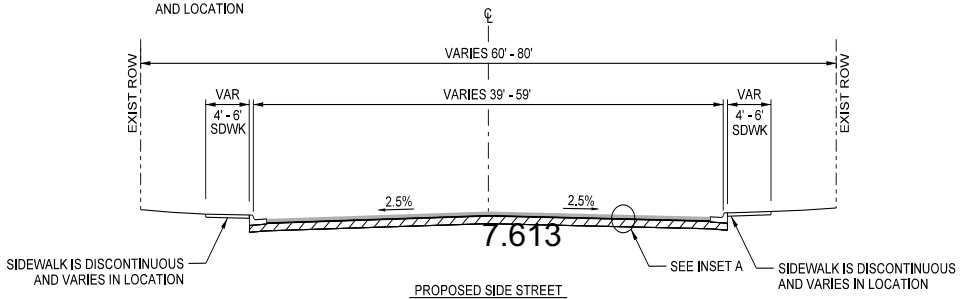
CONCRETE SECTION
STA 118+84.55 TO STA 119+75.86 - 7" CRCP
STA 140+55.63 TO STA 142+28.85 - 8" CRCP



MEDIAN DETAIL
STA 109+85.00 TO STA 111+15.00
STA 115+76.98 TO STA 117+00.00
STA 125+60.00 TO STA 126+38.00
STA 130+60.00 TO STA 131+25.00







"A" STREET
TYPICAL SECTIONS

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET 11

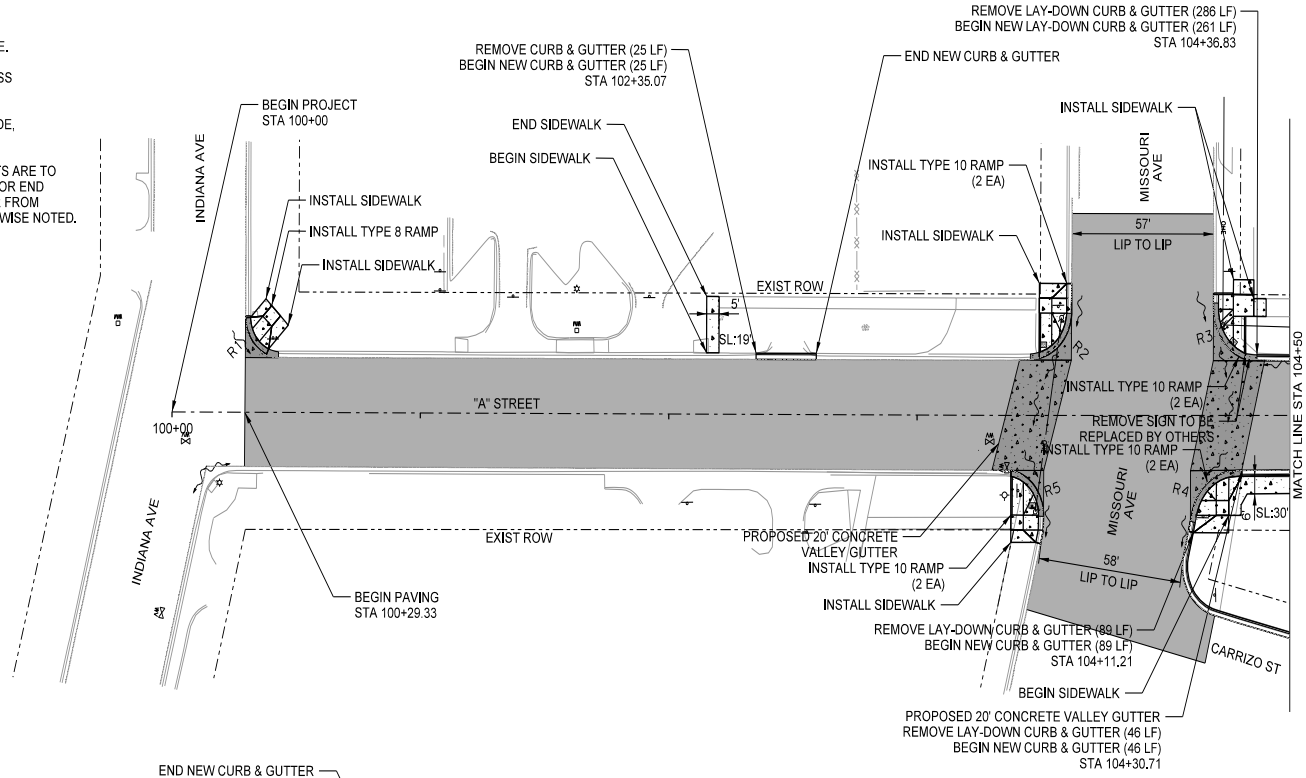
PACKET 7.613 December 15, 2020

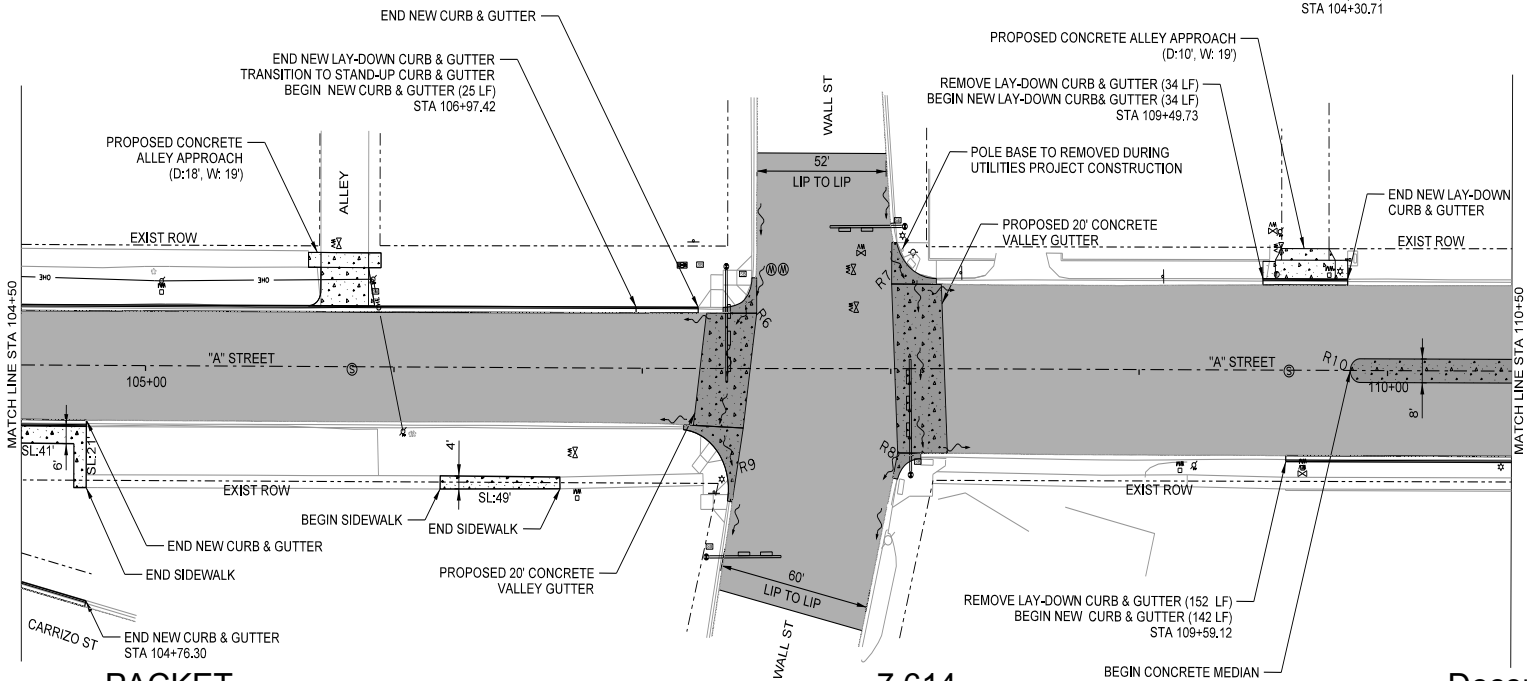
Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

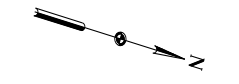
10.20.2020

NOTES:

1. RIGHT-OF-WAY LOCATION IS APPROXIMATE.
2. ALL DIMENSIONS TO LIP OF GUTTER UNLESS OTHERWISE NOTED
3. ALL VALLEY GUTTERS ARE TYPICAL 10' WIDE, EXCEPT WHERE NOTED.
4. ALL SIDE STREET ASPHALT REPLACEMENTS ARE TO EXTEND 30' BACK FROM VALLEY GUTTERS OR END OF CURB RADIUS, WHICHEVER IS FURTHER FROM ADJACENT INTERSECTION, UNLESS OTHERWISE NOTED.







LEGEND

- PROPOSED HMAC TY D
- PROPOSED CONCRETE
- CONCRETE REMOVAL
- SL:XX' SIDEWALK LENGTH
- PROPOSED ADA RAMP
- DRAINAGE FLOW ARROW
- FIRE HYDRANT
- WV WATER VALVE
- WM WATER METER
- W WATER MANHOLE
- FIRE DEPARTMENT CONNECTION
- IRRIGATION METER
- S SANITARY SEWER MANHOLE
- SD STORM SEWER MANHOLE
- T TELEPHONE MANHOLE
- PP POWER POLE
- LIGHT POLE
- CONTROLLER CABINET
- TRAFFIC SIGNAL & MAST ARM
- SIGN
- GUY WIRE

FILLET/RADII TABLE (FT)	
R1	14
R2	16
R3	18
R4	19
R5	15
R6	13
R7	18
R8	11
R9	22
R10	4

No. | Revision | By | Date

Pablo Cervantes, Jr. 10/20/2020

MIDLAND Feel the Energy!

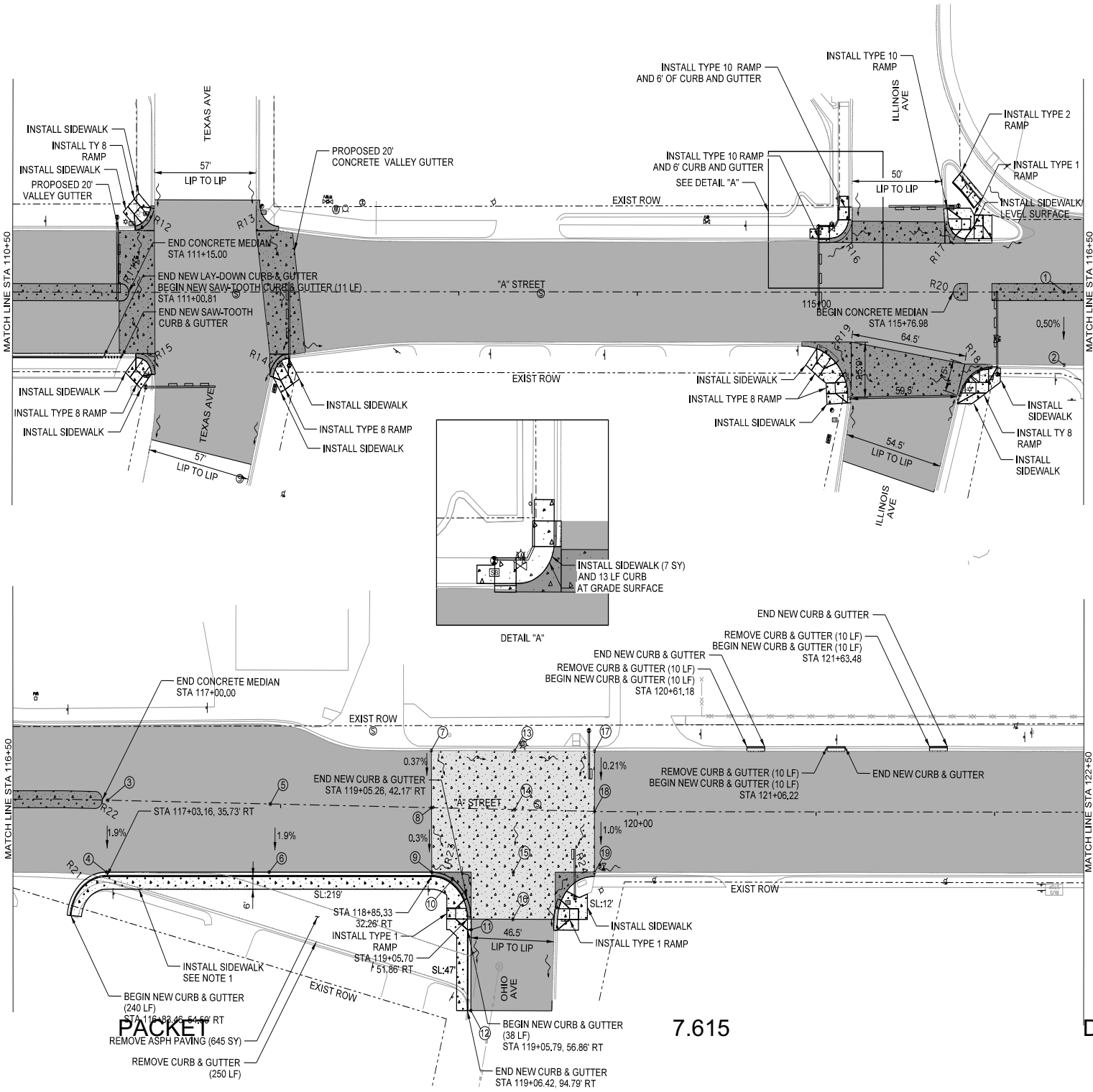
"A" STREET
PLAN SHEET 1 OF 4

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
12

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

10.20.202



NOTES:

1. CONTRACTOR TO INSTALL ENOUGH BACKFILL TO STABALIZE SIDEWALK ONLY. CONCHO IS RESPONSIBLE FOR BACKFILL STABALIZATION. CONTRACTOR TO COORDINATE WITH MARK WEELEN OF RW ARCHITECTS. mtw@rwarchitects.com
2. RIGHT-OF-WAY LOCATION IS APPROXIMATE.
3. ALL DIMENSIONS TO LIP OF GUTTER UNLESS OTHERWISE NOTED
4. ALL VALLEY GUTTERS ARE TYPICAL 10' WIDE, EXCEPT WHERE NOTED.
5. ALL SIDE STREET ASPHALT REPLACEMENTS ARE TO EXTEND 30' BACK FROM VALLEY GUTTERS OR END OF CURB RADIUS, WHICHEVER IS FURTHER FROM ADJACENT INTERSECTION, UNLESS OTHERWISE NOTED.
6. FOR MORE INFORMATION ON PROPOSED CURB AND GUTTER GRADES, SEE SHEET 14.

FILLET/RADII TABLE (FT)	
R11	4
R12	13
R13	13
R14	13
R15	10
R16	12
R17	12
R18	19
R19	27
R20	4
R21	22
R22	4
R23	22
R24	22

No. | Revision | By | Date

10/20/2020 Blake Conway, Jr.

MIDLAND Feel the Energy!

"A" STREET

PLAN SHEET 2 OF 4

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET 13

10.20.2020 &[Date]

Kimley»Horn Firm Registration No. 928 4411 98th Street, Suite 300, Lubbock, Texas 79424 806-686-1080

"A" STREET & OHIO CURB & GUTTER IMPROVEMENTS						
POINT TABLE						
POINT NUMBER	STATION	OFFSET	DIRECTION	NORTHING	EASTING	ELEVATION
1	116+39.09	0'	-	10695302.5413	1754151.4553	2783.49
2	116+39.09	34.30'	RT	10695311.2678	1754184.6276	2783.32
3	117+03.13	0'	-	10695364.6129	1754135.7097	2783.38
4	117+03.13	33.73'	RT	10695372.5474	1754168.4902	2782.72
5	117+94.20	0'	-	10695453.1315	1754114.2840	2783.28
6	117+94.20	31.99'	RT	10695460.6576	1754145.3777	2782.92
7	118+83.90	26.78'	LT	10695534.0077	1754067.1597	2782.80
8	118+84.55	0'	-	10695540.9424	1754093.0295	2782.90
9	118+85.29	30.26'	RT	10695548.7787	1754122.2624	2782.61
10	118+96.98	33.36'	RT	10695560.8698	1754122.5274	2782.36
11	119+07.79	56.83'	RT	10695576.8974	1754142.7975	2782.09
12	119+08.42	94.76'	RT	10695586.4357	1754179.5141	2781.97
13	119+30.66	27.58'	LT	10695579.2677	1754055.3758	2782.70
14	119+31.09	0'	-	10695586.1762	1754082.0808	2782.44
15	119+30.91	29.42'	RT	10695592.9200	1754110.7207	2782.21
16	119+31.14	51.44'	RT	10695598.3274	1754132.0644	2782.11
17	119+75.32	28.31'	LT	10695622.5017	1754044.1620	2783.02
18	119+75.86	0'	-	10695629.6927	1754071.5477	2782.96
19	119+76.42	28.66'	RT	10695636.9737	1754099.2780	2782.66

NOTE: ELEVATIONS SHOWN ARE TOP OF PAVEMENT OR LIP OF CURB.

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

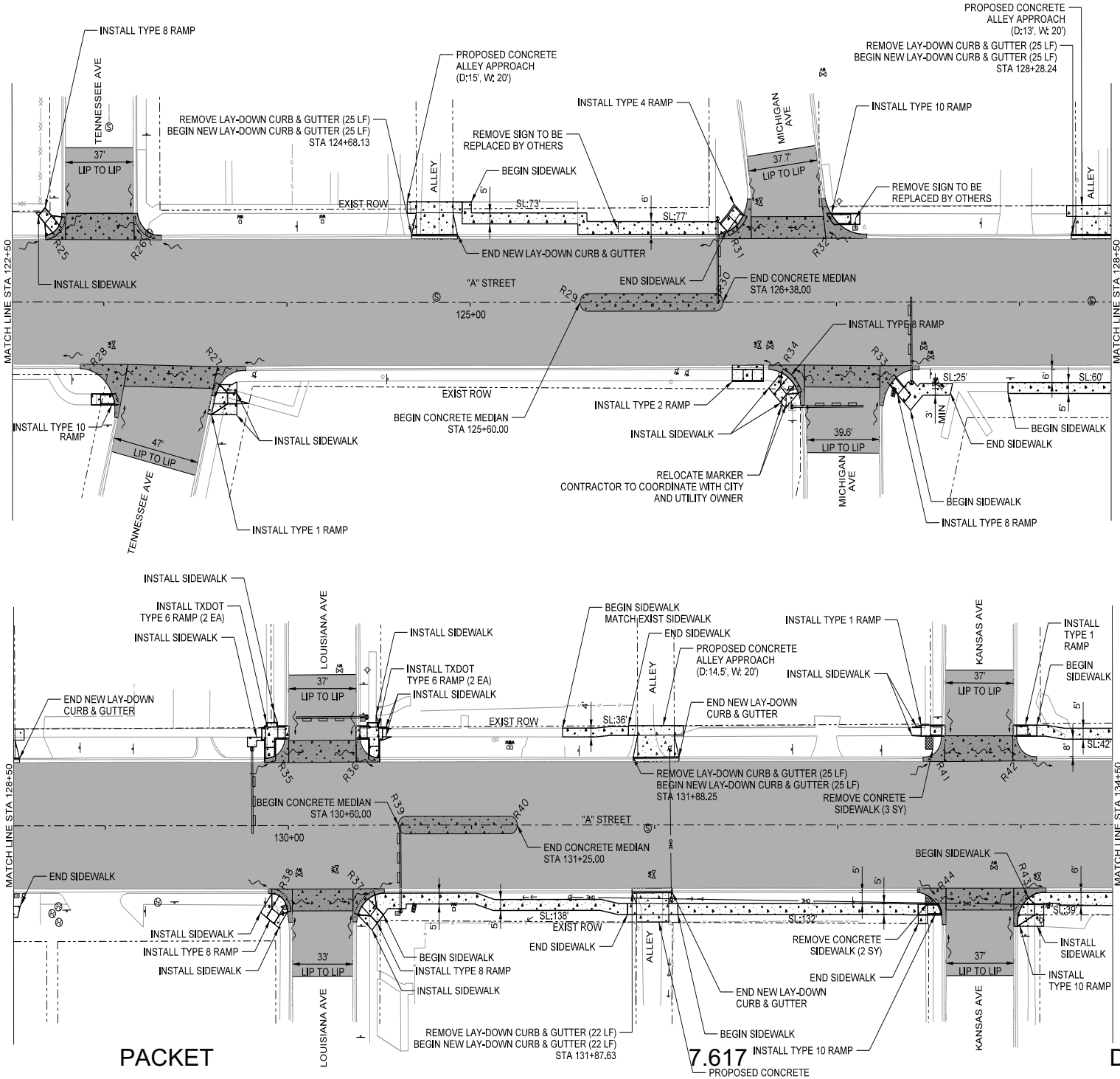
"A" STREET
OHIO CURB & GUTTER
IMPROVEMENTS

DATE:	JUNE 2019
DESIGN:	RTC
DRAWN:	TLW
CHECKED:	RTC
KHA NO.:	064466308

SHEET 14

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

10.20.20



LEGEND

- PROPOSED HMAC TY D
- PROPOSED CONCRETE
- CONCRETE REMOVAL
- PROPOSED ADA RAMP
- TRAFFIC FLOW ARROW
- DRAINAGE FLOW ARROW
- SL:XX' SIDEWALK LENGTH
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- WATER MANHOLE
- FIRE DPT. CONNECTION
- IRRIGATION METER
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- TELEPHONE MANHOLE
- POWER POLE
- LIGHT POLE
- CONTROLLER CABINET
- TRAFFIC SIGNAL & MAST ARM
- SIGN
- GUY WIRE

NOTES:

1. RIGHT-OF-WAY LOCATION IS APPROXIMATE.
2. ALL DIMENSIONS TO LIP OF GUTTER UNLESS OTHERWISE NOTED
3. ALL VALLEY GUTTERS ARE TYPICAL 10' WIDE, EXCEPT WHERE NOTED.
4. ALL SIDE STREET ASPHALT REPLACEMENTS ARE TO EXTEND 30' BACK FROM VALLEY GUTTERS OR END OF CURB RADIUS, WHICHEVER IS FURTHER FROM ADJACENT INTERSECTION, UNLESS OTHERWISE NOTED.

FILLET/RADII TABLE (FT)			
R25	12	R35	12
R26	14	R36	12
R27	18	R37	17
R28	21	R38	10
R29	4	R39	4
R30	4	R40	4
R31	18	R41	11
R32	24	R42	12
R33	20	R43	13
R34	20	R44	16

9. ALL SIDE STREET ASPHALT REPLACEMENTS ARE TO EXTEND 30' BACK FROM VALLEY GUTTERS UNLESS OTHERWISE NOTED.

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

"A" STREET
PLAN SHEET 3 OF 4

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
15

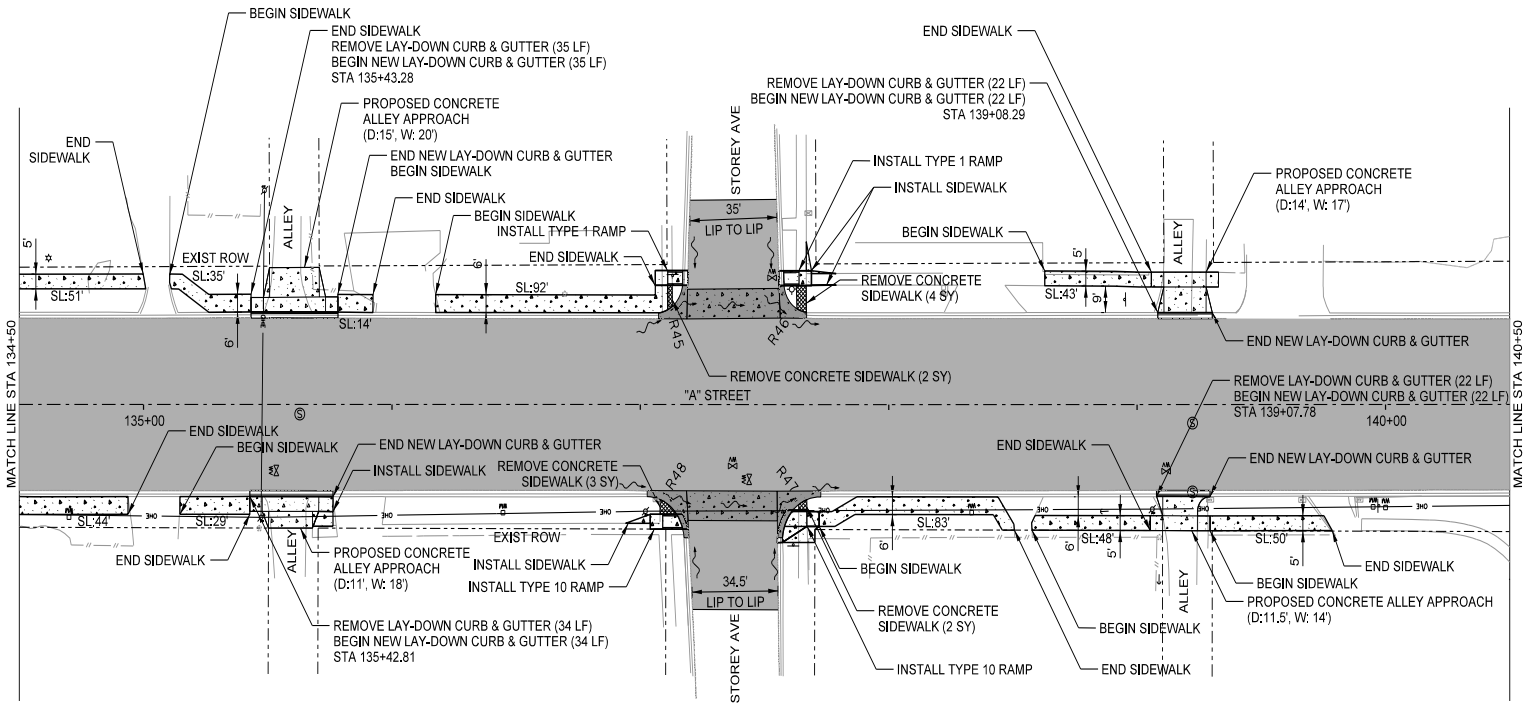
Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

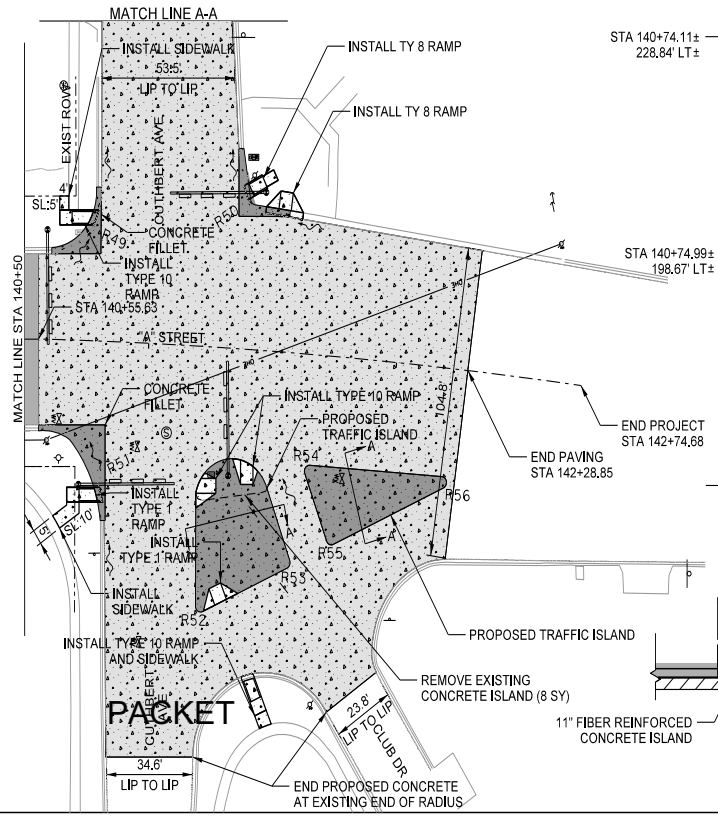
PACKET

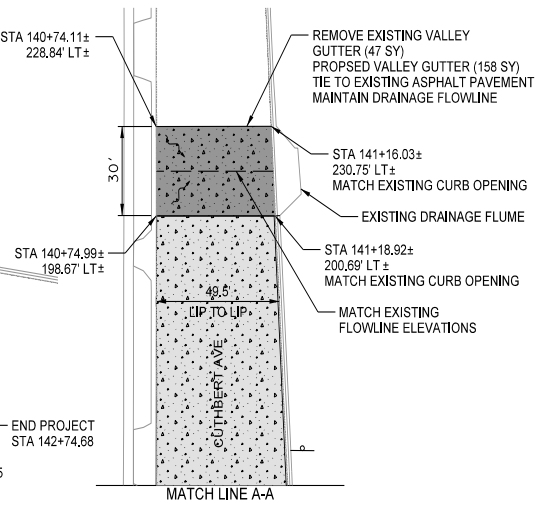
7.617

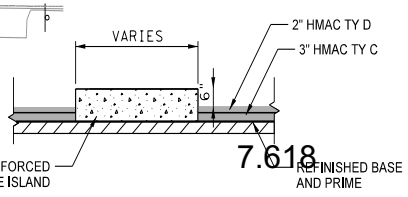
December 15, 2020

10.20.20





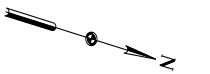




SECTION A-A

NOTES:

1. RIGHT-OF-WAY LOCATION IS APPROXIMATE.
2. ALL DIMENSIONS TO LIP OF GUTTER UNLESS OTHERWISE NOTED
3. ALL VALLEY GUTTERS ARE TYPICAL 10' WIDE, EXCEPT WHERE NOTED.
4. ALL SIDE STREET ASPHALT REPLACEMENTS ARE TO EXTEND 30' BACK FROM VALLEY GUTTERS OR END OF CURB RADIUS, WHICHEVER IS FURTHER FROM ADJACENT INTERSECTION, UNLESS OTHERWISE NOTED.



LEGEND

- PROPOSED HMAC TY D
- PROPOSED CONCRETE
- CONCRETE REMOVAL
- SL:XX' SIDEWALK LENGTH
- PROPOSED ADA RAMP
- DRAINAGE FLOW ARROW
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- WATER MANHOLE
- FIRE DEPARTMENT CONNECTION
- IRRIGATION METER
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- TELEPHONE MANHOLE
- POWER POLE
- LIGHT POLE
- CONTROLLER CABINET
- TRAFFIC SIGNAL & MAST ARM
- SIGN
- GUY WIRE

FILLET/RADII TABLE (FT)	
R45	13
R46	12
R47	17
R48	17
R49	20
R50	4
R51	49
R52	2
R53	2
R54	2
R55	2
R56	2

No.	Revision	By	Date

"A" STREET
PLAN SHEET 4 OF 4

DATE:	JUNE 2019
DESIGN:	RTC
DRAWN:	TLW
CHECKED:	RTC
KHA NO.:	064465308

SHEET 16

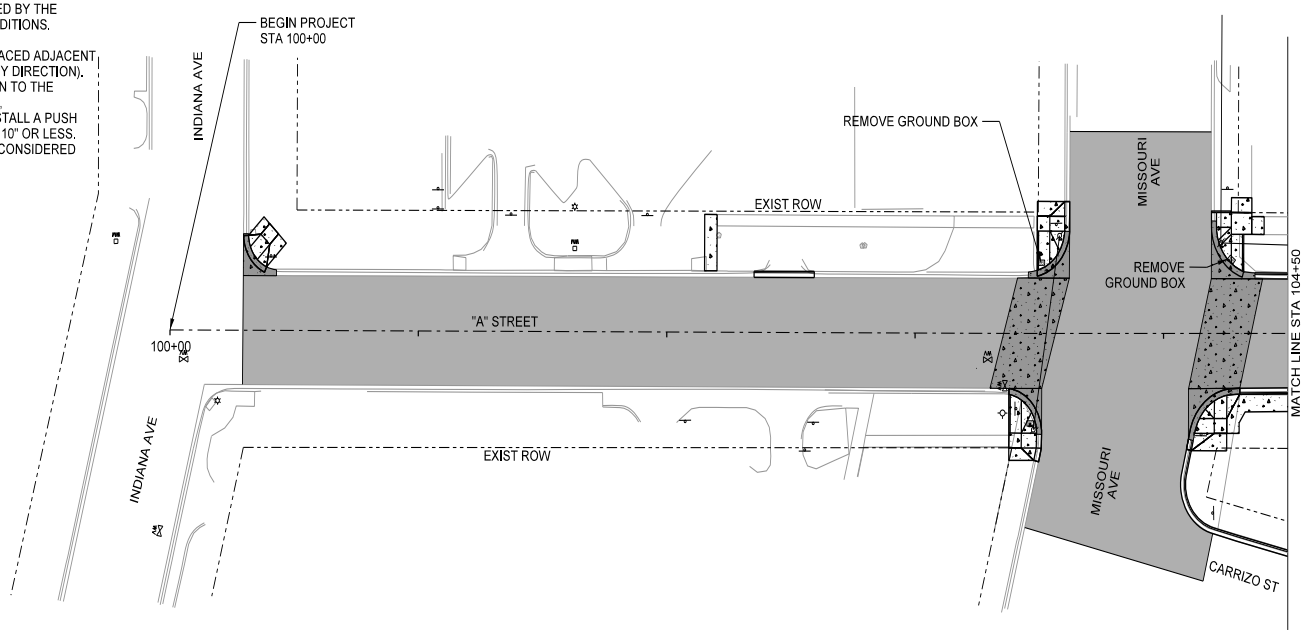
PACKET 7.618 December 15, 2020

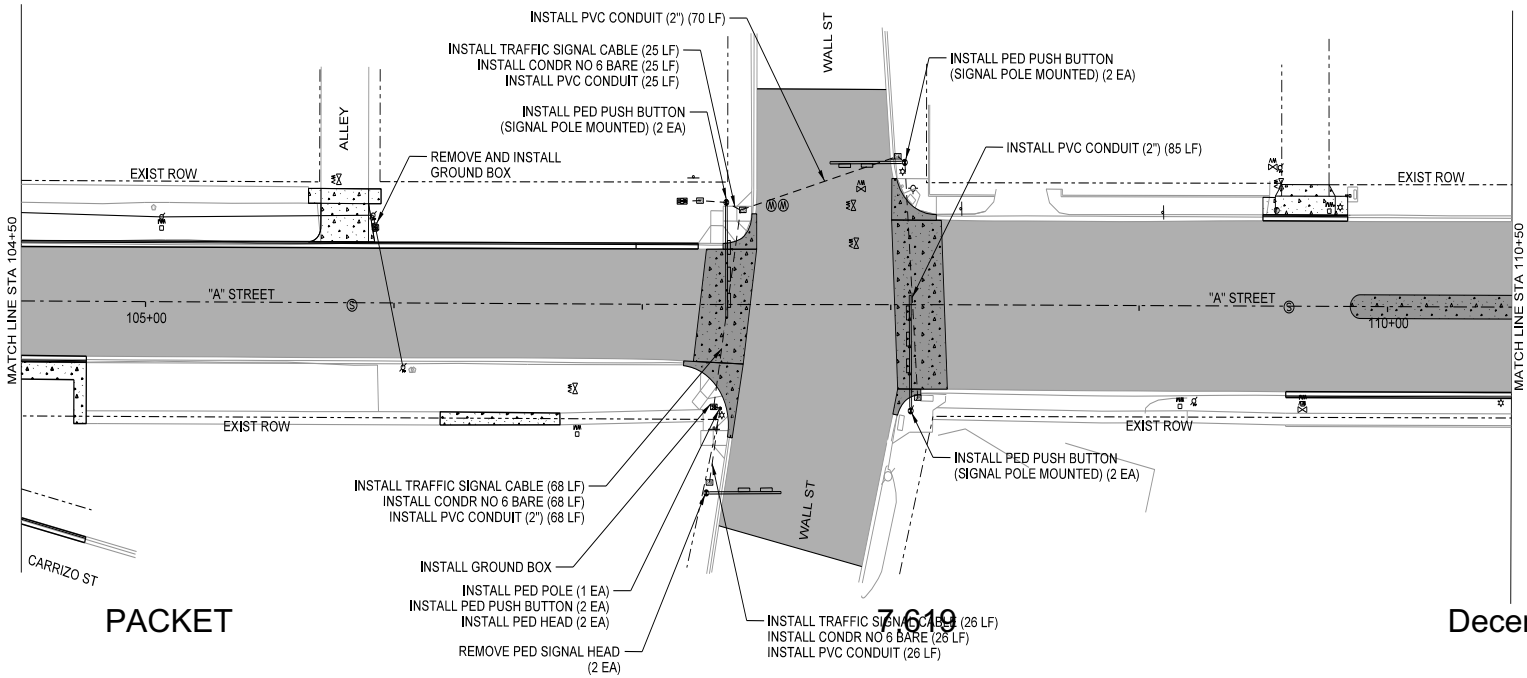
Kim 10.20.2020

NOTES:

1. THE LOCATION OF THE PROPOSED PUSH BUTTON POLES, CONDUIT, GROUND BOXES, AND CONDUCTORS ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE FIELD CONDITIONS.

2. PROPOSED PUSH BUTTONS SHALL BE PLACED ADJACENT TO A LEVEL LANDING AREA (2% MAX IN ANY DIRECTION). IF THE DISTANCE FROM THE PUSH BUTTON TO THE EDGE OF ACCESSIBLE PATH EXCEEDS 10", THE CONTRACTOR WILL FURNISH AND INSTALL A PUSH BUTTON EXTENDER TO MAKE THE REACH 10" OR LESS. MEASUREMENT AND PAYMENT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 32.





N

0 25' 50'

HORIZONTAL GRAPHIC SCALE:
1" = 50'

LEGEND

- PROPOSED UNDER-GROUND ELECTRIC
- SB EXISTING GROUND BOX
- SB PROPOSED GROUND BOX
- PED POLE
- CONTROLLER CABINET
- TRAFFIC SIGNAL & MAST ARM

No.	Revision	By	Date

STATE OF TEXAS — REGISTERED — PABLO CANALES, JR. — 10/20/2020

MIDLAND Feel the Energy!

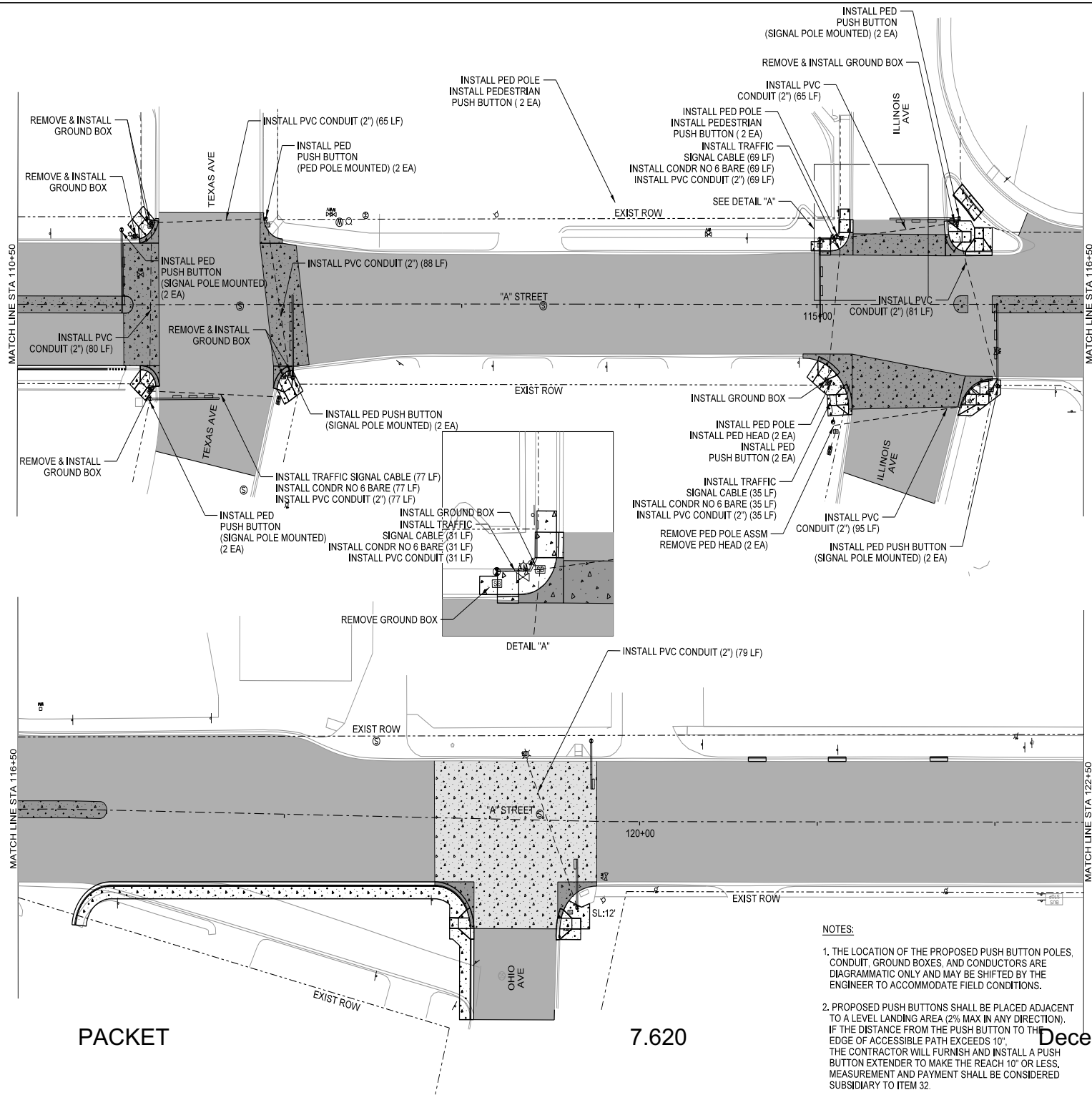
"A" STREET
TRAFFIC SIGNAL
IMPROVEMENT SHEETS
SHEET 1 OF 4

DATE:	JUNE 2019
DESIGN:	RTC
DRAWN:	TLW
CHECKED:	RTC
KHA NO.:	064465308

SHEET 17

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

MIDLAND CITY COUNCIL 10.20.2020



NOTES:

1. THE LOCATION OF THE PROPOSED PUSH BUTTON POLES, CONDUIT, GROUND BOXES, AND CONDUCTORS ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE FIELD CONDITIONS.
2. PROPOSED PUSH BUTTONS SHALL BE PLACED ADJACENT TO A LEVEL LANDING AREA (2% MAX IN ANY DIRECTION). IF THE DISTANCE FROM THE PUSH BUTTON TO THE EDGE OF ACCESSIBLE PATH EXCEEDS 10", THE CONTRACTOR WILL FURNISH AND INSTALL A PUSH BUTTON EXTENDER TO MAKE THE REACH 10" OR LESS. MEASUREMENT AND PAYMENT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 32.

No.	Revision	By	Date

"A" STREET
TRAFFIC SIGNAL
IMPROVEMENT SHEETS
SHEET 2 OF 4

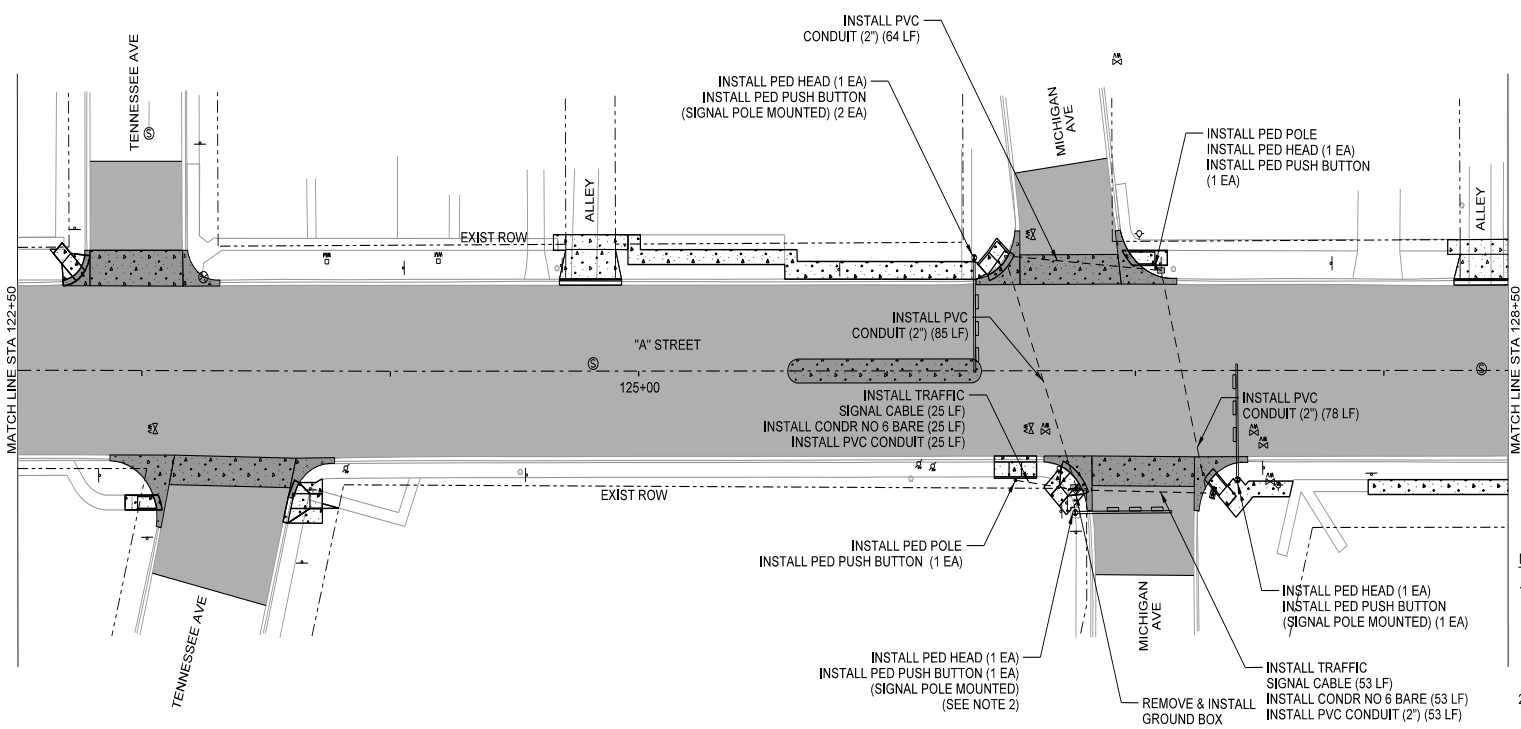
DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

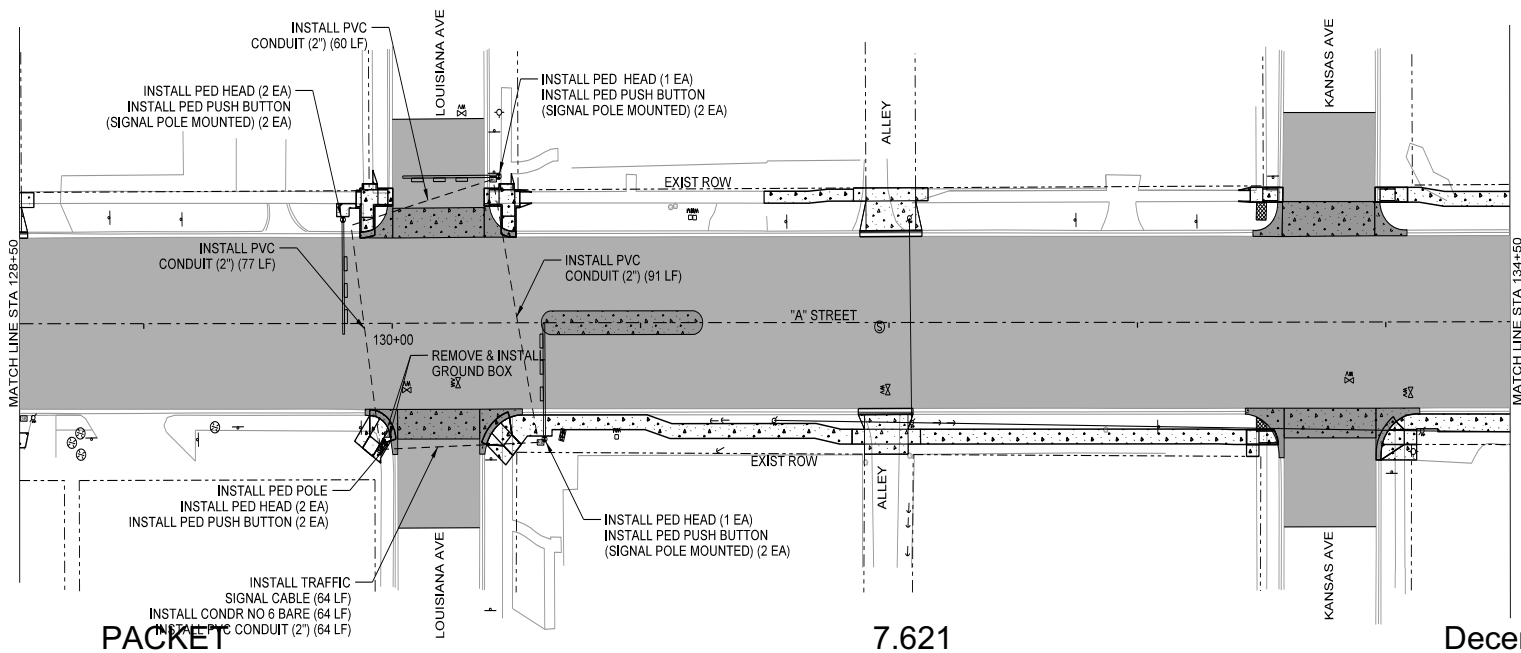
SHEET 18

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

PACKET 7.620 December 15, 2020

10.20.2020







LEGEND

- PROPOSED UNDER-GROUND ELECTRIC
- EXISTING GROUND BOX
- PROPOSED GROUND BOX
- PED POLE
- CONTROLLER CABINET
- TRAFFIC SIGNAL & MAST ARM

NOTES:

1. THE LOCATION OF THE PROPOSED PUSH BUTTON POLES, CONDUIT, GROUND BOXES, AND CONDUCTORS ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE FIELD CONDITIONS.
2. PROPOSED PUSH BUTTONS SHALL BE PLACED ADJACENT TO A LEVEL LANDING AREA (2% MAX IN ANY DIRECTION). IF THE DISTANCE FROM THE PUSH BUTTON TO THE EDGE OF ACCESSIBLE PATH EXCEEDS 10", THE CONTRACTOR WILL FURNISH AND INSTALL A PUSH BUTTON EXTENDER TO MAKE THE REACH 10" OR LESS. MEASUREMENT AND PAYMENT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 32.

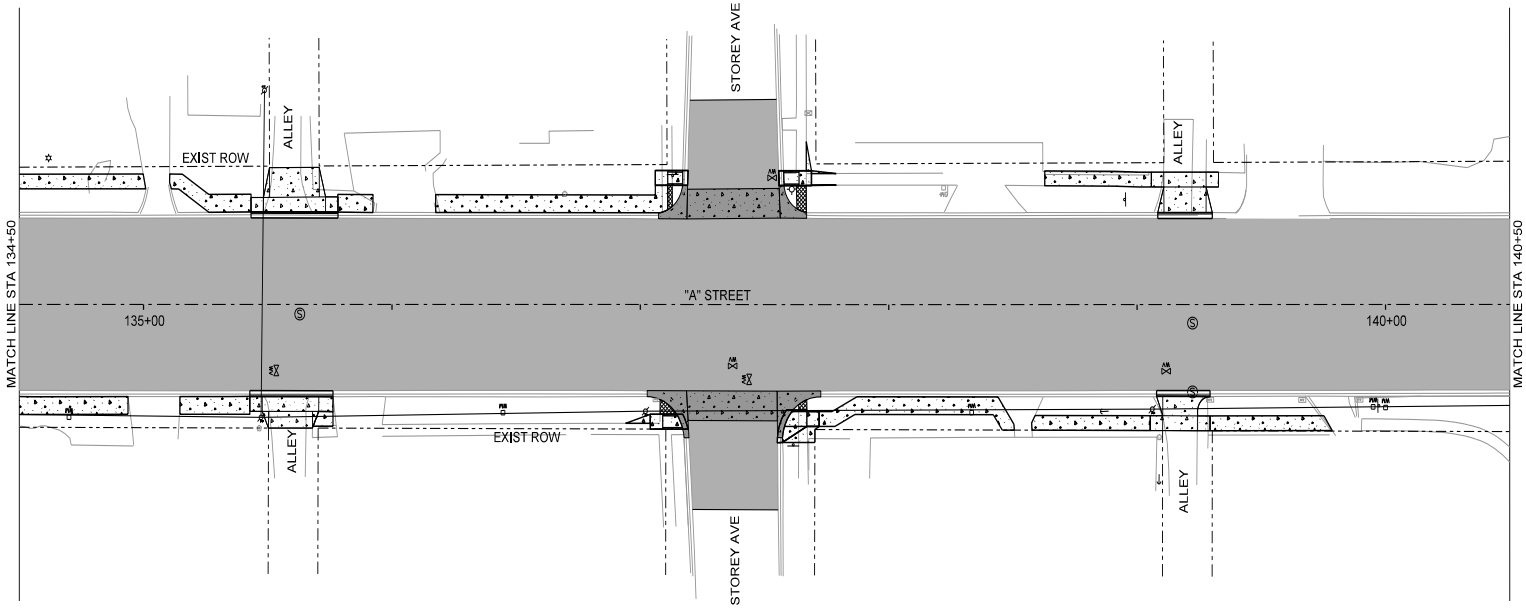
No.	Revision	By	Date

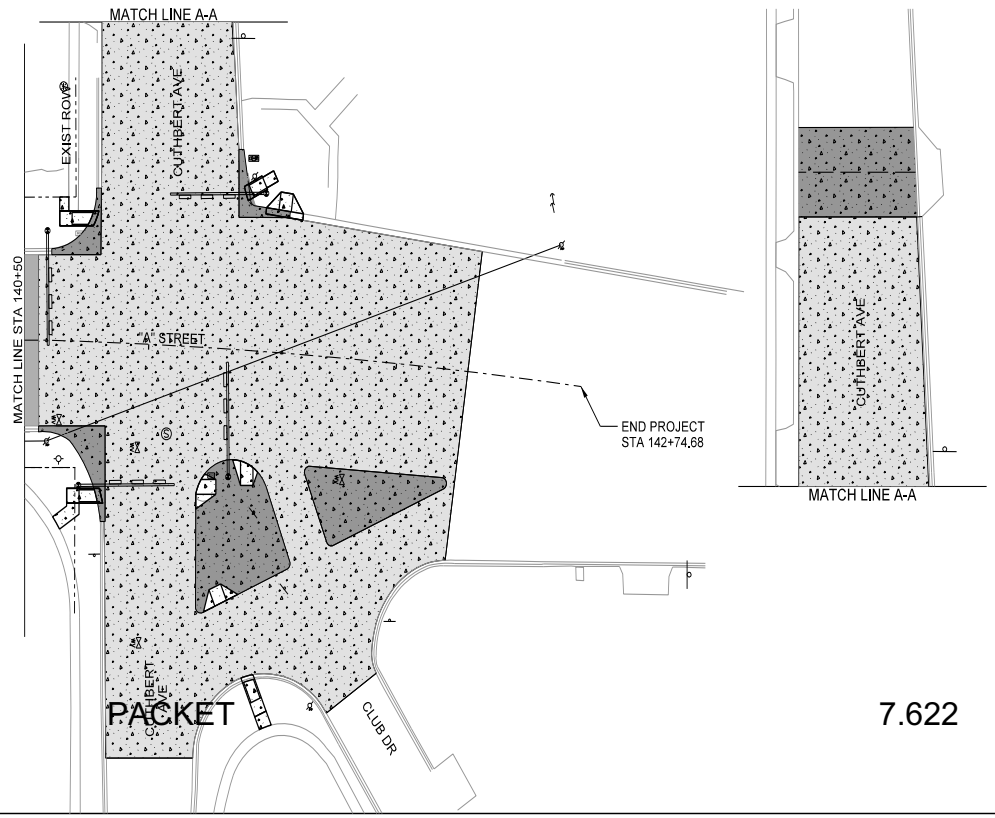
"A" STREET
TRAFFIC SIGNAL
IMPROVEMENT SHEETS
SHEET 3 OF 4

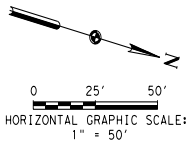
DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
19

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080







LEGEND

	PROPOSED UNDER-GROUND ELECTRIC
SB	EXISTING GROUND BOX
SB	PROPOSED GROUND BOX
	PED POLE
	CONTROLLER CABINET
	TRAFFIC SIGNAL & MAST ARM

NOTES:

1. THE LOCATION OF THE PROPOSED PUSH BUTTON POLES, CONDUIT, GROUND BOXES, AND CONDUCTORS ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMMODATE FIELD CONDITIONS.
2. PROPOSED PUSH BUTTONS SHALL BE PLACED ADJACENT TO A LEVEL LANDING AREA (2% MAX IN ANY DIRECTION). IF THE DISTANCE FROM THE PUSH BUTTON TO THE EDGE OF ACCESSIBLE PATH EXCEEDS 10", THE CONTRACTOR WILL FURNISH AND INSTALL A PUSH BUTTON EXTENDER TO MAKE THE REACH 10" OR LESS. MEASUREMENT AND PAYMENT SHALL BE CONSIDERED SUBSIDIARY TO ITEM 32.

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

"A" STREET
TRAFFIC SIGNAL
IMPROVEMENT SHEETS
SHEET 4 OF 4

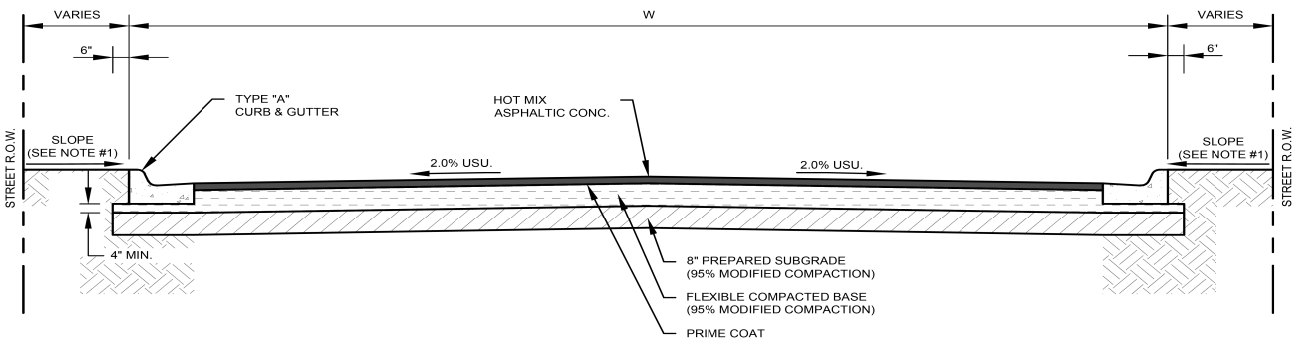
DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
20

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

PACKET 7.622 December 15, 2020

10.20.202

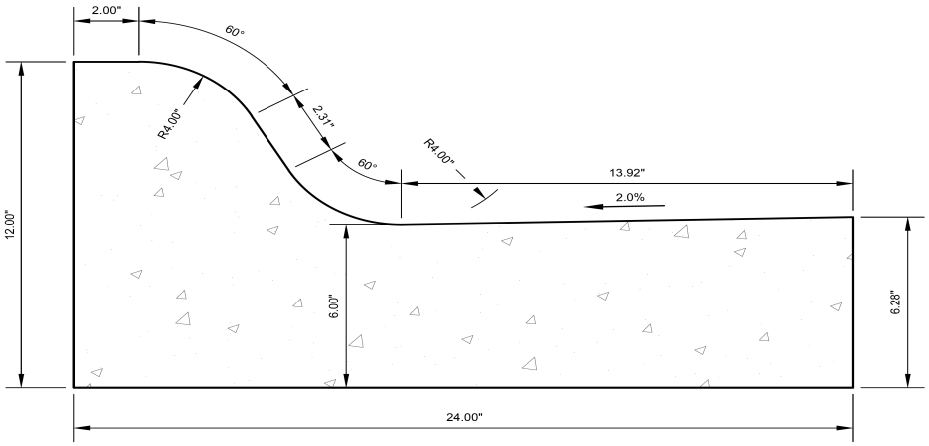


STREET DIMENSIONS			
W (FT)	ASPHALT THICKNESS (IN)	FLEXIBLE COMPACTED BASE THICKNESS (IN)	ASPHALT TYPE
*37	2D	8	TYPE "D"
*41	2D	8	
47	2D & 2C	8	TYPE "D" OVER TYPE "C"
77	2D & 3C	12	
79	2D & 3C	12	
113	2D & 3C	12	
TABLE THICKNESSES SHOWN ARE THE MINIMUM UNLESS OTHERWISE DIRECTED BY THE PLANS.			
* REGARDLESS OF WIDTH, ROADS CLASSIFIED AS COLLECTOR ROADS MUST HAVE 2" TYPE "D" OVER 2" TYPE "C" ASPHALT WITH 8" BASE AND ROADS CLASSIFIED AS ARTERIAL ROADS MUST HAVE 2" TYPE "D" OVER 3" TYPE "C" ASPHALT WITH 12" BASE.			

NOTES:

1. THE MAXIMUM SLOPE OF 1/4" / FT TO BE MEASURED FROM THE TOP OF CURB AND TO APPLY TO THE FULL WIDTH OF THE AREA BETWEEN THE BACK OF CURB AND THE R.O.W.
2. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
3. WHEN MULTIPLE LAYERS OF ASPHALT ARE PLACED A TACK COAT MUST BE PLACED BETWEEN EACH PAIR OF ASPHALT LAYERS.
4. APPLY TACK COAT TO ALL CONCRETE SURFACES ADJACENT TO ASPHALT SURFACES AND TO ALL EXISTING ASPHALT SURFACES ADJACENT TO NEW ASPHALT SURFACES.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE:	DETAIL:
		STANDARD STREET CROWN CROSS SECTION		201



NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

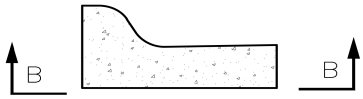
MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		TYPE A STANDARD CURB AND GUTTER		205

Kimley»Horn
4411 98th St, Suite 300, Lubbock, Texas 79423 806-498-1080
Firm Registration No. 928

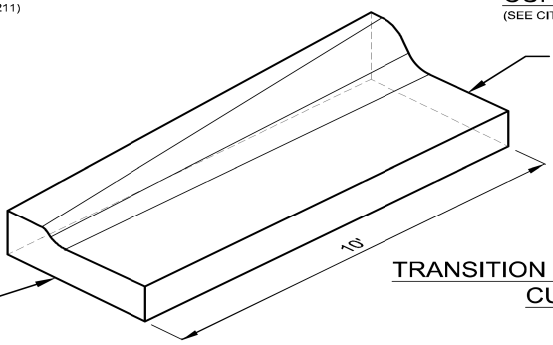
SHEET 21	DATE: JUNE 2019 DESIGN: RTC DRAWN: TLW CHECKED: RTC KHA NO.: 064465308	"A" STREET DETAILS	MIDLAND Feel the Energy!	STATE OF TEXAS PEDRO CARRASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020	No. / Revision / By / Date	



TYPE "D", "E" , OR "F" LAY-DOWN CURB & GUTTER
(SEE CITY DETAIL 209, 210, & 211)



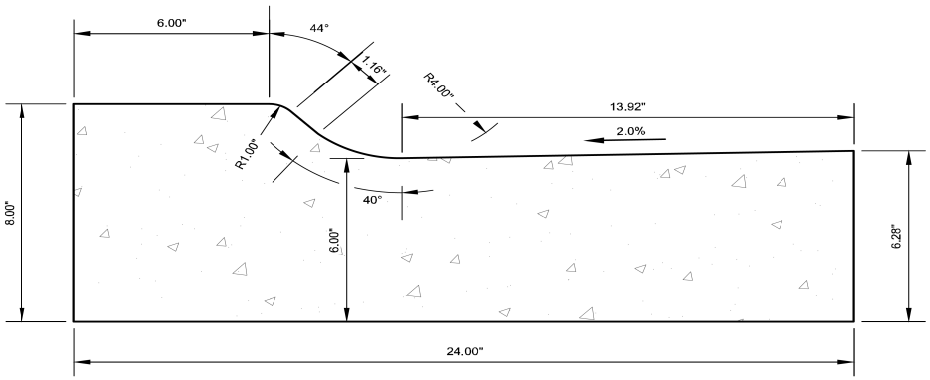
TYPE "A" , "B", OR "C" CURB & GUTTER
(SEE CITY DETAIL 205, 206, & 207)



NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		TRANSITION TO LAY-DOWN CURB		208



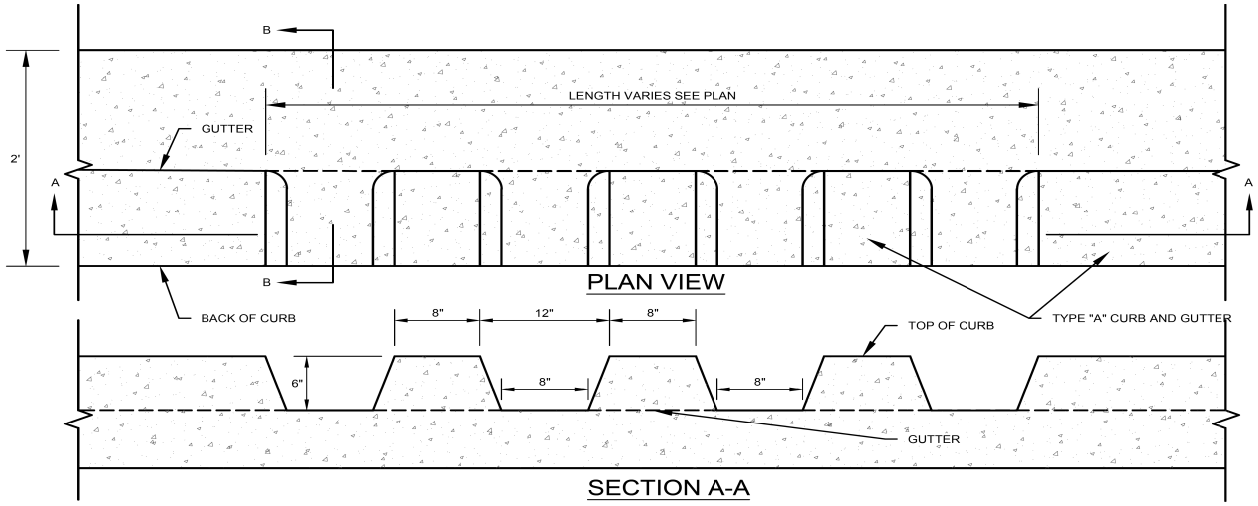
NOTES:

1. CONCRETE WILL BE THE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		TYPE D LAY-DOWN CURB AND GUTTER		209

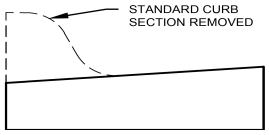
Kimley»Horn
441 I 98th St. Suite 300, Lubbock, Texas 79423 806-281-1060
Firm Registration No. 928

SHEET 22	DATE: JUNE 2019 DESIGN: RTC DRAWN: TLW CHECKED: RTC KHA NO.: 064465308	"A" STREET DETAILS	MIDLAND Feel the Energy!	STATE OF TEXAS PEDRO CARVASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020	No. / Revision / By / Date	



NOTES:

1. CONCRETE TO BE THE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

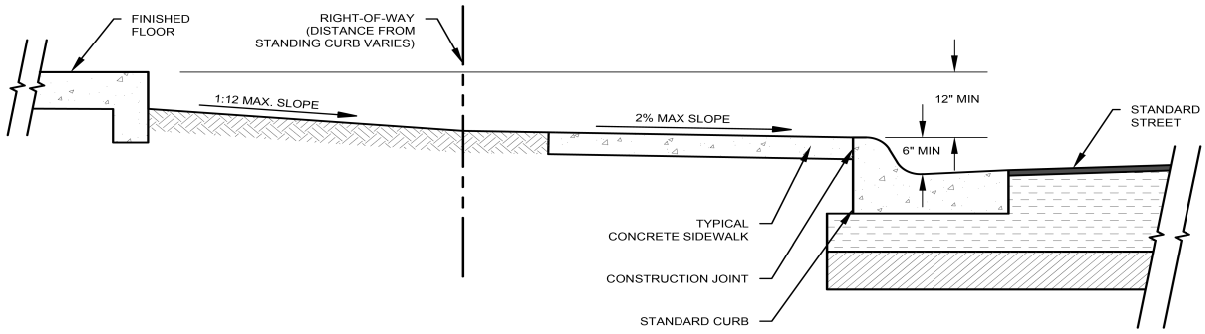


SECTION B-B

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 215

TYPE I SAW-TOOTH CURB AND GUTTER

7.625



NOTES:

1. THE FINISHED FLOOR ELEVATION OF ANY BUILDING TO BE MINIMUM 12" ABOVE TOP OF CURB.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

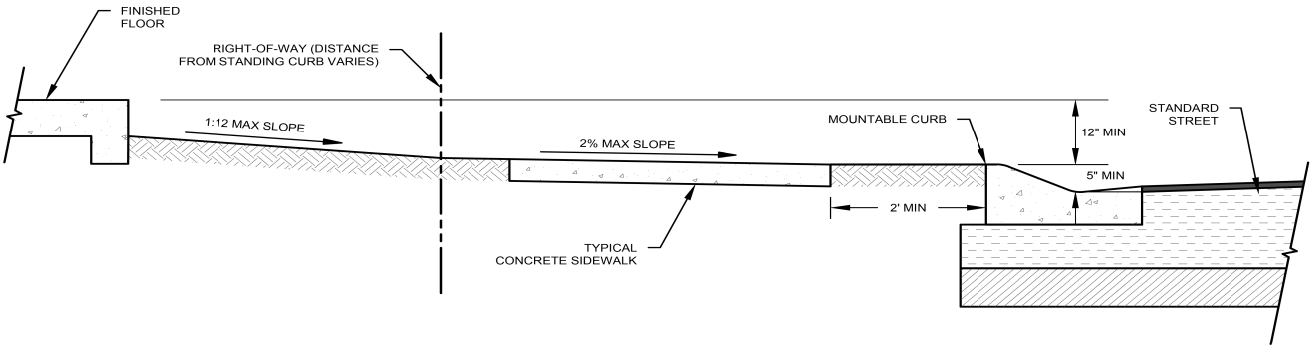
MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 216

TYPICAL CURB, SIDEWALK, AND LOT CONFIGURATION

December 15, 2020

Kimley»Horn
441 I 98th St. Suite 300, Lubbock, Texas 79423 806-786-1080
Firm Registration No. 928

SHEET 23	DATE: JUNE 2019 DESIGN: RTC DRAWN: TLW CHECKED: RTC KHA NO.: 064465308	"A" STREET DETAILS	MIDLAND Feel the Energy!	STATE OF TEXAS PEDRO CARRASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020	No.	Revision	By / Date

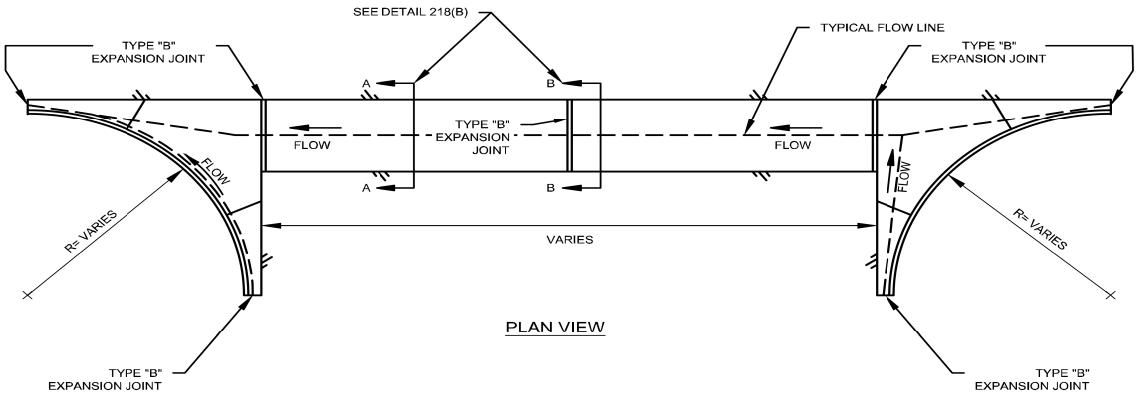


NOTES:

1. MINIMUM 2' SEPARATION DISTANCE BETWEEN MOUNTABLE CURB AND SIDEWALK.
2. FINISHED FLOOR ELEVATION OF ANY BUILDING TO BE MINIMUM 12" ABOVE TOP OF CURB.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		MOUNTABLE CURB, SIDEWALK AND LOT CONFIGURATION		217

7.626



NOTES:

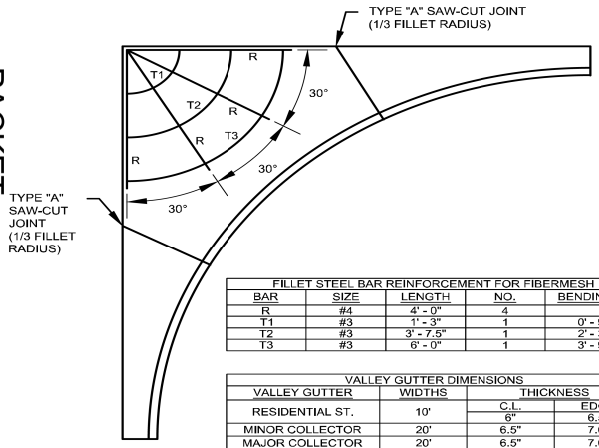
1. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. CONCRETE FILLET AREA TO BE PLACED WITH INTEGRAL CURB.
3. SEAL ALL CONCRETE JOINTS.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		FILLET AND VALLEY GUTTER		218(A)

December 15, 2020

Kimley»Horn
4411 98th St, Suite 300, Lubbock, Texas 79423 806-486-1080
Firm Registration No. 928

SHEET 24	DATE: JUNE 2019 DESIGN: RTC DRAWN: TLW CHECKED: RTC KHA NO.: 064465308	"A" STREET DETAILS	MIDLAND Feel the Energy!	STATE OF TEXAS PEDRO CARRASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020	No.	Revision	By / Date

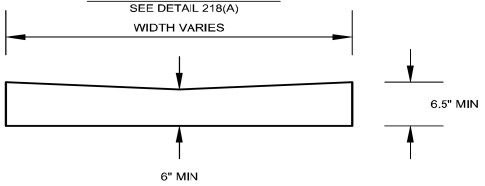


FILLET STEEL BAR REINFORCEMENT FOR FIBERMESH				
BAR	SIZE	LENGTH	NO.	BENDING R.
R	#4	4' - 0"	4	
T1	#3	1' - 3"	1	0' - 9"
T2	#3	3' - 7.5"	1	2' - 3"
T3	#3	6' - 0"	1	3' - 9"

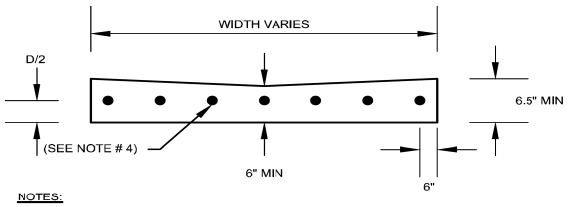
VALLEY GUTTER DIMENSIONS			
VALLEY GUTTER	WIDTHS	THICKNESS	
		C.L.	EDGE
RESIDENTIAL ST.	10'	6"	6.5"
MINOR COLLECTOR	20'	6.5"	7.0"
MAJOR COLLECTOR	20'	6.5"	7.0"
MINOR ARTERIAL	20'	7.5"	8.0"
MAJOR ARTERIAL	SEE PLANS		
VALLEY GUTTER WIDTH BASED ON CATEGORY OF STREET BEING CROSSED			

FILLET DIMENSIONS				
BACK OF CURB	FILLET AREAS (90°)			CURB LENGTH
RADIUS	COMPUTING R.	AREA S.F.	AREA S.Y.	L.F.
8	10	21.46	2.38	12.56
12	14	42.06	4.67	18.85
15	17	62.01	6.89	23.56
18	20	85.84	9.54	28.27
20	22	103.86	11.54	31.42
25	27	156.44	17.38	39.27
30	32	219.75	24.42	47.12
35	37	293.79	32.64	54.98
40	42	378.56	42.06	62.83
45	47	474.06	52.67	70.69
50	52	580.28	64.48	78.54

TYPICAL SECTION A - A
SEE DETAIL 218(A)



JOINT SECTION B - B
SEE DETAIL 218(A)



NOTES:

1. WHEN FILLET AREA IS TO BE PAVED WITH 8" THICK CONCRETE THE BOTTOM OF THE CURB AND GUTTER WILL BE EXTENDED TO MATCH THE FILLET THICKNESS.
2. USE FIBER REINFORCED CONCRETE THROUGHOUT VALLEY GUTTER.
3. STEEL BAR REINFORCEMENT TO BE USED IN FILLET, BUT NOT IN VALLEY GUTTER. STEEL BAR REINFORCEMENT TO BE PLACED AT THE BOTTOM 1/3 POINT OF SLAB CONCRETE ON GRADE AND TO HAVE A MINIMUM COVER OF 2" WHEN USED.
4. UTILIZE SMOOTH DOWEL RODS CENTERED ON THE VALLEY GUTTER JOINT, EVENLY SPACED AT 12" INTERVALS FOR THE FULL WIDTH OF THE VALLEY GUTTER.
5. SEAL ALL CONCRETE JOINTS.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services

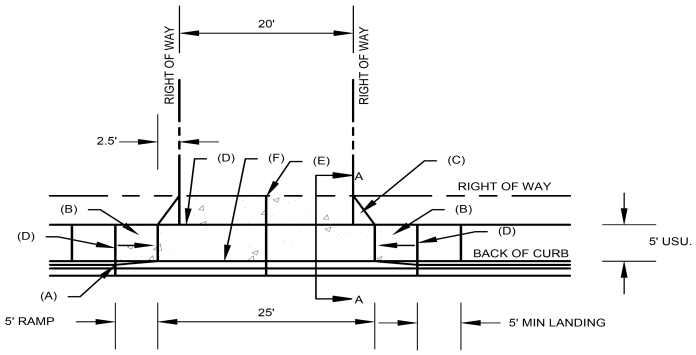
DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018 | SCALE: NTS | DETAIL:

FILLET AND VALLEY GUTTER

218(B)

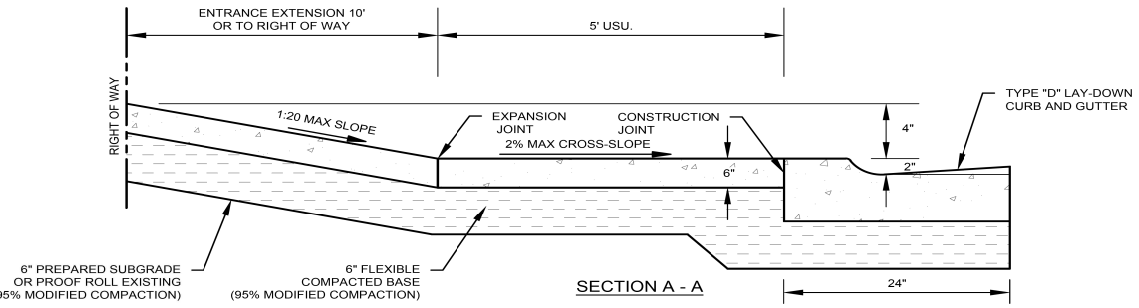
7.627



PLAN VIEW

NOTES:

1. (A) = MATCH GUTTER
2. (B) = DIRECTIONAL CURB RAMP DETAIL 231 (8.33% MAX FOR HANDICAP RAMP)
3. (C) = CONCRETE FLARE
4. (D) = TYPE B EXPANSION JOINT
5. (E) = TYPE A SAW-CUT JOINT
6. (Γ) = CONSTRUCTION JOINT (COLD JOINT)



SECTION A - A

MIDLAND Engineering Services

DRAWN: DPM
CHECKED: JCF
APPROVED: MCC

EFFECTIVE DATE: 10/01/2018 | SCALE: NTS | DETAIL:

STANDARD ALLEY APPROACH

219(A)

December 15, 2020

Kimley»Horn
4411 98th St, Suite 300, Lubbock, Texas 79424 806-486-1080
Firm Registration No. 928

SHEET 25

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

"A" STREET DETAILS

MIDLAND Feel the Energy!

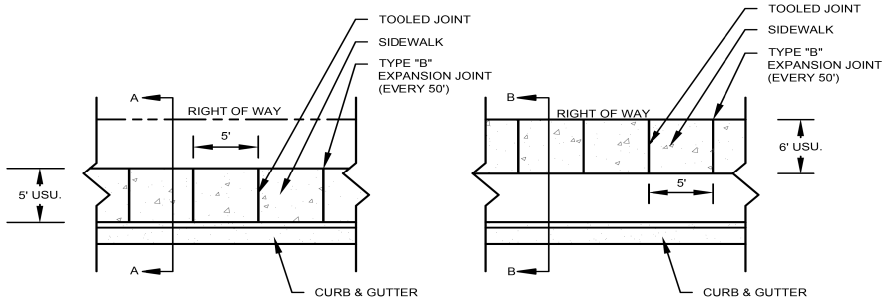
STATE OF TEXAS PEDRO CARVASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020

No.	Revision	By	Date

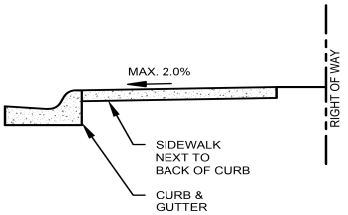
NOTES:

1. REMOVE AND REPLACE EXISTING CURB AND GUTTER TO NEAREST JOINT IF LESS THAN 4' SECTION OF EXISTING CURB AND GUTTER REMAINS AFTER ALLEY APPROACH IS PLACED.
2. MATCH GUTTER/FLOWLINE ELEVATION ON EACH END OF ALLEY APPROACH. WATER MUST FLOW IN GUTTER ACROSS THE ALLEY APPROACH.
3. CONCRETE TO BE CITY OF MIDLAND CLASS "C", 3600 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
4. 2" INVERT REQUIRED AT ALLEY APPROACH CENTER LINE WHEN ALLEY DRAINS TOWARDS STREET. IF ALLEY DRAINS AWAY FROM STREET THEN BACK OF APPROACH IS FLAT.
5. OVER-EXCAVATION BELOW THE GRADE REQUIRED TO BE CORRECTED BY PLACING EXTRA CONCRETE AT THE TIME THE ENTRANCE IS PLACED OR BY PLACING ADDITIONAL CITY STANDARD FLEXIBLE COMPACTED BASE.
6. FLEXIBLE COMPACTED BASE TO BE PLACED IN LIFTS NO THICKER THAN 6".
7. SIDEWALKS AND RAMPS TO HAVE COARSE BROOM FINISH.
8. SEAL ALL CONCRETE JOINTS.
9. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
10. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		STANDARD ALLEY APPROACH		219(B)

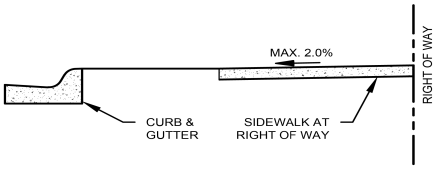


ATTACHED SIDEWALK PLACEMENT



SECTION A - A

DETACHED SIDEWALK PLACEMENT



SECTION B - B

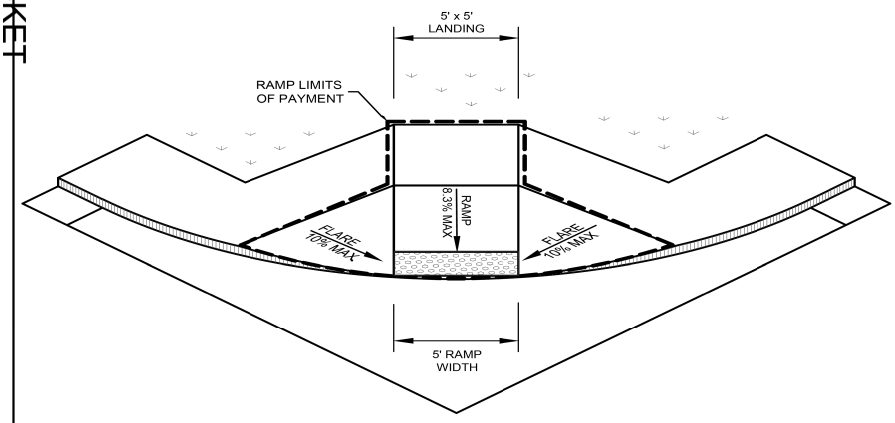
NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" AND HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SIDEWALK TO BE A MINIMUM OF 5' WIDE AND 4" THICK.
3. SIDEWALKS TO HAVE TYPE A SAWCUT JOINTS OR TOOLED JOINTS EVERY 5'.
4. TYPE "B" EXPANSION JOINTS TO BE LOCATED AT ALL PEDESTRIAN ACCESS RAMPS AND WHEREVER NEW SIDEWALK IS PLACED ADJACENT TO EXISTING CONCRETE.
5. ATTACHED SIDEWALK WILL BE LOCATED ADJACENT TO THE BACK OF CURB.
6. DETACHED SIDEWALK WILL BE LOCATED ADJACENT TO THE RIGHT-OF-WAY.
7. SIDEWALK CROSS-SLOPE MAY NOT EXCEED 2.0%.
8. ALL EXPOSED SIDEWALK EDGES TO HAVE A 1/2" RADIUS.
9. WHERE OBSTRUCTION IN SIDEWALK EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE. SIDEWALK LOCATION MAY BE SHIFTED WITH THE APPROVAL OF THE CITY ENGINEER.
10. ALL SIDEWALKS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE CITY ENGINEER.
11. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
12. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.
13. SIDEWALKS IN DOWNTOWN PER CENTRAL BUSINESS DISTRICT POLICY.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		STANDARD SIDEWALK		225

Kimley»Horn
4411 98th St, Suite 300, Lubbock, Texas 79423 806-486-1080
Firm Registration No. 928

SHEET 26	DATE: JUNE 2019 DESIGN: RTC DRAWN: TLW CHECKED: RTC KHA NO.: 064465308	"A" STREET DETAILS	MIDLAND Feel the Energy!	STATE OF TEXAS PEDRO CARVASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020	No. / Revision / By / Date	



TYPE 8
DIAGONAL CURB RAMP

CURB RAMP NOTES:

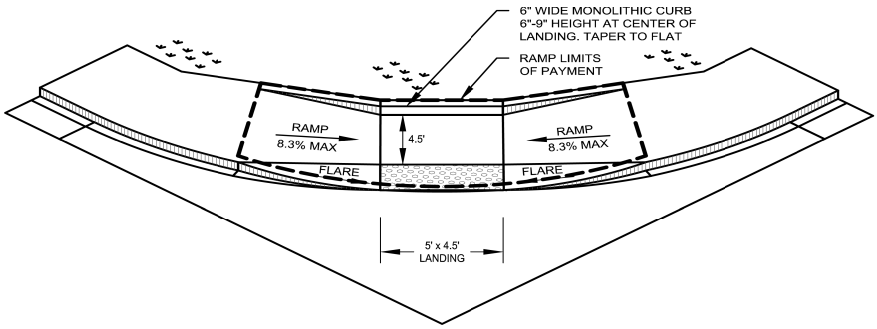
1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS,OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 226
		DIAGONAL CURB RAMP		

7.629



TYPE 4:
DIAGONAL COMBINATION CURB RAMP

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS,OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 229
		DIAGONAL COMBINATION CURB RAMP		

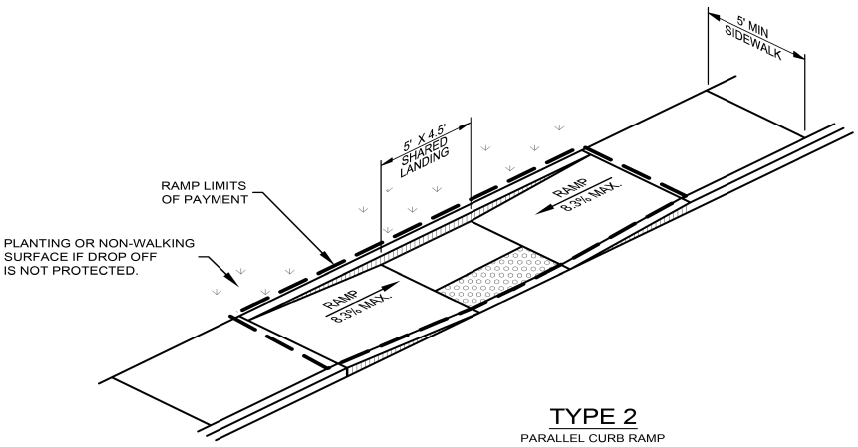
Kimley»Horn
4411 98th St, Suite 300, Lubbock, Texas 79423 (806)-281-1900
Firm Registration No. 928

SHEET 27	DATE: JUNE 2019 DESIGN: RTC DRAWN: TLW CHECKED: RTC KHA NO.: 064465308	"A" STREET DETAILS	MIDLAND Feel the Energy!	STATE OF TEXAS PEDRO CARRASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020	No.	Revision	By / Date

PACKET

7.630

December 15, 2020



TYPE 2
PARALLEL CURB RAMP

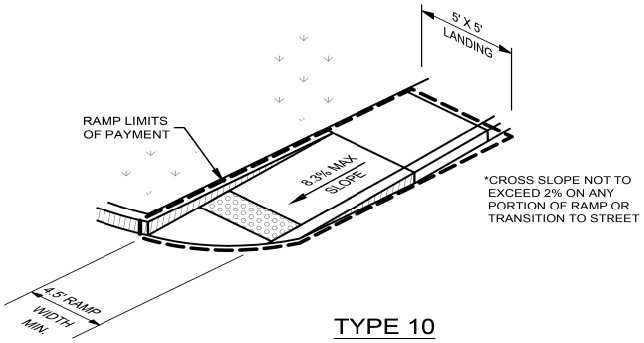
CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS.OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 230
		PARALLEL CURB RAMP		



TYPE 10
DIRECTIONAL RAMP WITHIN RADIUS

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS,OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 231
		DIRECTIONAL RAMP WITHIN RADIUS		

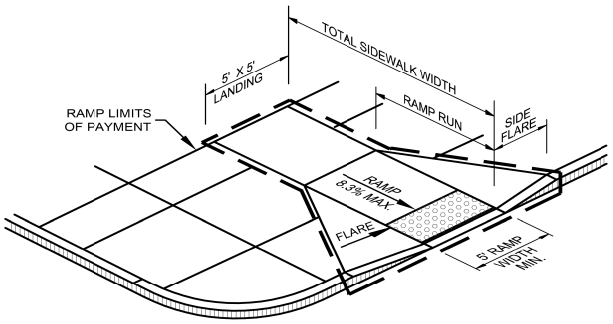
Kimley»Horn
4411 98th St. Suite 300, Lubbock, Texas 79423 806-498-1080
Firm Registration No. 928

SHEET 28	DATE: JUNE 2019 DESIGN: RTC DRAWN: TLW CHECKED: RTC KHA NO.: 064465308	"A" STREET DETAILS	MIDLAND Feel the Energy!	STATE OF TEXAS PEDRO CARRASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020	No. / Revision / By / Date	

PACKET

7.631

December 15, 2020



TYPE 1

PERPENDICULAR CURB RAMP

CURB RAMP NOTES:

1. ADJUST CURB RAMP LOCATION AND OR TYPE SO THAT NO OBSTRUCTION IS LOCATED WITHIN THE LANDING AREA.
2. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED.
3. LANDINGS SHALL BE 5'X 5' MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION. WHERE OBSTRUCTIONS EXIST, THERE SHALL BE A 3' MINIMUM CLEARANCE IN WIDTH AND LENGTH OF THE LANDING.
4. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X4' WHOLLY CONTAINED WITHIN THE CROSSWALK AND TO THE ENTIRE OUTSIDE OF THE PARALLEL VEHICULAR TRAVEL PATH.
5. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
6. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP, EITHER BECAUSE THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR BECAUSE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED. OTHERWISE, PROVIDE FLARED SIDES.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND 16 TAC 68.102.
8. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS,OR AS DIRECTED BY THE ENGINEER.
9. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
10. FLARE SLOPE SHALL NOT EXCEED 10% MEASURED ALONG CURB LINE.
11. ALL RAMPS AND LANDINGS WITH A CONCRETE SURFACE SHALL HAVE A COURSE BROOM FINISH OR OTHER ROUGH NON-SKID TYPE FINISH AS APPROVED BY THE ENGINEER.
12. PLACE 6" OF CONCRETE IN RAMPS, LANDINGS, AND FLARES THAT ARE LOCATED AT THE RETURNS ADJACENT TO THE BACK OF CURB OF ARTERIAL STREETS AND COMMERCIAL SITES.

GENERAL NOTES:

1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.

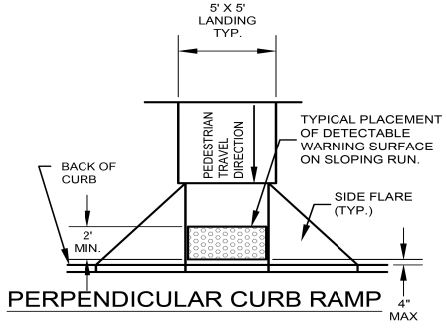
MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		PERPENDICULAR CURB RAMP		232

DETECTABLE WARNING SURFACE NOTES:

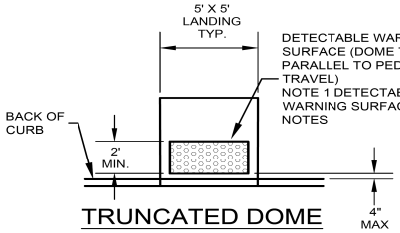
1. DETECTABLE WARNING SURFACE SUCH AS ARMOR-TILE ADA SOUND AMPLIFYING DETECTABLE/TACTILE WARNING SURFACE TILE OR EQUAL AND APPROVED BY THE ENGINEER AS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33.
2. CURB RAMPS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 7.05 DETACHABLE WARNINGS OF THE TEXAS ACCESSIBILITY STANDARDS (TAS). THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE,UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
3. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
4. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
5. SHADED AREAS INDICATE THE APPROXIMATE LOCATION FOR THE DETECTABLE WARNING SURFACE FOR EACH CURB RAMP TYPE.
6. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL.
7. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS A MINIMUM OF 6" AND A MAXIMUM OF 10" FROM THE EXTENSION OF THE FACE OF CURB. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
8. SINGLE TILE PLATES COLONIAL RED COLOR.

GENERAL NOTES:

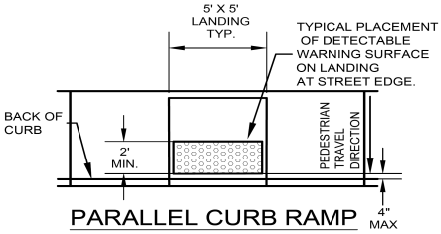
1. CONCRETE TO BE CITY OF MIDLAND CLASS "A" WITH A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI. USE FIBER REINFORCED CONCRETE THROUGHOUT.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY ADA STANDARDS AND RESOURCES.



PERPENDICULAR CURB RAMP



TRUNCATED DOME PATTERN

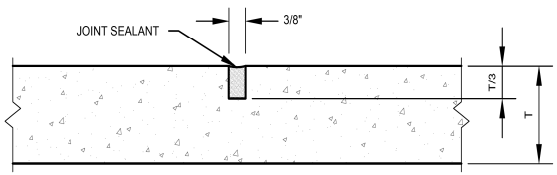


PARALLEL CURB RAMP

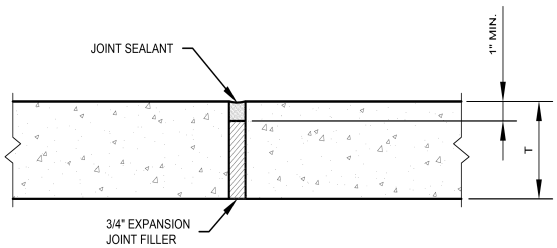
MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
		DETECTABLE WARNING SURFACE		233

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 (806) 281-1300

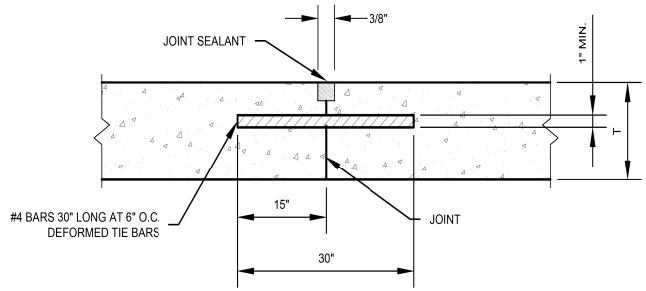
SHEET 29	DATE: JUNE 2019 DESIGN: RTC DRAWN: TLW CHECKED: RTC KHA NO.: 064465308	"A" STREET DETAILS	MIDLAND Feel the Energy!	STATE OF TEXAS PEDRO CARRASCO JR. 98380 LICENSED PROFESSIONAL ENGINEER 10/20/2020	No. / Revision / By / Date



TYPE "A" SAW-CUT JOINT



TYPE "B" DOWEL-LESS EXPANSION JOINT

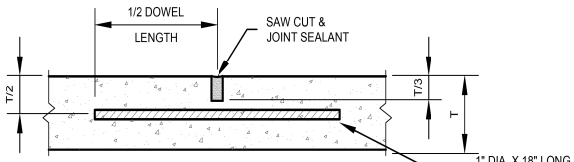


TYPE "C" CONSTRUCTION COLD JOINT

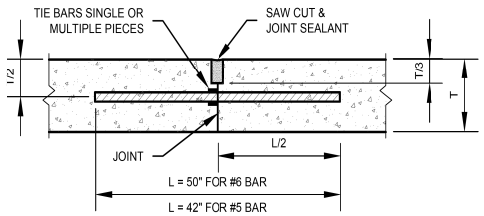
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:	234(A)

MIDLAND Engineering Services

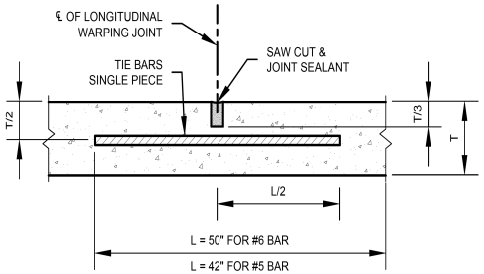
TYPICAL CONCRETE JOINTS



TYPE "D" TRANSVERSE CONTRACTION JOINT



TYPE "E" LONGITUDINAL CONTRACTION JOINT



TYPE "F" LONGITUDINAL CONTRACTION SAW-CUT JOINT

NOTES:

1. JOINTING , DOWEL, AND TIE BAR DESIGN REQUIREMENTS ARE SUBJECT TO CHANGE FOR ARTERIAL OR HIGHER CLASSIFICATION ROADS IF DEEMED NECESSARY BY THE CITY ENGINEER.
2. TYPICAL CONCRETE PAVEMENT JOINT SPACING IS TO BE NO LESS THAN 10' X 10' AND NO MORE THAT 15' X 15'.
3. DOWELS ARE TO BE SPACED AT 12" INTERVALS WITH MINIMUM 18" SEPARATION FROM PARALLEL JOINTS OR EDGES OF PAVEMENT.
4. TIE BARS ARE TO BE SET AT 24" INTERVALS WITH MINIMUM 18" SEPARATION FROM PARALLEL JOINTS OR EDGES OF PAVEMENT.
5. ALL JOINT SEALANT TO BE TxDOT DMS-6310 SL-2 OR APPROVED EQUAL.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:	234(B)

MIDLAND Engineering Services

TYPICAL CONCRETE JOINTS

No.	Revision	By	Date

10/20/2020

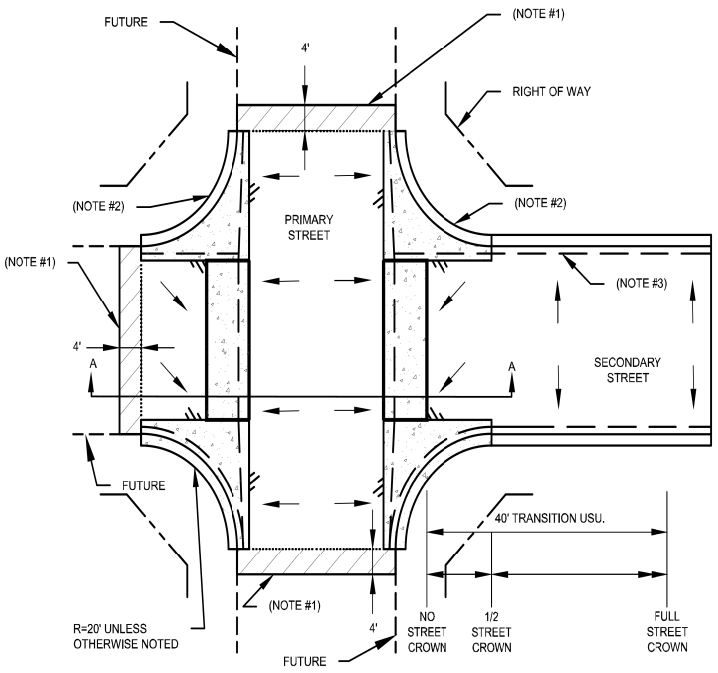
MIDLAND Feel the Energy!

"A" STREET DETAILS

DATE:	JUNE 2019
DESIGN:	RTC
DRAWN:	TLW
CHECKED:	RTC
KHA NO.:	064465308

SHEET 30

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080



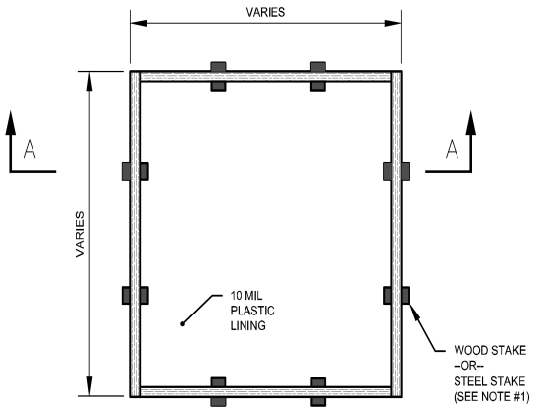
SECTION A-A

N.T.S.

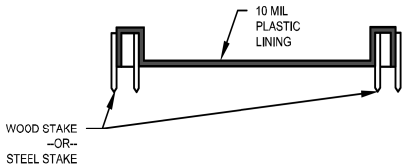
NOTES:

1. NO HEADER WILL BE USED IF ROAD ENDS AT INTERSECTION. INSTEAD EXTEND BASE AND SURFACE 4' BEYOND END OF CURB.
2. WARP GUTTER SO THAT IT SLOPES TOWARDS THE VALLEY GUTTER.
3. FLOW PATH LINES
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
TYPICAL LOCAL /COLLECTOR CROWN TRANSITION			235



ELEVATED WASHOUT



SECTION 'A-A'

NOTES:

1. THIS WASHOUT CONFIGURATION MAY NOT BE USED IN PAVED AREAS.
2. WOOD FRAME IS TO BE EQUAL TO OR BETTER THAN TWO-STACKED 2X12 ROUGH WOOD FRAME.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEERING.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CONCRETE WASHOUT OPTION 2			705

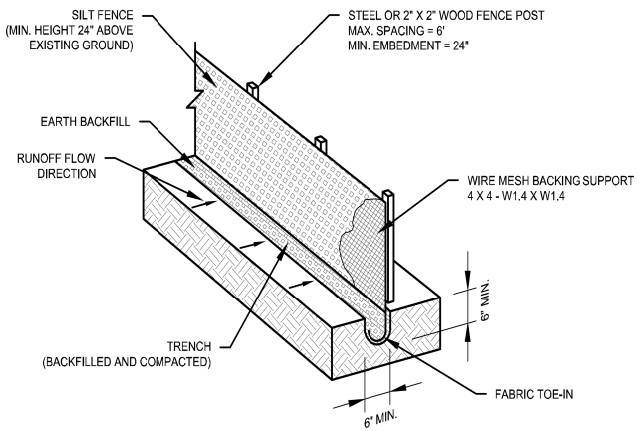
No.	Revision	By	Date

"A" STREET DETAILS

DATE:	JUNE 2019
DESIGN:	RTC
DRAWN:	TLW
CHECKED:	RTC
KHA NO.:	064465308

SHEET 31

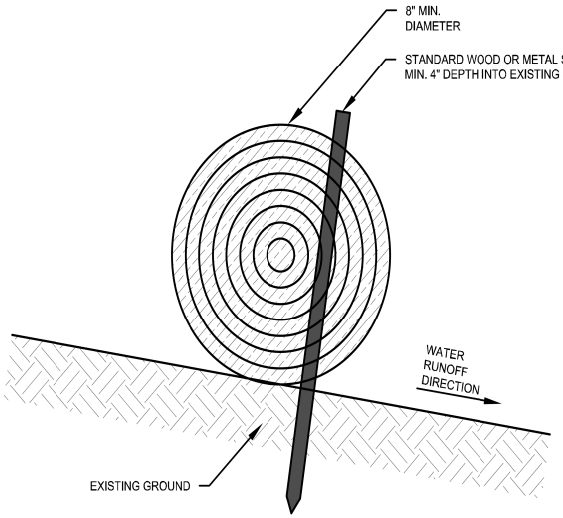
Kimley»Horn Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080



NOTES:

1. THIS DETAIL IS TO BE USED FOR SHEET FLOW CONDITIONS ONLY. DO NOT USE SILT FENCE FOR POINT FLOW OR CONCENTRATED FLOW CONDITIONS.
2. INSTALL STEEL OR WOOD POSTS, WHICH SUPPORT THE SILT FENCE, WITH A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF ONE (1) FOOT.
3. TRENCH THE TOE OF THE SILT FENCE IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE THE FENCE CANNOT BE TRENCHED IN (E.G.PAVEMENT), WEIGHT DOWN FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
4. THE TRENCH MUST BE A MINIMUM OF SIX (6) INCHES DEEP AND SIX (6) INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
5. SECURELY FASTEN SILT FENCE TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS TO BE ATTACHED TO THE STEEL OR WOOD FENCE POST. INCLUDE A SIX (6) INCH DOUBLE OVERLAP, SECURELY FASTENED, WHERE ENDS OF FABRIC MEET.
6. REMOVE SILT FENCE WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. REMOVE ACCUMULATED SILT WHEN IT REACHES A DEPTH OF SIX (6) INCHES. DISPOSE OF THE SILT ONSITE IN AN APPROVED LOCATION AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
	SILT FENCE		706



NOTES:

1. THIS DETAIL IS TO USED FOR SHEET FLOW CONDITIONS ONLY. DO NOT USE FILTER SOCK FOR POINT FLOW OR CONCENTRATED FLOW CONDITIONS.
2. DO NOT USE FILTER SOCK FOR SHEET FLOW WATERSHEDS LARGER THAN ONE (1) ACRE.
3. USE POLYPROPYLENE NETTING, BURLAP, OR JUTE FABRIC TO CONSTRUCT THE FILTER SOCK.
4. FILL FILTER SOCK WITH STRAW, HAY, COCONUT FIBER, OR COMPOSITE MATERIAL.
5. PLACE STAKING EVERY THREE (3) TO FOUR (4) FEET AT A MINIMUM.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
	FILTER SOCK		707

No.	Revision	By	Date

10/20/2020

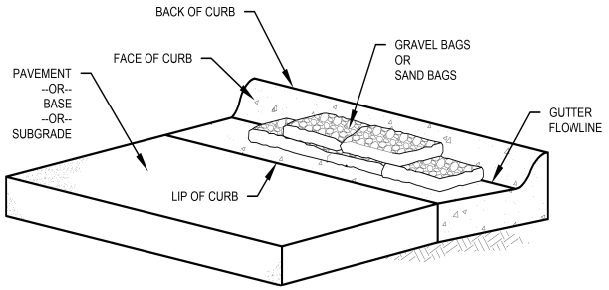
MIDLAND Feel the Energy!

"A" STREET
DETAILS

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
32

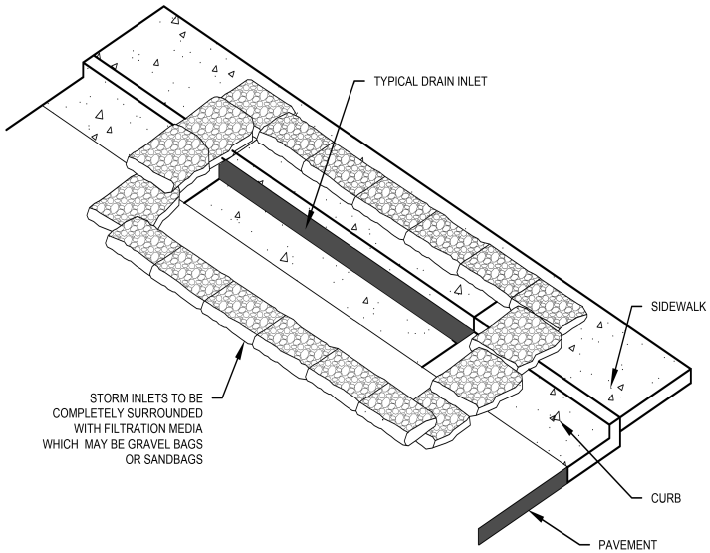
Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080



NOTES:

1. FILL BAGS TO 60% CAPACITY WITH EITHER CLEAN GRAVEL OR CLEAN SAND.
2. GRAVEL TO BE NO LESS THAN 1" DIAMETER OR GREATER THAN 2" DIAMETER.
3. PLACE BAGS WITH BAG OPENINGS SECURED AND FACE UP, AND SO THAT EACH BAG IS FLAT AND HAS THE GREATEST POSSIBLE SURFACE AREA CONTACT WITH THE CURB.
4. PLACE BAGS AGAINST THE FACE-OF-CURB AND DO NOT PLACE BAGS BEYOND THE LIP-OF-CURB.
5. DO NOT BLOCK ADA RAMPS OR WALKWAYS WITH BAGS.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CURB GRAVEL OR SAND BAGS			712



GRAVEL BAGS OR SANDBAGS

NOTES:

1. FILL BAGS TO 60% CAPACITY WITH CLEAN GRAVEL OR CLEAN SAND.
2. PLACE BAGS WITH BAG OPENINGS SECURED AND FACE UP, AND SO THAT EACH BAG IS FLAT AND HAS THE GREATEST POSSIBLE SURFACE AREA CONTACT WITH THE SURFACE.
3. GRAVEL TO BE NO LESS THAN 1" DIAMETER OR GREATER THAN 2" DIAMETER.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
MIDLAND Engineering Services	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CURB INLET PROTECTION			714

No.	Revision	By	Date

10/20/2020

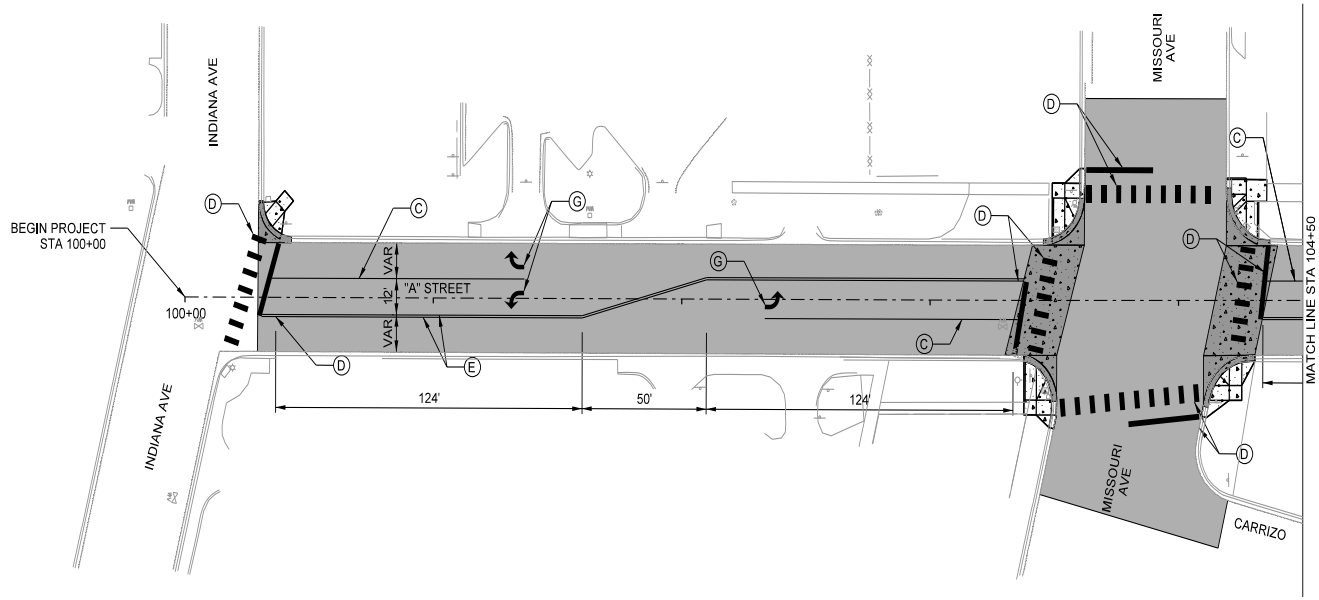
MIDLAND Feel the Energy!

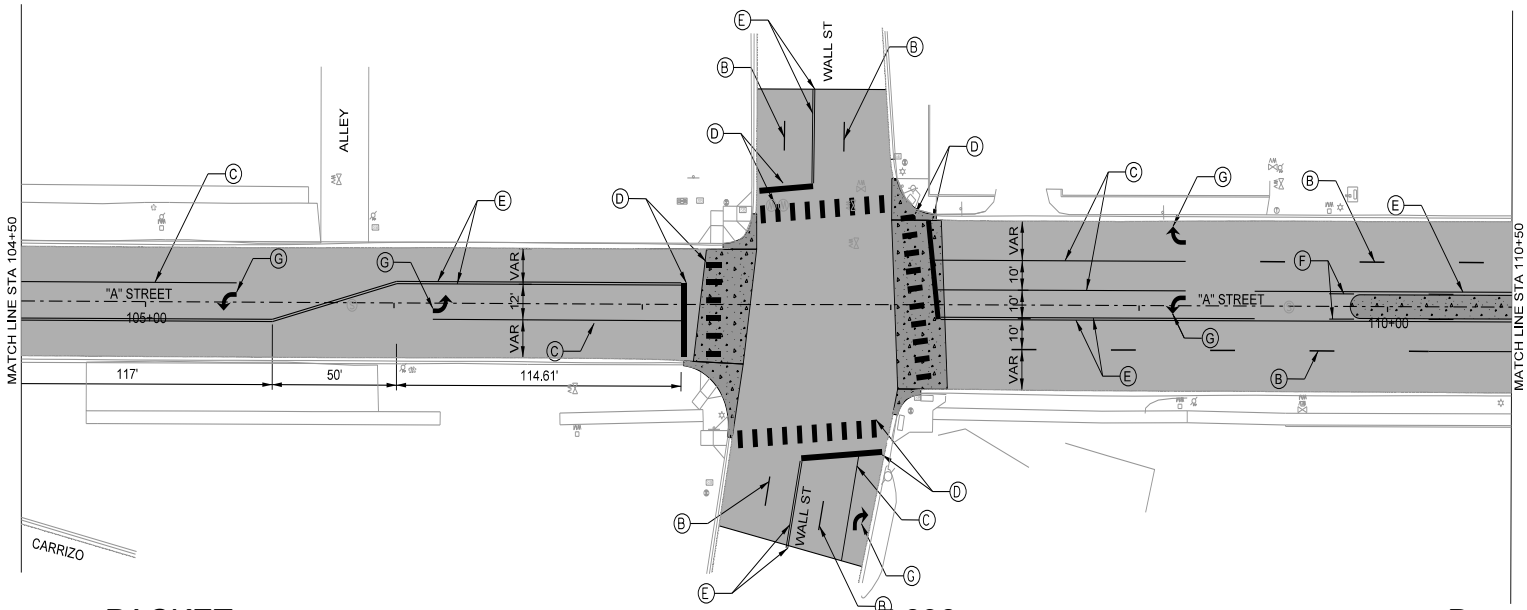
"A" STREET DETAILS

DATE:	JUNE 2019
DESIGN:	RTC
DRAWN:	TLW
CHECKED:	RTC
KHA NO.:	064465308

SHEET 33

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080





N

0 25' 50'

HORIZONTAL GRAPHIC SCALE:
1" = 50'

LEGEND

A	REFL PAV MRK TY I (W) (4 IN) (SLD)
B	REFL PAV MRK TY I (W) (4 IN) (BRK)
C	REFL PAV MRK TY I (W) (8 IN) (SLD)
D	REFL PAV MRK TY I (W) (24 IN) (SLD)
E	REFL PAV MRK TY I (Y) (4 IN) (SLD)
F	REFL PAV MRK TY I (Y) (4 IN) (BRK)
G	REFL PAV MRK TY I (W) (ARROW)
H	RELF PAV MRK TY I (W) (18 IN) (YLD TRI)
I	REFL PAV MRK TY II (W) (4 IN) (SLD)
J	REFL PAV MRK TY II (W) (4 IN) (BRK)
K	REFL PAV MRK TY II (W) (8 IN) (SLD)
L	REFL PAV MRK TY II (W) (24 IN) (SLD)
M	REFL PAV MRK TY II (Y) (4 IN) (SLD)
N	REFL PAV MRK TY II (W) (ARROW)
O	RELF PAV MRK TY II (W) (18 IN) (YLD TRI)

NOTE:

1. ALL PAVEMENT MARKING WORK SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD DRAWINGS AND SPECIFICATIONS OF THE TEXAS DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE SHOWN ON THESE PLANS OR DIRECTED BY THE ENGINEER.
2. CONTRACTOR TO PAINT MEDIAN NOSE.

No.	Revision	By	Date

10/20/2020
Pablo Carrasco, Jr.

MIDLAND
Feel the Energy!

"A" STREET
PAVEMENT MARKING PLAN
SHEET 1 OF 4

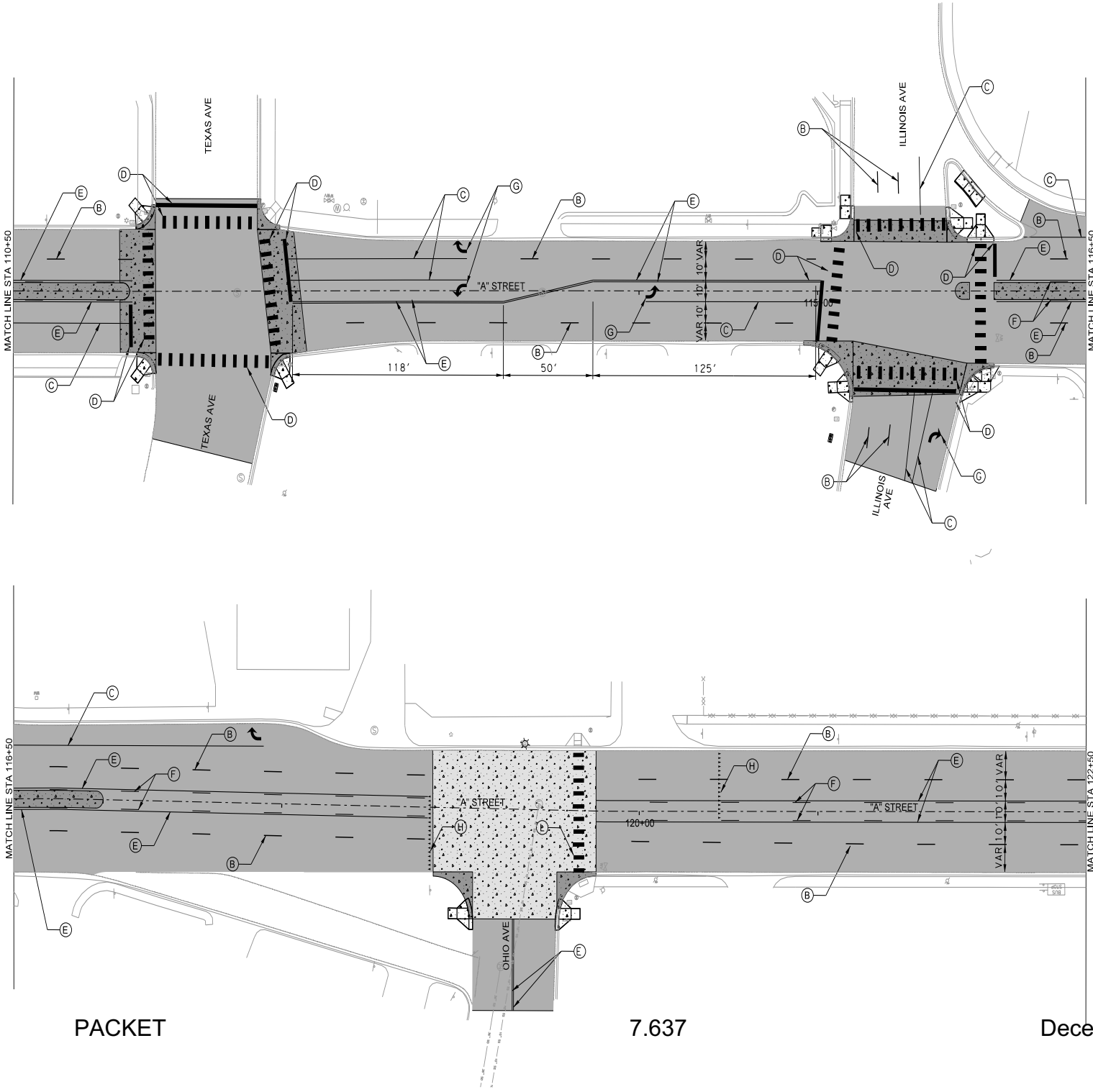
DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
34

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

PACKET 7.636 December 15, 2020

10.20.20



LEGEND

- (A) REFL PAV MRK TY I (W) (4 IN) (SLD)
- (B) REFL PAV MRK TY I (W) (4 IN) (BRK)
- (C) REFL PAV MRK TY I (W) (8 IN) (SLD)
- (D) REFL PAV MRK TY I (W) (24 IN) (SLD)
- (E) REFL PAV MRK TY I (Y) (4 IN) (SLD)
- (F) REFL PAV MRK TY I (Y) (4 IN) (BRK)
- (G) REFL PAV MRK TY I (W) (ARROW)
- (H) RELF PAV MRK TY I (W) (18 IN) (YLD TRI)
- (I) REFL PAV MRK TY II (W) (4 IN) (SLD)
- (J) REFL PAV MRK TY II (W) (4 IN) (BRK)
- (K) REFL PAV MRK TY II (W) (8 IN) (SLD)
- (L) REFL PAV MRK TY II (W) (24 IN) (SLD)
- (M) REFL PAV MRK TY II (Y) (4 IN) (SLD)
- (N) REFL PAV MRK TY II (W) (ARROW)
- (O) RELF PAV MRK TY II (W) (18 IN) (YLD TRI)

NOTE:

1. ALL PAVEMENT MARKING WORK SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD DRAWINGS AND SPECIFICATIONS OF THE TEXAS DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE SHOWN ON THESE PLANS OR DIRECTED BY THE ENGINEER.
2. CONTRACTOR TO PAINT MEDIAN NOSE.

No.	Revision	By	Date

"A" STREET
PAVEMENT MARKING PLAN
SHEET 2 OF 4

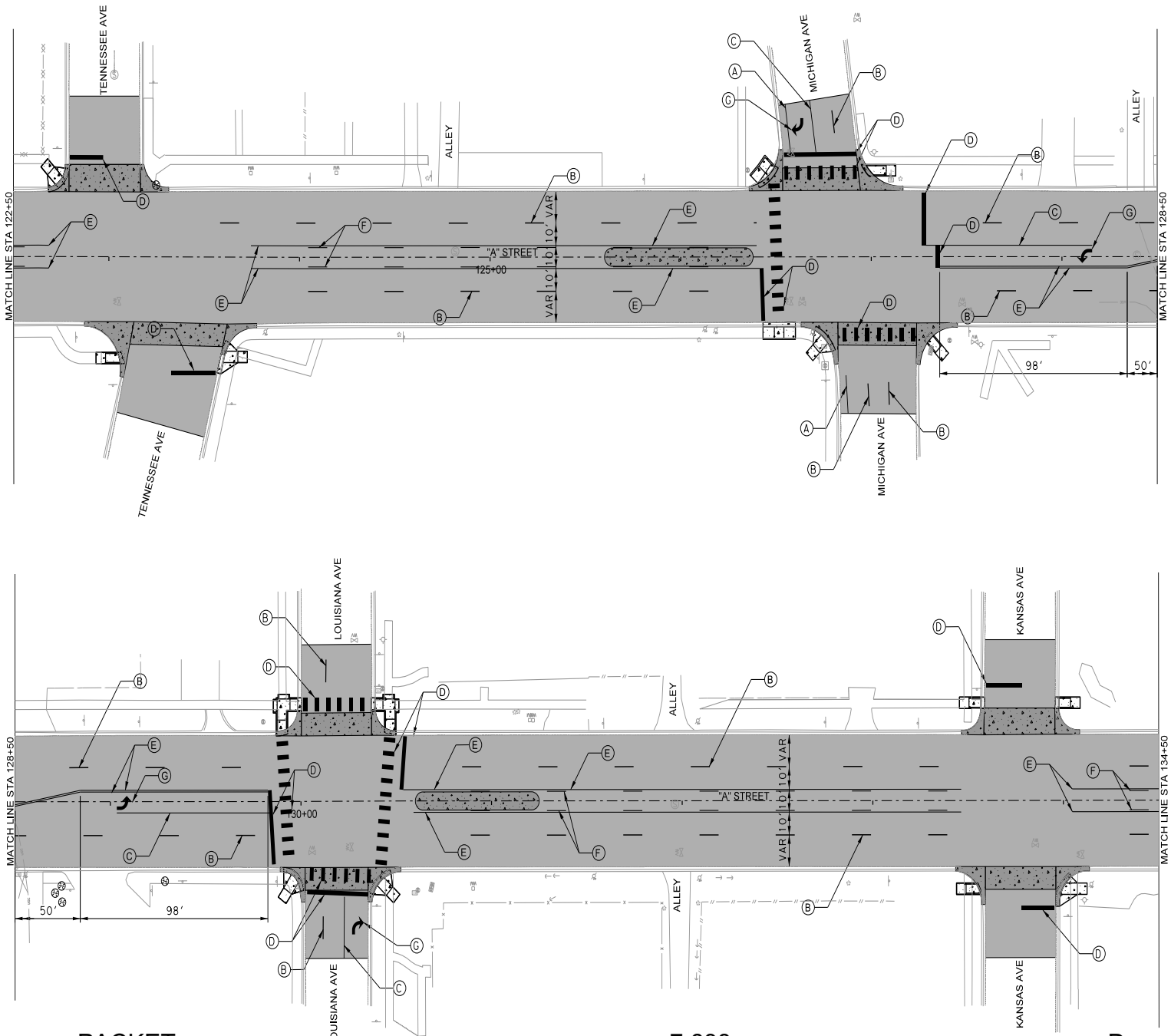
DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
35

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

PACKET 7.637 December 15, 2020

10.20.202



N

0 25' 50'

HORIZONTAL GRAPHIC SCALE:
1" = 50'

LEGEND

(A)	REFL PAV MRK TY I (W) (4 IN) (SLD)
(B)	REFL PAV MRK TY I (W) (4 IN) (BRK)
(C)	REFL PAV MRK TY I (W) (8 IN) (SLD)
(D)	REFL PAV MRK TY I (W) (24 IN) (SLD)
(E)	REFL PAV MRK TY I (Y) (4 IN) (SLD)
(F)	REFL PAV MRK TY I (Y) (4 IN) (BRK)
(G)	REFL PAV MRK TY I (W) (ARROW)
(H)	RELF PAV MRK TY I (W) (18 IN) (YLD TRI)
(I)	REFL PAV MRK TY II (W) (4 IN) (SLD)
(J)	REFL PAV MRK TY II (W) (4 IN) (BRK)
(K)	REFL PAV MRK TY II (W) (8 IN) (SLD)
(L)	REFL PAV MRK TY II (W) (24 IN) (SLD)
(M)	REFL PAV MRK TY II (Y) (4 IN) (SLD)
(N)	REFL PAV MRK TY II (W) (ARROW)
(O)	RELF PAV MRK TY II (W) (18 IN) (YLD TRI)

NOTE:

1. ALL PAVEMENT MARKING WORK SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD DRAWINGS AND SPECIFICATIONS OF THE TEXAS DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE SHOWN ON THESE PLANS OR DIRECTED BY THE ENGINEER.
2. CONTRACTOR TO PAINT MEDIAN NOSE.

No.	Revision	By	Date

STATE OF TEXAS — REGISTERED — PABLO CANAVA, JR. — 124 — 10/20/2020

MIDLAND — Feel the Energy!

"A" STREET
PAVEMENT MARKING PLAN
SHEET 3 OF 4

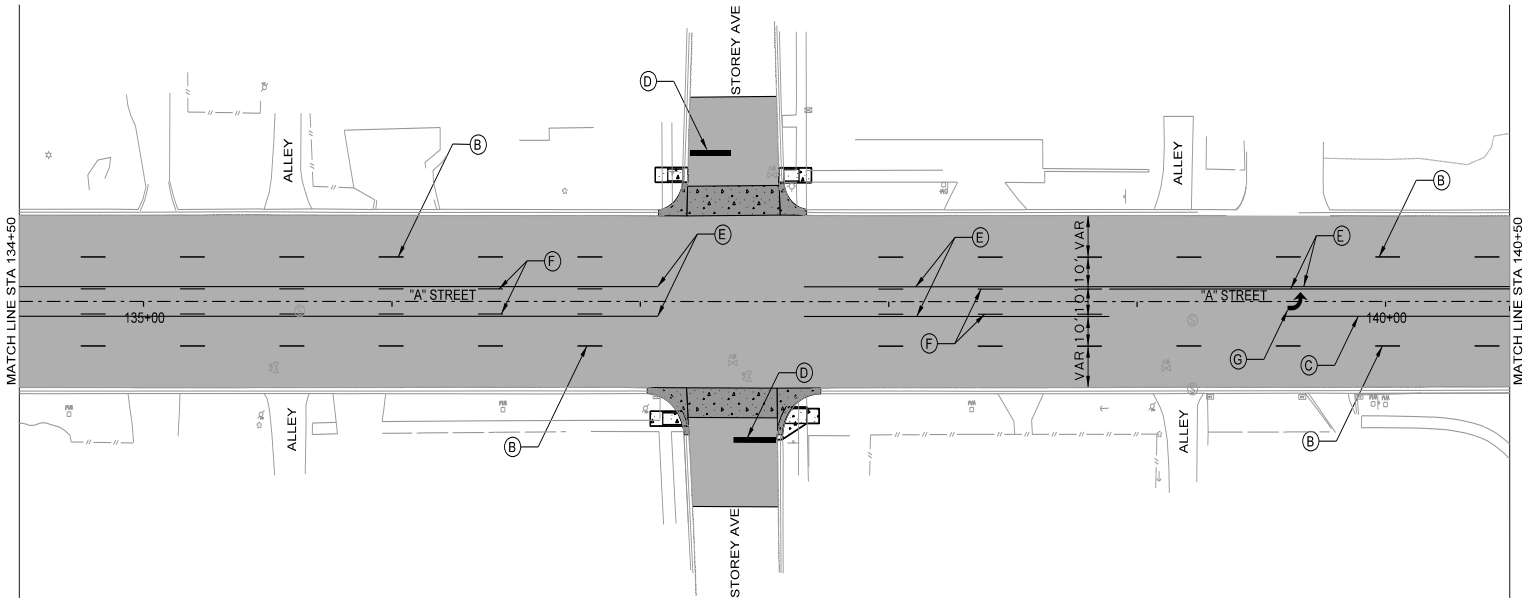
DATE:	JUNE 2019
DESIGN:	RTC
DRAWN:	TLW
CHECKED:	RTC
KHA NO.:	064465308

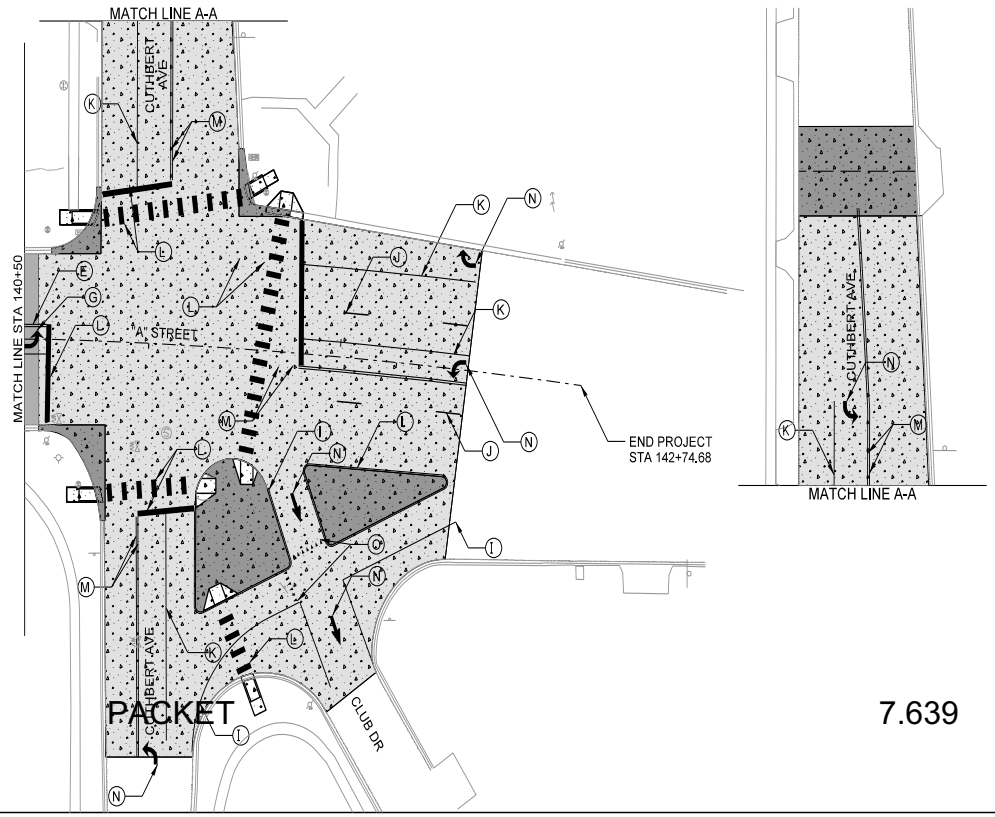
SHEET
36

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-686-1080

PACKET 7.638 December 15, 2020

10.20.202





N

0 25' 50'
HORIZONTAL GRAPHIC SCALE:
1" = 50'

LEGEND

A	REFL PAV MRK TY I (W) (4 IN) (SLD)
B	REFL PAV MRK TY I (W) (4 IN) (BRK)
C	REFL PAV MRK TY I (W) (8 IN) (SLD)
D	REFL PAV MRK TY I (W) (24 IN) (SLD)
E	REFL PAV MRK TY I (Y) (4 IN) (SLD)
F	REFL PAV MRK TY I (Y) (4 IN) (BRK)
G	REFL PAV MRK TY I (W) (ARROW)
H	RELF PAV MRK TY I (W) (18 IN) (YLD TRI)
I	REFL PAV MRK TY II (W) (4 IN) (SLD)
J	REFL PAV MRK TY II (W) (4 IN) (BRK)
K	REFL PAV MRK TY II (W) (8 IN) (SLD)
L	REFL PAV MRK TY II (W) (24 IN) (SLD)
M	REFL PAV MRK TY II (Y) (4 IN) (SLD)
N	REFL PAV MRK TY II (W) (ARROW)
O	RELF PAV MRK TY II (W) (18 IN) (YLD TRI)

NOTE:

1. ALL PAVEMENT MARKING WORK SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD DRAWINGS AND SPECIFICATIONS OF THE TEXAS DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE SHOWN ON THESE PLANS OR DIRECTED BY THE ENGINEER.

2. CONTRACTOR TO PAINT MEDIAN NOSE.

No.	Revision	By	Date

10/20/2020

MIDLAND Feel the Energy!

"A" STREET
PAVEMENT MARKING PLAN
SHEET 4 OF 4

DATE: JUNE 2019
DESIGN: RTC
DRAWN: TLW
CHECKED: RTC
KHA NO.: 064465308

SHEET
37

Kimley»Horn
Firm Registration No. 928
4411 98th St, Suite 300, Lubbock, Texas 79424 806-685-1080

10.20.20

City Council Meeting

Item Number: 8

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION AWARDING A CONTRACT FOR THE NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS PROJECT TO BOLER EQUIPMENT SERVICE, INC. OF MIDLAND, TEXAS, AT A TOTAL COST OF $1,484,124.00; AND AUTHORIZING PAYMENT (GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the execution of a contract for the New York Avenue & Benton Street Water Main Project for the Engineering Services Department.

Recommended City Council Action:

Approve

Fiscal Impact:

Funds are available in Fund 370 Water & Sewer Bond Project CIP.

Discussion:

The Interim City Manager approved plans and specifications and authorized advertisement for bids for the New York Avenue & Benton Street Water Main Project. Bid requests were issued to sixty-six (66) vendors and we received one (1) responsive bid. Staff recommends awarding the contract to Boler Equipment Service, Inc. Please see the attached memo from Matt Carr, City Engineer, for additional information.

Therefore, please consider a resolution awarding a contract to Boler Equipment Service, Inc., of Midland, Texas for the New York Avenue & Benton Street Water Main Project in the amount of $1,484,124.00. Staff is also requesting an additional $148,412.40 in contingences plus $50,000.00 for project related costs for a project total of $1,682,536.40.

Morris Williams Jr.

City Manager's Office

INTEROFFICE MEMORANDUM

TO: Erika Martinez; City of Midland, Purchasing Manager

FROM: Matt C. Carr, P.E.; City of Midland, City Engineer

SUBJECT: New York Avenue & Benton Street Water Improvements ♦ Engr. Project No. U19-04 ♦ Bid Tabulation ♦ Funding #_____

DATE: November 24, 2020

Erika,

Engineer staff has reviewed the bid tabulation for the New York Avenue & Benton Street Water Improvements project, a utility bond project. Boler Equipment Services, Inc. of Midland, Texas, is the apparent successful low bidder. Staff recommends awarding the New York Avenue & Benton Street Water Improvements project to Boler Equipment Services, Inc.

Boler Equipment Services, Inc. has an established history with the City of Midland of performing work of similar scale and scope to the New York Avenue & Benton Street Water Improvements project. Furthermore, the unit prices appear to be in line with current pricing trends.

Funding is available for this project.

The apparent successful bidder was selected based on the base bid amount of **$1,484,124.00** as outlined in the bidding documents. In addition, we would like to request that a 10% contingency in the amount of **$148,412.40** be allowed for value added changes to the project during construction and **$50,000.00** for project related costs incurred by the City to facilitate the contract (i.e. TDLR inspections, material testing services, etc.). The total amount made available for the project would be **$1,682,536.40**.

The agreement specifies a construction period beginning within 15 calendar days of a written notice to proceed for construction.

Matt C. Carr, P.E.
City Engineer

Cc: Jose Ortiz
Regina Stephenson

RESOLUTION NO. _____

RESOLUTION AWARDING A CONTRACT FOR THE NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS PROJECT TO BOLER EQUIPMENT SERVICE, INC. OF MIDLAND, TEXAS, AT A TOTAL COST OF $1,484,124.00; AND AUTHORIZING PAYMENT

WHEREAS, the Interim City Manager approved the plans and specifications and advertised for competitive bids for the New York Avenue & Benton Street Water Improvements Project (the "Project"); and

WHEREAS, Bid No. 21000890 was opened on November 18, 2020, with the sole bidder and lowest responsible bidder being Boler Equipment Service, Inc. of Midland, Texas ("Contractor"), having submitted a bid of $1,484,124.00 as shown on the bid tabulation attached hereto as Exhibit "A" and incorporated herein for all legal purposes; and

WHEREAS, the total cost of the work to be completed, according to the previously advertised plans and specifications and the unit prices in Exhibit "A", shall not exceed $1,484,124.00; and

WHEREAS, the City Council finds it to be in the public interest to execute a contract with Contractor for said Project;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Mayor and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, a contract with Contractor for said Project at a total cost of $1,484,124.00, said contract being on file in the office of the City Secretary, referenced by the date and number of this resolution.

SECTION TWO. That the Interim City Manager is hereby authorized and directed to execute, on behalf of the City of Midland, change orders to said contract if (1) each change order involves a decrease or an increase of $50,000.00 or less and (2) the change orders, in total, do not increase the original contract price by more than 10 percent ($148,412.40).

SECTION THREE. That the City Comptroller is hereby authorized and directed to pay Contractor pursuant to the terms of said contract and change orders executed in accordance with this resolution in an amount not to exceed $1,632,536.40 from funds available in Fund 370 Water & Sewer Bond Project CIP upon receipt of proper invoices or statements approved by the Interim City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

_____
Jose Ortiz, Engineering Services Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

U19-042 - City of Midland: New York Avenue & Benton Street Water Improvements

City of Midland - Engineering Services; November 18,2020

BID TAB					Boler Equipment Service, Inc.		
Bid Item	Pay Note	Description	Quantity	Units	Unit Price	Bid Total	Actual Bid Total
1	M1	Mobilization	8	MO	$ 13,875.00	$ 111,000.00	$ 111,000.00
2	M2	16" Steel Pipe Casing (1/4" Wall Thickness)	300	LF	$ 71.00	$ 21,300.00	$ 21,300.00
3	M3	Erosion/Sediment Control	8	MO	$ 775.00	$ 6,200.00	$ 6,200.00
4	M4	Traffic Control	8	MO	$ 3,350.00	$ 26,800.00	$ 26,800.00
5	M5	Job Site Safety	8	MO	$ 675.00	$ 5,400.00	$ 5,400.00
6	M6	Material Mark-up	N/A	%	20%	N/A	N/A
7	M7	Labor Mark-up (Regular Work Hours)	N/A	%	20%	N/A	N/A
8	M8	Equipment Rental Mark-up (Non-Standard Equipment Only)	N/A	%	20%	N/A	N/A
1	D1	Removal & Disposal of Existing Water Main	5940	LF	$ 11.75	$ 69,795.00	$ 69,795.00
2	D2	Flowable Fill for Existing Pipes Abandoned In Place	9	CY	$ 95.00	$ 855.00	$ 855.00
3	D3	Removal & Disposal of Existing Fire Hydrant Assembly	5	EA	$ 600.00	$ 3,000.00	$ 3,000.00
4	D4	Removal & Disposal of Existing Unclassified Pavement	4340	SY	$ 9.00	$ 39,060.00	$ 39,060.00
5	D5	Removal & Disposal of Existing Concrete Curb & Gutter	160	LF	$ 10.00	$ 1,600.00	$ 1,600.00
6	D6	Removal & Disposal of Existing Concrete Sidewalk & Ramps	20	SY	$ 35.00	$ 700.00	$ 700.00
1	W1	12" AWWA C-900 DR18, PVC, Water Main	140	LF	$ 56.00	$ 7,840.00	$ 7,840.00
2	W1	10" AWWA C-900 DR18, PVC, Water Main	140	LF	$ 41.00	$ 5,740.00	$ 5,740.00
3	W1	8" AWWA C-900 DR18, PVC, Water Main	6000	LF	$ 38.00	$ 228,000.00	$ 228,000.00
4	W1	6" AWWA C-900 DR18, PVC, Water Main	1300	LF	$ 36.00	$ 46,800.00	$ 46,800.00
5	W2	12" Gate Valve & Box (MJxMJ/FL)	3	EA	$ 3,125.00	$ 9,375.00	$ 9,375.00
6	W2	10" Gate Valve & Box (MJxMJ/FL)	1	EA	$ 2,500.00	$ 2,500.00	$ 2,500.00
7	W2	8" Gate Valve & Box (MJxMJ/FL)	17	EA	$ 1,875.00	$ 31,875.00	$ 31,875.00
8	W2	6" Gate Valve & Box (MJxMJ/FL)	33	EA	$ 1,425.00	$ 47,025.00	$ 47,025.00
9	W3	Fire Hydrant Assembly	16	EA	$ 3,475.00	$ 55,600.00	$ 55,600.00
10	W4	Ductile Iron Fittings	5100	LBS	$ 7.50	$ 38,250.00	$ 38,250.00
11	W5	8"x1" Tapping Saddle	69	EA	$ 201.00	$ 13,869.00	$ 13,869.00
12	W6	1" Water Service Connection	69	EA	$ 730.00	$ 50,370.00	$ 50,370.00
13	W7	1" Water Service Lateral	2050	LF	$ 18.00	$ 36,900.00	$ 36,900.00
14	W8	Water Meter Installation (New Service Lateral)	20	EA	$ 370.00	$ 7,400.00	$ 7,400.00
15	W9	Open Trenching of Water Main	7600	LF	$ 20.00	$ 152,000.00	$ 152,000.00
1	P1	8" Concrete Pavement Repair	20	SY	$ 95.00	$ 1,900.00	$ 1,900.00
2	P2	Concrete Curb & Gutter Repair	160	LF	$ 32.00	$ 5,120.00	$ 5,120.00
3	P3	2" Concrete Sidewalk Repair	20	SY	$ 95.00	$ 1,900.00	$ 1,900.00
4	P4	2" Type D HMAC Asphalt Pavement Repair (PG70-22)	3400	SY	$ 45.50	$ 154,700.00	$ 154,700.00
5	P5	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	700	GAL	$ 6.50	$ 4,550.00	$ 4,550.00
6	P6	Flowable Fill / 2-Sack Backfill	3450	SY	$ 86.00	$ 296,700.00	$ 296,700.00
					Base Bid Total =	$ 1,484,124.00	**$ 1,484,124.00**
							$0.00

EXHIBIT "A"

U19-042 - City of Midland: New York Avenue & Benton Street Water Improvements

City of Midland - Engineering Services; November 24,2020

BID TAB					Boler Equipment Service, Inc.		
Bid Item	Pay Note	Description	Quantity	Units	Unit Price	Bid Total	Actual Bid Total
1	M1	Mobilization	8	MO	$ 13,875.00	$ 111,000.00	$ 111,000.00
2	M2	16" Steel Pipe Casing (1/4" Wall Thickness)	300	LF	$ 71.00	$ 21,300.00	$ 21,300.00
3	M3	Erosion/Sediment Control	8	MO	$ 775.00	$ 6,200.00	$ 6,200.00
4	M4	Traffic Control	8	MO	$ 3,350.00	$ 26,800.00	$ 26,800.00
5	M5	Job Site Safety	8	MO	$ 675.00	$ 5,400.00	$ 5,400.00
6	M6	Material Mark-up	N/A	%	20%	N/A	N/A
7	M7	Labor Mark-up (Regular Work Hours)	N/A	%	20%	N/A	N/A
8	M8	Equipment Rental Mark-up (Non-Standard Equipment Only)	N/A	%	20%	N/A	N/A
1	D1	Removal & Disposal of Existing Water Main	5940	LF	$ 11.75	$ 69,795.00	$ 69,795.00
2	D2	Flowable Fill for Existing Pipes Abandoned In Place	9	CY	$ 95.00	$ 855.00	$ 855.00
3	D3	Removal & Disposal of Existing Fire Hydrant Assembly	5	EA	$ 600.00	$ 3,000.00	$ 3,000.00
4	D4	Removal & Disposal of Existing Unclassified Pavement	4340	SY	$ 9.00	$ 39,060.00	$ 39,060.00
5	D5	Removal & Disposal of Existing Concrete Curb & Gutter	160	LF	$ 10.00	$ 1,600.00	$ 1,600.00
6	D6	Removal & Disposal of Existing Concrete Sidewalk & Ramps	20	SY	$ 35.00	$ 700.00	$ 700.00
1	W1	12" AWWA C-900 DR18, PVC, Water Main	140	LF	$ 56.00	$ 7,840.00	$ 7,840.00
2	W1	10" AWWA C-900 DR18, PVC, Water Main	140	LF	$ 41.00	$ 5,740.00	$ 5,740.00
3	W1	8" AWWA C-900 DR18, PVC, Water Main	6000	LF	$ 38.00	$ 228,000.00	$ 228,000.00
4	W1	6" AWWA C-900 DR18, PVC, Water Main	1300	LF	$ 36.00	$ 46,800.00	$ 46,800.00
5	W2	12" Gate Valve & Box (MJxMJ/FL)	3	EA	$ 3,125.00	$ 9,375.00	$ 9,375.00
6	W2	10" Gate Valve & Box (MJxMJ/FL)	1	EA	$ 2,500.00	$ 2,500.00	$ 2,500.00
7	W2	8" Gate Valve & Box (MJxMJ/FL)	17	EA	$ 1,875.00	$ 31,875.00	$ 31,875.00
8	W2	6" Gate Valve & Box (MJxMJ/FL)	33	EA	$ 1,425.00	$ 47,025.00	$ 47,025.00
9	W3	Fire Hydrant Assembly	16	EA	$ 3,475.00	$ 55,600.00	$ 55,600.00
10	W4	Ductile Iron Fittings	5100	LBS	$ 7.50	$ 38,250.00	$ 38,250.00
11	W5	8"x1" Tapping Saddle	69	EA	$ 201.00	$ 13,869.00	$ 13,869.00
12	W6	1" Water Service Connection	69	EA	$ 730.00	$ 50,370.00	$ 50,370.00
13	W7	1" Water Service Lateral	2050	LF	$ 18.00	$ 36,900.00	$ 36,900.00
14	W8	Water Meter Installation (New Service Lateral)	20	EA	$ 370.00	$ 7,400.00	$ 7,400.00
15	W9	Open Trenching of Water Main	7600	LF	$ 20.00	$ 152,000.00	$ 152,000.00
1	P1	8" Concrete Pavement Repair	20	SY	$ 95.00	$ 1,900.00	$ 1,900.00
2	P2	Concrete Curb & Gutter Repair	160	LF	$ 32.00	$ 5,120.00	$ 5,120.00
3	P3	2" Concrete Sidewalk Repair	20	SY	$ 95.00	$ 1,900.00	$ 1,900.00
4	P4	2" Type D HMAC Asphalt Pavement Repair (PG70-22)	3400	SY	$ 45.50	$ 154,700.00	$ 154,700.00
5	P5	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	700	GAL	$ 6.50	$ 4,550.00	$ 4,550.00
6	P6	Flowable Fill / 2-Sack Backfill	3450	SY	$ 86.00	$ 296,700.00	$ 296,700.00
					Base Bid Total =	$ 1,484,124.00	**$ 1,484,124.00**
							$0.00

MIDLAND
Engineering Services

SPECIFICATIONS

Project Name: New York Avenue & Benton Street Water Improvements

Project Number: U19-04

MAYOR

Patrick Payton

COUNCIL MEMBERS

District 1	Scott Dufford	District 3	Jack Ladd
District 2	John Norman	District 4	Lori Blong
At-Large	Michael Trost	At Large	Spencer Robnett

CITY ENGINEER

Matt C. Carr, P.E.



Prepared by City of Midland, Texas
Engineering Services Division

OCTOBER 2020

PACKET
8.648
December 15, 2020

NOTICE TO BIDDERS

ATTENTION: Due to the Coronavirus (COVID-19) pandemic, all bidders are encouraged to mail bid packets to one of the addresses below rather than delivering them in person in the interests of maintaining social distancing:

USPS Mailing Address:		***Physical Address for mail carriers other than USPS:***
City of Midland, Texas		**City of Midland, Texas**
Attn: City Secretary's Office	**OR**	**Attn: City Secretary's Office**
P O Box 1152		**300 North Loraine St, Suite 330**
Midland, TX 79702		**Midland, TX 79701**

If bid packets are delivered in person then bidders must drop the bid packets off at the first-floor front desk of City Hall before the bid opening deadline, and social distancing measures will be maintained for the health of all parties involved.

Sealed proposals, addressed to the Mayor and City Council of the City of Midland, Texas, for the furnishing of materials and labor together with other miscellaneous and appurtenant work will be received at the office of the City Secretary, City Hall, Midland, Texas, until 2:00 p.m. on the 11th day of November, 2020, and publicly opened and read aloud at that time.

ATTENTION: The public bid opening will be in the City Council Meeting Chambers in order to enable social distancing by the attendees due to COVID-19. Attendees must wear masks while they are inside City Hall.

The Proposed Work provides for the furnishing of materials and labor for New York Avenue & Benton Street Water Main Project together with other miscellaneous and appurtenant work.

ATTENTION: A NON-MANDATORY PRE-BID MEETING TELECONFERENCE will be held at 3:00 p.m. on Wednesday, November 4th, 2020. There will be no in-person pre-bid meeting due to COVID-19.

TELECONFERENCE CALL IN NUMBER: (866) 528-2256
ACCESS CODE: 4450719

ATTENTION: All questions submitted before or after the Non-Mandatory Pre-Bid Meeting Teleconference must be submitted via email to the following email address:

jferguson@midlandtexas.gov

The deadline for submitting additional questions after the Non-Mandatory Pre-Bid Meeting Teleconference is Noon on Friday, November 6, 2020. Questions submitted before the Noon deadline will be included in the Addendum that will go out that same day along with all discussion items, questions, answers, and any new information resulting from the Non-Mandatory Pre-Bid Meeting Teleconference. Questions submitted after the Noon deadline will not receive any additional information and will instead only be directed to the information already provided.

Bids will be received on a unit price basis.

No Bid may be withdrawn within a period of 60 days after the date fixed for opening Bids.

“FAX” or telephone bids or modifications will not be accepted.

Bid Envelopes shall be plainly marked "Proposal for City of Midland”.

ATTENTION: Information for bidders, proposal forms, specifications, and plans may be obtained by emailing purchasing@midlandtexas.gov.

A bid bond or proposal guaranty is to accompany the bid, thereby guaranteeing the good faith of the bidder and that the bidder will enter into the written contract. The guaranty is to amount to five percent (5%) of the total bid and must be in the form of cash or certified check, issued by a bank satisfactory to the City of Midland, or bid bond. If in the form of cash or certified check, it is expressly understood and agreed that the City of Midland is given the right to retain such as liquidated damages if such bidder withdraws its bid anytime after such bid is opened and before official rejection of such bid, or if successful in securing the awarded thereof, such bidder fails to enter into the contract and furnish satisfactory performance and payment bonds. If a bid bond is submitted, it shall be executed on forms contained in these contract documents by a corporate surety authorized to do business in the State of Texas and acceptable to the City of Midland.

WAIVER OF ATTORNEY FEES

BY SUBMITTING A BID, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY’S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY’S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE OWNER AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

WAIVER

BIDDER’S WAIVER:

BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY’S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**

2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS;**

3. **ACCEPTANCE OR REJECTION OF ANY BIDS; OR**

4. **AWARD OF THE CONTRACT**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

City of Midland

Amy Turner
City Secretary

Form Revised October 2020

INSTRUCTION AND INFORMATION FOR BIDDERS

1. LOCATION AND EXTENT OF WORK

The work and construction contemplated to be accomplished under this Contract is located in the City of Midland, Texas, and consists of municipal public works projects as set forth in the proposal.

The location and details for the construction and related work are shown upon a set of drawings dated October 21, 2020 and numbered from C-100 (1) through C-704 (42) inclusive. These drawings and plans, together with the specifications, form a part of the Contract. Where figures are shown on the drawings, they shall take precedence over scaled distances and dimensions.

2. TIME AND PLACE OF RECEIVING BIDS

All bids shall be sealed, addressed to the Mayor and City Council of the City of Midland, Texas, and will be received by the City Secretary in her office at City Hall, 300 N. Loraine Street, Midland, Texas, mailing address is P.O. Box 1152, Midland, Texas 79702, until time stated on the Advertisement for Bids.

3. PREPARATION OF BID FORM

Bids shall be submitted only on the forms provided therefore in the Contract Documents, and must not be submitted in letter form or in any other form. They shall be filled out in ink in both script and figures. The Proposal form provided in the Contract Documents sets forth in detail the various items and approximate quantities thereof contained in the Project. Bids submitted in any other form will be considered irregular and will be returned to the Bidder without receiving consideration by the Owner.

All bids must be submitted in sealed envelopes bearing on the outside the name of the Bidder, his address, and the name of the Project for which the bid is submitted. It is the sole responsibility of the Bidder to see that his bid is received in proper time. Any bid received after the scheduled closing time for receipt of bids will be returned to the Bidder unopened.

The bid must be signed in the name of the Bidder and must bear the signature in longhand of the persons duly authorized to sign the bid.

Changes in or additions to the bid form, recapitulations of the work bid upon, alternative proposals, or any other modification of the bid form which is not specifically called for in the Contract Documents may result in the Owner's rejection of the bid as not being responsive to the invitation. No oral or telephonic modification of any bid submitted will be considered and a telegraphic modification may be considered only if the postmark evidences that a confirmation of the telegram duly signed by the Bidder was placed in the mail prior to the opening of bids.

The bid submitted must not contain any erasures, interlineations or other corrections unless each such correction is suitably authenticated by affixing in the margin immediately opposite the correction the surnames of the person or persons signing the bid.

4. EXAMINATION OF SITE, DRAWINGS, ETC

Each Bidder is requested to visit the site of the proposed work and fully acquaint himself with the conditions relating to the construction and labor so that he may fully understand the facilities, difficulties and restrictions attending the execution of the work under the Contract. Bidders shall thoroughly examine and be familiar with the Plans and the Specifications. The failure or omission of any Bidder to receive or examine any form, instrument, addendum or other document or to visit the site and acquaint himself with conditions there existing shall in no way relieve any Bidder from obligations with respect to his bid or to the Contract. The submission of a bid shall be taken as prima-facie evidence of compliance with this section.

5. WITHDRAWAL OF BIDS

Any Bidder may withdraw his bid, either personally, by written request, or by telegraphic request confirmed in the manner specified above, at any time prior to the scheduled closing time for receipt of bids.

6. AGREEMENT AND BONDS

The successful Bidder will be required to furnish a Performance Bond, and a Payment Bond, in an amount equal to one hundred percent (100%) of the total Contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas, and acceptable to the City of Midland. All Bonds must be executed on forms contained in these Contract Documents. The form of Agreement which the successful Bidder, and Contractor will be required to execute is also included herewith. The form of Agreement and the form of the Bonds should be carefully examined by the Bidder.

7. INTERPRETATION OF PLANS AND DOCUMENTS

If any person contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans, Specifications, or other Contract Documents or finds discrepancies in, or omissions from the Plans or Specifications, he may submit to the Owner written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the Contract Documents will be made only by Addendum duly issued and a copy of such addendum will be mailed or delivered to each person receiving a set of such Contract Documents. The Owner will not be responsible for any other explanations or interpretations of the Contract Documents. No oral interpretations of any provision in the Contract Documents will be made to any Bidder.

8. BIDDERS INTERESTED IN MORE THAN ONE BID

No person, firm or corporation shall be allowed to make, or file more than one bid for the same work unless alternate bids are specifically called for. A person, firm or corporation that has submitted a sub-proposal to a Bidder, or that has quoted prices of materials to a Bidder is not thereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or making a prime proposal.

9. AWARD OF CONTRACT

The Owner reserves the right to reject any or all bids submitted and not make an award. The Owner also reserves the privilege of accepting any item as a separate contract or the combination of items of a contract. The Owner and Bidder agree that, if the Contract is awarded, that it will be awarded to either the lowest responsible bidder/proposer, or to the bidder/proposer who provides goods or services at the best value for the

City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code. Further, the Owner reserves all rights granted by Section 271.027 of the Texas Local Government Code. The Owner reserves the right to award the bid to the lowest responsible bidder.

10. OPENING OF BIDS

Bidders are invited to be present at the opening of the Proposals. All Proposals shall be made and received with the understanding that the Bidder accepts the terms and conditions contained in the Contract Documents.

11. COMPARISON OF BIDS

All bids will be compared on the basis of the Proposal.

12. BID GUARANTY

A Certified Check, Bank Money Order, issued by a bank satisfactory to the Owner, or a Bidder's Bond on the form provided and approved by the City Attorney, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the Owner, must accompany the Bidder's Proposal, as a guaranty that the Bidder will enter into a Contract and execute the required Performance Bond and Guaranty in the forms provided within fifteen (15) days after notice of award of Contract to him. Bids or Proposals without the required Bid Guaranty will not be considered. All Proposals shall remain in effect for a period of thirty (30) days after date of bid opening.

13. CONTRACT DOCUMENTS

The complete Contract Documents may include the following: (1) Notice to Bidders, (2) Instructions and Information for Bidders, (3) Proposal, (4) Experience Record, (5) Bid Bond, (6) Contract Agreement, (7) Performance Bond, (8) Payment Bond, (9) Insurance Certificate, (10) General Conditions, (11) Special Conditions, (12) Detailed Specifications all of which are bound together, and/or (13) Certificate of Payment. The Contract Documents shall also include Drawings or Detailed Plans for the proposed work. A complete set of the Contract Documents and the detailed plans are on file in the Office of the City Secretary.

14. TIME ELEMENT

The work to be done under this Contract shall be commenced within fifteen (15) days from the date of the notice from the City to the Contractor to commence work. The Contractor shall commence performance of the Contract on the date stated in the City's notice to the Contractor to proceed and shall complete the performance of the Contract without delay.

15. PAYMENTS

Payments to the Contractor will be based upon the prices stated in the proposal and upon basis of the work performed as determined by the Engineer. The Engineer's determination shall be considered as final unless changes are authorized by the City in writing which shall affect the work. Upon issuance of the Certificate of Completion, the Engineer shall proceed to take final measurements and prepare a final statement of the value of all work performed and materials furnished under the terms of the agreement and shall certify same to the Owner who shall pay to the Contractor on or after the 30th day, and before the 35th day, after the date of the

Certificate of Completion, the balance due the Contractor under the terms of this agreement, provided he has fully performed his contractual obligations under the terms of this Contract, and said payment shall become due in any event upon said performance by the Contractor. Notwithstanding any provision of these Contract documents to the contrary, it is expressly understood and agreed by the parties hereto that neither the Certificate of Acceptance, nor the final or any other payment hereunder, nor any partial or total occupancy or possession of the project by the Owner, shall relieve the Contractor of his responsibility for completion of the entire project in a good workmanlike manner and in full compliance with the plans and specifications and the fulfillment of any warranties which may be required in the Contract documents.

Revised Octoberber 2020

NOTICE TO BIDDERS

IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED **CONTRACT AND INSURANCE REQUIREMENTS ARE NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/CONTRACTOR OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/CONTRACTOR MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.

IF THE SELECTED BIDDER/CONTRACTOR CANNOT MEET THE ABOVE REQUIREMENTS, THEN **THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER**.

IMPORTANT NOTICE – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/CONTRACTOR MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE, WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

COMPLIANCE: Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006,

please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

ANY VENDOR WHO FAILS TO COMPLY WITH THE TERMS OF THE AWARD **MAY BE DECLARED AN IRRESPONSIBLE VENDOR**. BIDS SUBMITTED BY SAID VENDOR SHALL NOT BE CONSIDERED AGAIN FOR A MINIMUM PERIOD OF SIX MONTHS AS DETERMINED BY THE CITY MANAGER.

IMPORTANT NOTICE

Conflict Of Interest Reporting Requirements

Compliance with LOCAL GOVERNMENT CODE TITLE 5. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES SUBTITLE C. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES OF MORE THAN ONE TYPE OF LOCAL GOVERNMENT CHAPTER 176. DISCLOSURE OF CERTAIN RELATIONSHIPS WITH LOCAL GOVERNMENT OFFICERS; PROVIDING PUBLIC ACCESS TO CERTAIN INFORMATION.

Form CIQ: This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. This questionnaire shall be filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code. A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

Bidders are responsible for filing Conflict of Interest form "CIQ" in accordance with the above referenced statute. Failure to do so is a class C Misdemeanor. Contracts or Purchase Orders awarded to a vendor that has violated this law is subject to termination at such time that the violation is discovered with no recourse to the City of Midland. The bidder will be subsequently removed from the bidders list for a minimum of one year.

When there is no known conflict of interest as defined by the statute, it is not necessary to file/submit the Form CIQ. The form must be submitted if a conflict is subsequently discovered.

By submitting a response to this request, vendor represents that it complies with the requirements of Chapter 176 of the Texas Local Government Code.

For a current list of the local government officers go to: http://www.midlandtexas.gov/

Upon completion of the form, sign and submit with bid or mail to:

City of Midland
Attn: City Secretary
PO Box 1152
Midland, Texas 79702

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

Boler Equipment Service, Inc. - No Relationship

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

N/A

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

N/A

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

N/A

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 PACKET 8.659

Signature of vendor doing business with the governmental entity

11.18.2020

~~December 15, 2020~~ Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

CITY OF MIDLAND

Consideration of Location of Bidder's Principal Place of Business
For Bids of $50,000 up to $100,000 for Services and $500,000 for Commodities
Affidavit of Eligibility

Pursuant to Texas Local Government Code 271.9051, in purchasing real property, personal property that is not affixed to real property, or services, if the City receives one or more bids from a bidder whose principal place of business is in the City of Midland and whose bid is within five percent (5%) of the lowest bid price received by the City from a bidder who is not a resident of the City of Midland, the City may enter into a contract with:

(1) the lowest bidder; or

(2) the bidder whose principal place of business is in the City of Midland if the City Council determines, in writing, that the local bidder offers the City the best combination of contract price and additional economic development opportunities for the City of Midland created by the contract award, including the employment of residents of the City of Midland and increased tax revenues to the City of Midland.

In order to receive consideration, bidders must submit this affidavit to:

Erika Martinez
Purchasing Manager
City of Midland
300 N. Loraine St.,
PO BOX 1152
Midland, TX 79702-1152

Complete all areas below. Incomplete affidavits may be rejected.

Local Business Name: **Boler Equipment Service, Inc.**

Local Address (must be within the City limits): **4611 Sinclair Ave. Midland, TX 79707**

1. Is the above address the principal place of business for the business named above? ☑ Yes ☐ No
2. How many residents of the City of Midland are employed at the above business location? **18**
3. Year your business was established in the City of Midland: **1987**
4. If you collect sales tax for ANY class of customer, provide the following Reseller information:

   Reseller Permit Number: **17524445826**

   Company Name and Address (as it appears on permit):

   Boler Equipment Service, Inc.

   4611 Sinclair Ave.

   Midland, TX 79707

5. Does your business have more than one office in the State of Texas? ☐ Yes ☑ No
   If Yes, identify the office location considered as the point-of sale for the purpose of sales tax calculation:

6. Was the local business required to pay business and/or real property tax for the most recent tax year?

   ☑ Yes ☐ No

   If Yes, did the local business pay any of this tax to the City of Midland? ☑ Yes ☐ No

Under penalty of perjury, the undersigned states that the foregoing statements are true and correct. It is further acknowledged that any person, firm, corporation or entity intentionally submitting false information to the City in an attempt to qualify for eligibility shall be prohibited from bidding on City of Midland products and services for a period of one (1) year.

Authorized Signature: _____ Date: **11.18.2020**

Printed Name and Title: **Greg Boler - Vice President**

TECHNICAL SPECIFICATIONS

FOR: New York Ave & Benton St Water Improvements

All construction for this project shall conform to the City of Midland "STANDARD SPECIFICATIONS" issued by the Engineering Services Department which are herein made a part of these specifications by reference.

The bidder/contractor shall pay particular attention to the following items in the "STANDARD SPECIFICATIONS" for this project.

1) Preparation of Right of Way
2) Excavation, Embankment and Preparation of Subgrade
3) Concrete Curb and Gutter, Sidewalks, Driveways, Valley Gutters, Center Drains and Rip Rap
4) Concrete Structures
5) Flexible Base, Caliche
6) Bituminous Prime
7) Bituminous Tack
8) Hot Mix Asphaltic Concrete
9) Double Course Asphalt Surface Treatment
10) Preparation of Asphaltic Concrete Surface for Overlay or Seal Coat
11) Seal Coat
12) Asphalt –Rubber Seal Coat
13) Polymer Modified Slurry
14) PVC Pipe Casings
15) Water Line Specifications
16) Gravity Flow Sewers for Waste Water and Storm Water

The "STANDARD SPECIFICATIONS" are available from the Department of Engineering Services, City Hall, 300 North Loraine Street, Suite 510, Midland, Texas.

GENERAL CONDITIONS AND PROVISIONS

1. DEFINITIONS

The following terms as used in this contract shall be defined and interpreted as follows:

(a) "Contract" or "This Contract" or "Agreement": The particular Contract executed by the Contractor and the Owner of which these general conditions are integral parts.

(b) "Contractor": The person, firm or corporation to whom this Contract is awarded by the Owner and who is a party thereto.

(c) "Owner", "City", or pronouns instead: The entity that is a party to this Contract, contracting under the official name of the City of Midland, Texas or the City Council of the City of Midland.

(d) The words "as directed", "as required", "as permitted", "acceptable to", "satisfactory", and the words of like import, shall mean that the direction, requirement or permission of the Engineer is intended.

(e) "Engineer": The word "Engineer" used in these specifications or in this Contract means the duly authorized representative or agent of the Owner supervising the performance of the Contract and representing the Owner in his Contractual relations and negotiations with the Contractor during the period of construction. The Engineer will be represented by assistants and inspectors authorized to act for him. On all questions concerning the acceptability of material or equipment, the classifications of material, the execution of the work, conflicting interest of Contractors performing related work and the determination of costs, the decision of the Engineer shall be final, but shall not relieve the Contractor of his responsibility for completion of the entire work in a good and workmanlike manner and in full compliance with the plans and specifications.

Inspectors are required to see that all the provisions of the Contract specifications are faithfully adhered to. Any inspector may, if authorized by the Engineer, stop the work entirely if there is not sufficient quantity of suitable and approved material on the ground to carry it on properly, or for any other good and sufficient cause. Any work done in the absence of an inspector may be ordered opened up for thorough examination, and must be rebuilt or replaced at the Contractors sole expense if found to be deficient or not in accordance with the plans and specifications. But no approval by an inspector shall be construed as an acceptance of defective or improper work or material, which must be rebuilt or properly replaced whenever discovered. Inspectors have not the power to give orders or directions under any possible circumstances, except as herein defined and provided, and on authority of the Engineer

(f) "Subcontractor": Any person, firm or corporation other than an employee of the contractor, supplying, for and under agreement either with the Contractor or any subcontractor of the Contractor, labor or material, or both, at the site of the project in connection with this Contract.

(g) "Project": The structure or improvement to be constructed in whole or in part through the performance of this Contract.

(h) "Work on the Project": Such work as is performed or ordinarily would be performed at the site of the project.

(i) "Surety": Any firm or corporation executing a Surety Bond or Bonds payable to the Owner securing the performance of the Contract either in whole or in part.

(j) Whenever certain articles are specifically mentioned, by brand name or name of the manufacturer, such materials shall be taken as standard and guide for quality, operation, capacity, etc. The term "or equal" shall mean that articles of equal characteristics as required, but of different brand or manufacturer, may be substituted and accepted, subject in all instances to the approval of the Engineer.

(k) "Special Provisions", "Special Conditions", "Project Specific Specification" or "Job Specific Specifications" are included as amendment of and/or additions to the General Conditions and/or Standard Specifications for the particular project in which they are included and will take precedence over the General Conditions and Standard Specifications only in so far as the amendments and/or additions. All other provisions in the General Conditions and/or Standard Specifications will not be affected.

(l) "Drawings" "Contract Drawings", "Plans" "Detail Drawings" "Detail Sheets" or "Plans and Details" refers to the set of drawings which show the details for the construction and related work anticipated on this project and upon which bids are being solicited.

2. CONFLICT OF PROVISIONS

Unless it is specifically provided otherwise, any provision in any other part of this Contract which may be in conflict or inconsistent with any provision in the General Conditions and Provisions shall be void to the extent only of such conflict or inconsistency.

3. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall have charge of and shall be responsible for the entire work under this Contract until its completion and acceptance by the city. A competent superintendent, foreman or other representative, invested with sufficient authority to conduct the work properly, shall be maintained on the work at all times.

It is expressly agreed and understood that no decision of the Engineer or any certificate issued nor payment made to the Contractor nor partial or entire use or occupancy of the work by the Owner, shall be an acceptance of any work or materials not in accordance with this Contract, nor constitute a waiver of the Contractor's responsibility to perform the entire work in a good and workmanlike manner and in accordance with the plans and specifications.

4. TIME ELEMENT

The work shall be commenced and finished within the time set out in the Form of Contract.

The time of completion of this Contract is an essential element and consideration. Since, therefore, time is of the essence thereof, and in the event of delay in the completion of the entire work required hereunder beyond the period prescribed, or beyond the period for which time may be extended by authority of the Owner for good cause shown, the Owner shall be paid damages for such delay. Inasmuch as the amount of such damages is difficult to ascertain, it is hereby stipulated and agreed that such damages shall be liquidated and the Owner shall be paid damages at the rate as set forth in the Special Provisions, said damages to be paid to the Owner for each and every day that the Contractor be in default in completing the entire work required under this Contract. The Owner shall have the right to deduct such amounts from any monies due, or which may become due, under

this Contract. In the event that no amount for such damages is shown in the Special Provisions of these specifications, it is agreed that the amount of damages shall be Five Hundred dollars ($500.00) per day.

If during the progress of the work weather conditions, or other circumstances beyond the control of the Contractor should prevail to the extent that the work cannot be prosecuted and completed within the time specified in the Contract, the Contractor shall file with the Engineer within one week of the occurrence of such delay a request for a credit on the time of completion. Unless the Contractor files such request, the liquidated damages specified above will be enforced.

5. PAYMENT TO CONTRACTOR

ESTIMATED QUANTITIES:

This Contract, including the specifications, plans and estimate, is intended to show clearly all work to be done and material to be furnished hereunder. Where the estimated quantities are shown for the various classes of work to be done and material to be furnished under this Contract, they are approximate and are to be used only as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under this Contract may differ somewhat from these estimates, and that where the basis for payment under this Contract is the unit price method, payment shall be for the actual amount of such work done and the material furnished.

Where payment is based on the unit price method, the Contractor agrees that he will make no claim for damages, anticipated profits or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually furnished under this Contract and the estimated quantities contemplated and contained in the proposal provided, however, that in case the actual quantity of any major item should become as much as twenty percent (20%) more than, or twenty percent (20%) less than the estimated or contemplated quantity for such items, then either party of this agreement, upon demand, shall be entitled to a revised consideration upon the portion of the work above or below twenty percent (20%) of the estimated quantity.

A "Major Item" shall be construed to be any individual item incurred in the proposal that has a total cost equal to or greater than five percent (5%) of the total Contract cost, computed on the basis of the proposal quantities and the Contract unit price.

Any revised consideration is to be determined by agreement between the parties, otherwise by the terms of this Contract, as provided under "Extra Work".

PAYMENT; RETAINAGE:

On or before the 1st day of each month the Contractor shall prepare an itemized statement showing the total value of the work completed by the Contractor up to and including the 25th day of the preceding month; said statement shall also include the value of all sound materials delivered on the site of the work that are to be fabricated into the work. NO ESTIMATE WILL BE MADE ON UNCOMPLETED PORTIONS OF THE WORK.

After all work is completed by Contractor, including all Change Orders altering the original scope and amount of the contract are completed, and the City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, the City may thereafter issue payment to Contractor in the amount of the contract and all Change Orders. The City shall be the final judge of when the

work is completed by Contractor. The City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to the City's requirements.

The City may make periodic payments to Contractor; provided, however, such periodic payments may only be made pursuant to this section, and only after all work and all Change Orders are completed by Contractor and approved by the City. The approval shall be in the City's sole discretion. Requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the City or the City's representative, the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

FINAL COMPLETION AND ACCEPTANCE:

Within ten (10) days after the Contractor has given the Engineer written notice that the work has been completed, or substantially completed, the Engineer and the Owner shall inspect the work and within said time, if the work be found to be completed or substantially completed in accordance with the Contract documents, the Engineer shall issue to the Owner and the Contractor his Certificate of Completion.

FINAL PAYMENT:

Upon the issuance of the Certificate of Completion, the Engineer shall proceed to make final measurements and prepare final statement of the value of all work performed and materials furnished under the terms of the Contract and shall certify same to the Owner, who shall pay to the Contractor the balance due the Contractor under the terms of this Contract, provided he has fully performed his obligations under the terms of this Contract. Notwithstanding any provision of these Contract Documents to the contrary, it is expressly understood and agreed by the parties hereto that neither the certificate of acceptance, nor the final or any other payment hereunder, nor any partial or total occupancy or possession of the project by the Owner, shall relieve the Contractor of his responsibility for completion of the entire project in a good and workmanlike manner and a full compliance with the plans and specifications and the fulfillment of any warranties which may be required in the Contract Documents.

6. OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

In addition to the amount which the Owner may otherwise retain under the Contract, the Owner may withhold a sufficient amount or amounts of any payment or payment otherwise due to the Contractor, as in this judgment may be necessary to cover:

(a) Payments which may be past due and payable for just claims against the Contractor or any subcontractor for labor or materials furnished for the performance of this Contract.

(b) For defective work not remedied.

(c) For failure of the Contractor to make proper payments to his subcontractors.

7. CERTIFICATE OF PAYMENT

Contractor shall, prior to issuance of final payment pursuant to the terms herein stated, provide proof satisfactory to the owner that all debts, bills and expenses incurred by the Contractor, his agents, employees or subcontractors employed by him, for labor, wages, materials and other purposes, in the furtherance of this

project, have been paid and satisfied in full. Satisfactory proof shall consist of an executed Certificate of Payment.

8. EXTRA, ADDITIONAL OR OMITTED WORK PAYMENT

The Owner, upon proper action by its governing body, may require changes in this Contract, or additions to, or deductions from the work to be performed or the materials to be furnished pursuant to this Contract. No employee, agent or representative of the Owner, with the exception of the governing body authorized to award this Contract, has any power to approve any change in this Contract and it is the responsibility of the Contractor before proceeding with any change to satisfy himself that the change has been properly authorized on behalf of the Owner. No charge for any extra work or other change in the Contract will be allowed unless the extra work or change has been authorized in writing by the Owner, or its duly authorized representative, and the price therefore is stated in such written authority.

Adjustments, if any, in the amounts to be paid the Contractor where such adjustments are made by reason of additions to or deductions from the quantities of units or items bid upon in the proposal schedules, shall be paid for in accordance with the provisions of the Specifications, at the unit and/or lump sum prices bid in such proposal schedules.

Adjustments, if any, in the amounts to be paid the Contractor where such adjustments are made by reason of additions of items not appearing in the proposal schedules, or addition of work of such a nature that unit and/or lumps sum prices contained in the proposal schedules cannot reasonably or equitably be applied to provide proper payment therefore, the payment to the Contractor for such work shall be determined by one or more of the following methods:

(d) By an acceptable lump sum proposal from the Contractor.

(e) By unit prices contained in the Contractor's proposal and incorporated in the Contract or fixed by subsequent agreement between the Owner and the Contractor.

(f) By a cost method pursuant to which the Contractor shall be paid the costs of the change or addition. He shall be required to keep and present in such form as the Owner may direct, a correct account of the cost of the change or addition, together with all vouchers therefore. The cost may include an allowance for overhead and profit not to exceed fifteen percent (15%) of the net cost.

In computing the cost, there shall be considered reasonable and proper net expenditures for labor, materials, power tools and equipment, pro rata charges for foremen, deductions for social security, old age and unemployment benefits and workmen's compensation insurance and surety bond premium. In computing cost of machinery and equipment involved in additional work, the amount to be paid shall be not more than one hundred percent (100%) of the latest schedule of "Equipment Ownership Expense" adopted by Associated General Contractors of America. No overhead and profit shall be allowed on the deductions for Social Security, old age and unemployment benefits. All other expenditures shall be treated as overhead costs.

No extra work shall be performed or change made unless in pursuance of a written order from the Owner stating that the extra work or change is authorized and no claim for an addition to the Contract sum shall be valid unless so ordered; provided, however, that nothing in this Article shall excuse the Contractor from proceeding with the prosecution of the work so changed.

The Contractor shall, when required by the Owner, furnish an itemized breakdown of the quantities and prices used in computing the value of any change, addition or deduction that might be ordered.

If the Contractor should claim that any instruction, request, drawing, specification, action, condition, omission, default, or other situation obligated or may obligate the Owner to pay additional compensation to the Contract, or constitutes a waiver of any provision in the Contract, he shall notify the Owner in writing of such claim within ten (10) days from the date he has actual or constructive notice of the factual basis supporting the claim. The Contractor's failure to notify the Owner within such ten (10) days period shall be deemed a waiver and relinquishment of any such claim against the Owner. The procedure for consideration of such claims shall be as stated in this Article.

9. ASSIGNMENT OF CONTRACT

The Contractor shall not assign this Contract or any part thereof, nor any monies due or to become due thereunder without the prior written consent of the Owner. No assignment of this Contract shall be valid unless it shall contain a provision that the funds to be paid to the assignee under the assignment are subject to a prior lien for services rendered or material supplied for performance of the work called for under this Contract in favor of all persons, firms, or corporations rendering such services or supplying such materials.

10. SUBCONTRACTORS

Specialty subcontractors may be utilized for the performance of such parts of the work under this Contract as, under normal practices, are performed by Specialty subcontractors, unless the Owner determines that the Contractor has heretofore customarily performed such specialty work with his own organization and is equipped to do so, or unless the Owner determines that performance of the specialty work by Specialty subcontractors will result in increased costs or inordinate delays.

The Contractor shall not subcontract any work to be performed or any materials to be furnished in the performance of this Contract without the prior written consent of the Owner. If the Contractor shall subcontract any part of this Contract, the Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractor and of the persons either directly or indirectly employed by the subcontractor as he is for the acts and omissions of persons directly employed by himself. Nothing contained in this Contract shall create any Contractual relations between any subcontractor and the Owner. The Contractor shall ensure that the sub contractor has the insurance coverage required by this contract.

The Owner's consent to or approval of any subcontract under this Contract shall not in any way relieve the Contractor of his obligations under this Contract and no such consent or approval shall be deemed to waive any provisions of this Contract.

11. SUSPENSION OF WORK

Pending settlement of disputes on any point of controversy, the Engineer may suspend action on all or any part of the work. The Contractor shall not be entitled to any claim for loss or damage by reason of such, nor shall he be entitled to extension of time, although such extension of time may be granted by the Engineer if he deems it in the interest of the work.

12. RIGHT OF OWNER TO TERMINATE CONTRACT

If, in the opinion of the Engineer, the Contractor shall be improperly performing the work under this Contract, or shall neglect or refuse to take out or rebuild such work as shall have been rejected by the Engineer as being defective or unsuitable, or if, any time, the Engineer shall be of the opinion that the work is unnecessarily delayed and will not be finished within the prescribed time, or if the Contractor shall abandon the work, or shall neglect or refuse to comply with the instructions of the Engineer relative thereto, or shall fail in any manner to comply with the Specifications or Stipulations herein contained, the Engineer shall notify the Contractor to that effect in writing, and if the Contractor shall not within five (5) days thereafter take such measures as will, in the judgment of the Engineer, insure the satisfactory performance or construction of the work, the City may annul and cancel the Contract, in which event it shall notify the Contractor to discontinue all work under this Contract, and the Contractor shall immediately respect such notice and stop work and cease to have any rights to the possession of the ground and shall forfeit his Contract. Such annulment shall not entitle the Contractor to any claim for damages on account thereof, nor shall it affect the right of the City of Midland to recover damages on account of such failure. The City Council may thereupon advertise and re-let a new Contract for the uncompleted work without further ordinance, in the same manner as was followed in the letting of this Contract, and any excess of cost arising there from over and above what would have resulted from the prices set forth in this Contract will be charged against the Contractor and his surety or sureties hereto, who shall be liable therefore.

13. RIGHT OF CONTRACTOR TO TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of three (3) months, through no act or fault of the Contractor or of anyone employed by him, or if the City should fail to make payment to the Contractor within thirty (30) days after such payment is due, as set out in the Contract, then the Contractor may, upon seven (7) days written notice to the City and the Engineer, stop work or terminate his Contract and recover from the City payment for all work executed and for any loss sustained upon any plant or materials and reasonable profit and damages.

14. INCIDENTAL WORK

Any and all minor details of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of and included with the work for which the prices are named in the Contract Documents. The Contractor will not be entitled to any extra or additional compensation therefore, unless specifically stated otherwise.

15. PERMITS – COMPLIANCE WITH LAW

The Contractor shall, at his expense, obtain all permits and licenses necessary for the performance of this Contract, and give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations governing the Contractor's performance of the Contract.

Portions of this contract qualify for exemption pursuant to the provisions of the Texas Limited Sales, Excise and Use Tax Act. The Contractor shall obtain a sales tax exemption certificate from the City. All labor performed on the project and all materials incorporated into the project qualify for such tax exemption. However, equipment and parts for equipment purchased to be used on the project, but are not incorporated into the project; do not qualify for said tax exemption. Contractor shall issue a resale certificate in lieu of paying such sales tax for all

materials incorporated into the project. Further Contractor shall separate the charges for materials incorporated into the project from the charges for labor.

16. INSPECTION BY OWNER

The Owner and its representatives shall at all times have access to all parts of the work and to the shops wherein the work is in preparation for the purpose of inspection, and the Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

The Owner shall have the right to reject materials and workmanship which are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. If the Contractor does not correct such rejected work within a reasonable time, fixed by written notice, the Owner may correct same and charge the expense to the Contractor. No inspector shall have the power to waive the obligation resting upon the Contractor to furnish good material or do work as herein prescribed, and any failure or omission of any inspector or the Engineer to condemn any defective material or work shall not release the Contractor from the obligation to at once tear out, remove and properly rebuild the same at any time upon discovery of the defect and upon receipt of notice of the Engineer to do so.

Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out any portion thereof, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any respect due to the fault of the Contractor or his subcontractor, he shall defray all the expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and materials necessarily involved in such examination and replacement, plus fifteen percent (15%) for overhead and profit, shall be allowed the Contractor.

Where the Specifications require work to be specifically tested or approved, it shall not be tested or covered up without timely notice to the Owner of its readiness for inspection and without the approval or consent thereto by the Owner. Should any such work be covered up without such notice, approval or consent, it must, if required by the Owner, be uncovered for examination at the Contractor's expense.

17. PATENTS

The Contractor shall hold and save the Owner and its officers, agents, servants, and employees harmless from liability of any nature or kind, including all costs and legal expenses, for or on account of, any patented or unpatented invention, process, article or appliance, manufactured for or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract.

18. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement or arbitration, if such other Contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

The Contractor must ascertain to his own satisfaction the scope of the project and the nature of any other Contracts that have been or may be awarded by the Owner in the prosecution of the project to the end that the Contractor may perform this Contract in the light of such other Contract, if any.

Nothing herein contained shall be interpreted as granting the Contractor exclusive occupancy of the site of the project. The Contractor shall not cause any unnecessary hindrance or delay to any other Contractor working on the project. If the performance of any Contract for the project is likely to be interfered with by the simultaneous execution of some other Contract or Contracts, the Owner shall decide which Contractor shall cease work temporarily and which shall continue, or whether the work under the Contracts can be coordinated so that the Contractors may proceed simultaneously. The Owner shall not be responsible for any damages suffered or extra costs incurred by the Contractor, resulting directly or indirectly from the award or performance or attempted performance of any other Contract or Contracts on the project, or caused by any decision or omission of the Owner respective to the order of precedence in the performance of Contracts.

19. NOTICE AND SERVICE THEREOF

Any notice from one party to another under the Contract shall be in writing and shall be dated and signed by the party giving such notice or by duly authorized representative of such party. Any such notice shall not be effective for any purpose whatsoever unless served in the following manner; namely, if the notice is given to the Owner, (a) by personal delivery thereof to the individual duly authorized to direct and supervise the project of the Owner, or (b) by depositing the same in the United States Mail, enclosed in a sealed envelope, addressed to the City of Midland, 300 North Loraine Street, Midland, Texas, 79701, postage prepaid and certified; or if the notice is given to the contractor (a) by personal delivery thereof to the project superintendent or other person authorized to act for the contractor, or (b) by depositing the same in the United States Mail, enclosed in a sealed envelope, addressed to the Contractor at his regular place of business or at such other address as may have been established for the conduct of the work under this Contract, postage prepaid and certified; or (c) if the notice is given to the Surety or any other person by personal delivery to such Surety or other person, or by depositing the same in the United States Mail, enclosed in a sealed envelope addressed to such Surety or other person, at the address of such surety or other person last communicated by him to the party giving the notice, postage prepaid and certified.

20. QUALITY OF MATERIALS AND WORKMANSHIP

It is the intention of this Contract to have only first class materials and the best workmanship throughout, and the methods and appliances adopted by the Contractor must be such as will secure a satisfactory quality of work and will enable him to complete the work in the time agreed upon. If at any time such methods and appliances appear inadequate, the Engineer may order the Contractor to improve their character or increase their efficiency, and the Contractor must conform to such order; but the failure of the Engineer to order such improvement of methods or increase of efficiency will not relieve the Contractor from his obligations to perform good work or finish it in the time agreed upon. The Contractor shall submit samples or specimens of any and all materials proposed to be used in the work when required to do so by the Engineer. All materials must be of specified quality and fully equal to approved samples. All work must be done and completed in a thorough and workmanlike manner. All materials furnished and all work done must be satisfactory to the Engineer and will be subject to rigid inspection, and if not in accordance with the Specifications in the opinion of the Engineer, shall be made to conform thereto.

It is understood that except as otherwise specifically stated in the Contract, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence of temporary

construction of every nature, and all other services and facilities required for the completion of the Contract within the specified time.

21. SPECIAL METHODS

The Engineer may consent to special methods for carrying out the work in difficult cases, but the Contractor will not be relieved of responsibility for the result. The Contractor shall be responsible for the result of all work performed by him whether directed by the Engineer or not.

22. REMOVAL OR REPLACEMENT OF WORK DONE WITHOUT LINES OR GRADES

Any work done without lines or grades given by the Engineer or under his direction or without the supervision of an inspector, may be ordered removed and replaced by the Engineer at the Contractor's expense.

23. COVERING WORK

No work shall be covered until it has been examined and approved by the Engineer.

24. UNFAVORABLE WEATHER

During unfavorable weather and other adverse conditions, only such portions of the work may be done which will not be damaged thereby, unless by special means or precautions approved by the Engineer.

25. ALL WORK SUBJECT TO FINAL INSPECTION

Failure to neglect on the part of the Engineer or his inspectors to condemn or reject bad or inferior work or materials shall not be construed to imply his acceptance of such work or materials if it becomes evident at any time prior to the final acceptance of the work and the release of the Contractor.

26. PUBLIC CONVENIENCE

When materials for construction are brought on the work site they shall be neatly piled so as to cause as little obstruction to travel as possible, and so that they may be conveniently inspected.

No material or other obstruction shall be placed within five (5) feet of fire hydrants, which must at all times be readily accessible to the fire department, nor shall any material be piled within two (2) feet of any trees.

The Contractor shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the Contract and shall be responsible for the proper care and protection of all materials delivered and work performed until completion, and final acceptance by the Owner.

The Contractor shall provide such heat, covering and enclosures as are necessary to protect all work and materials against damage by weather conditions.

The Contractor shall take adequate precautions to protect existing sidewalks, curbs, pavement, utilities, adjoining property, and structures, and avoid damage thereto, and he shall at his own expense completely repair any damage thereto caused by his operations.

If required by the Engineer, the Contractor shall shore up, brace, underpin, and protect as may be necessary, all foundations, and other parts of all existing structures adjacent and adjoining the site of the Project, which are in any way affected by the excavations or other operations connected with the completion of the work under this Contract. Whenever any notice is required to be given by the Owner or the Contractor to any adjoining or adjacent landowner or other party before commencement of any work under this Contract, such notice shall be given by the Contractor. The Contractor shall indemnify the Owner and save it harmless from any damages on account of settlement or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

During the progress of the work the convenience of the public and of the residents along streets must be provided as far as practicable. Convenient access to driveways, houses and buildings along streets must be maintained whenever possible.

Temporary approaches and crossings of streets and sidewalks must be provided and kept in good condition whenever practicable.

The Contractor shall provide and maintain such fences, barriers, "Street Closed" signs, red lights and watchmen as may be necessary to prevent avoidable accidents to residents and to the public.

The Contractor alone shall be held responsible for all injuries to persons, and for all damages to property of the City or others, caused by or resulting from the negligence of himself, his employees or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. He must restore all injured public or private property to a condition as good as it was when he entered upon the work, purchasing new materials to replace all that which is injured or destroyed during the course of the work.

In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner is authorized to act at his discretion to prevent such threatened loss or injury and he shall so act.

27. TRAFFIC CONTROL

It is the policy of the City of Midland to keep at least two travel lanes open to traffic at all times and where possible to have three travel lanes between 7:30 a.m. and 9:00 a.m. and 4 p.m. and 6 p.m. (Two (2) lanes in the direction of peak travel).

At least 48 hours before beginning work the contractor shall present a traffic control and/or barricade plan prepared as per the approved Barricading Standards to the Traffic Engineering Division for review and approval. When approved and barricades are in place, they shall be inspected by the Traffic Engineering Division prior to beginning work.

Traffic control signs, such as stop signs, yield signs, etc., are placed in various intersections for the safety and protection of the traveling public. The contractor shall not move, alter or damage said signs for any reason. If said signs must be removed for construction purposes, contractor shall notify the City of Midland, Traffic Division Operations Superintendent at least 48 hours (not including weekends) before construction activities are scheduled to begin. All construction barricading, warning signs, and other construction traffic control devices shall be in place and shall be in accordance with the Texas Manual on Uniform Traffic Control Devices and approved Barricading Standards included in plans before traffic signs can be removed. The contractor shall notify the Traffic Division Operations Superintendent at least 72 hours (not including weekends) before

scheduled removal of construction barricades, warning signs, and traffic control devices. But in all cases the contractor shall not remove said barricades, warning signs, and traffic control devices until the City of Midland's Traffic Department has replaced stop signs, yield signs, etc., in their proper location. The Contractor shall notify Traffic Engineering Division at least 24 hours in advance of any Traffic Signal modification due to construction (i.e. eliminating left turn phases). Notice shall also be given to the Traffic Engineering Division at least 24 hours prior to removing barricades at signalized intersections.

28. PROTECTION OF NEW WORK

All new work shall be carefully protected by the Contractor, and any work injured from any cause before the completion of the whole project must be rebuilt by the Contractor at his own expense.

29. MONUMENTS OR STAKES

The Contractor must carefully protect from disturbance or injury all monuments, stakes and bench marks, of City County, State or Federal Government and shall not excavate nearer than five (5) feet to any of them without the permission of the Engineer, or until they have been removed, witnessed or otherwise disposed of by the Engineer.

30. USE OF COMPLETED PORTIONS

The City shall have the right to take possession of and use any completed or partially completed portions of the work notwithstanding the time for completing the entire work on such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of, or delays the work, the Contractor shall be entitled to such extra compensation or extension of time, or both as the Engineer may determine.

The Owner, in taking possession of completed portions, shall agree to accept the decision of the Engineer on matters relating to responsibility for damages that may occur to any portions of the work during the period of possession preceding acceptance and final payment.

31. USE OF PREMISES

The Contractor shall confine his apparatus, storage of materials and construction operations to such limits as may be directed by the Owner, and shall not unreasonably encumber the premises with his materials.

The Contractor shall enforce any instructions of the Owner regarding advertising, fires, danger signals, barricades and smoking, and shall require all persons employed on the work to comply with all building, post or institutional regulations while on the premises.

32. SAFETY RESTRICTIONS

The following procedures will be followed regarding the subject item on this contract:

A warning sign painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

Equipment that may be operated within ten feet of high voltage lines shall have an insulating cage type of guard about the boom or arm, except back hoes or dippers, and insulator links on the lift hook connections.

When necessary to work within six feet of high voltage electric lines, notification shall be given to the power company who will erect temporary mechanical barriers, de – energize the line, or raise or lower the line. The notifying department

The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

No person shall work within six feet of high voltage line without precautions having been taken and protection provided as outlined in Paragraph (3) above.

33. INSURANCE REQUIREMENTS AND WORKERS COMPENSATION

INSURANCE REQUIREMENTS

Contractor shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
— Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
— Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit -
	Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on an occurrence basis. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Business Automobile Liability insurance provided by Contractor shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the

work that is the subject of this Contract. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Workers' Compensation coverage provided by Contractor shall inure to the benefit of employees injured during the course and scope of their employment by Contractor pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of the City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of the City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name the City as an additional insured on a claims occurred basis. City shall be provided the notice by Contractor's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Contractor shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Contractor shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of the City. The City shall not be required to provide any insurance whatsoever pursuant to this Contract.

The Contractor certifies that the certificate of insurance provided as required herein complies with the requirements of Senate Bill 425, passed during the 82nd regular session of the Texas Legislature, and effective January 1, 2012. The Contractor shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of the Contractor.

34. INDEMNIFICATION

INDEMNITY: THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE OWNER AND ALL OF THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE CONTRACTOR, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS

CONTRACT, AND CONTRACTOR WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE OWNER AND ALL OF THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE OWNER, THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH THE CONTRACTOR OR THE CONTRACTOR'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND CONTRACTOR WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

THE CONTRACTOR AGREES THAT HE WILL INDEMNIFY AND SAVE THE OWNER HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS, ALL SUPPLIES, INCLUDING COMMISSARY INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN OWNER SO DESIRES, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. THE CONTRACTOR, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS THE OWNER AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ARISING FROM ANY ACT OF THE CONTRACTOR OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

35. RELEASE

NOTWITHSTANDING ANY OTHER PROVISION, CONTRACTOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES OWNER, OWNER'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH CONTRACTOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR OWNER'S NEGLIGENCE.

36. INDEPENDENT CONTRACTOR

It is expressly understood and agreed that Contractor shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the Owner; that Contractor shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondent superior shall not apply as between Owner and Contractor, its officers, agents, employees, contractors and subcontractors; and

that nothing herein shall be construed as creating a partnership or joint enterprise between Owner and Contractor. No person performing any of the work and services described hereunder by Contractor shall be considered an officer, agent, servant or employee of the Owner. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Contractor shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The Owner does not have the power to direct the order in which the work is done. The Owner shall not have the right to control the means, methods or details of the Contractor's work. Contractor shall assume exclusive responsibility for the work. Contractor is entirely free to do the work in its own way.

37. QUALIFICATIONS FOR EMPLOYMENT

Preference shall be given to qualified local residents in the employment of laborers and mechanics for work on the Project under this Contract. No person under the age of sixteen (16) years shall be employed on the project under this Contract. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health or safety of others shall be employed on the Project under this Contract: Provided, that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. No person currently serving sentence in a penal or correctional institution and no inmate of an institution for mentally defective shall be employed on the project under this contract.

38. PAYROLLS OF CONTRACTOR AND SUBCONTRACTORS

The Contractor and each of his subcontractors shall prepare payrolls for the workers on the Project. Not later than the seventh (7th) day following the payment of wages, the Contractor shall transmit to the Owner, if requested, a certified legible copy and two confirmed copies of such payroll.

Such copies of payrolls shall be accompanied by substantial proof that all bills for services rendered and materials supplied have been duly paid and by such other data as the Owner may require.

39. POSTING WAGE RATES

The Contractor shall post at appropriate conspicuous points at the site of the Project a schedule showing the wage rates for the various classes of laborers and mechanics to be engaged in work on the Project under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

40. PAYMENT OF EMPLOYEES

The Contractor shall post at appropriate conspicuous points at the site of the Project a schedule showing the wage rates for the various classes of laborers and mechanics to be engaged in work on the Project under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

41. WAGE UNDERPAYMENT AND ADJUSTMENTS

The Contractor agrees that, in case of underpayment of wages to any worker on the project under this Contract by the Contractor or any subcontractor, the Owner shall withhold from the Contractor out of payments due, an amount sufficient to pay such worker the difference between the wages required to be paid under this Contract and the wages actually paid such worker for the total number of hours worked and that the Owner may disburse such amount so withheld by it for and on account of the Contractor to the employee to whom such amount is due. The Contractor further agrees that the amounts to be withheld pursuant to this Article may be in addition to other amounts that may be retained by the Owner pursuant to other provisions of this Contract.

42. COMPUTATION OF WAGES ON 8 – HOUR DAY

The wages of each laborer and mechanic engaged in work on the project under this Contract shall be computed on a basis of eight (8) hours per day, eight (8) hours continuous employment except for lunch periods, constituting a day's work.

Legal holiday work shall be paid for at the regular governing per diem wage rates.

Work in excess of 40 hours per week shall be paid for at 1 ½ times the basic rate of pay.

43. OVERTIME WORK AND WORK ON SUNDAYS AND LEGAL HOLIDAYS

The Contractor will not be permitted to work on Sundays or legal holidays except in an emergency and then only upon written permission of the Engineer.

Any work necessary to be performed after regular working hours and when permitted on Sundays or legal holidays, shall be performed without additional expense to the Owner.

No work on any Contract item will be permitted before daylight or later than one hour after sundown.

44. CONTRACT SECURITY

The Contractor shall furnish a performance bond and payment bond in an amount equal to one hundred percent (l00%) of the amount of the Contract as security for the faithful performance of the Contract, including the payment of all persons performing labor on the project and furnishing of materials in connection with this Contract. All Bonds must be executed in five (5) original counterparts by a corporate surety authorized to do business in the State of Texas. Bonds executed by individuals or any other than recognized and authorized corporate surety companies will not be acceptable.

45. DELAYS

The Contractor shall receive no compensation for delays or hindrances to the work, except when, in the judgment of the Engineer, direct or unavoidable extra cost to the Contractor is caused by such hindrances or delays. When such extra compensation is claimed, a written statement thereof shall be presented by the Contractor, as provided in Paragraph 18 hereof. Such claim, if found correct, will be approved, and the decision of the Engineer whether extra cost has been incurred and the amount thereof, shall be final. If delays are caused by specific orders to stop work, given by the Engineer, or by the performance of extra work, or by unforeseen causes beyond the control of the Contractor, or by the failure of the Owner to provide materials or necessary instructions for carrying on the work, or to provide the necessary right-of-way or site for installation,

then delay will entitle the Contractor to an equivalent extension of time. Application for extension of time must be approved by the Owner and, shall not release the Sureties from their obligations, which shall remain in full force until the discharge of the Contract.

LATE COMPLETION; LIQUIDATED DAMAGES:

It is hereby understood and mutually agreed, by and between Contractor and the City, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "Notice to Proceed." Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between Contractor and the City, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

In the event Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the City, then Contractor and Contractor's surety, if any, shall be liable for and does hereby agree, as a part consideration for the awarding of this contract, to pay to the City $500.00, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that Contractor shall be in default after the time stipulated in the contract for completing the work. Further, the City shall have the right to cancel this contract for such delay. In the event the City cancels this contract pursuant to the terms of this section, the City shall pay to Contractor only those monies deemed appropriate by the City, in its sole discretion, to compensate Contractor for any work actually performed, less any liquidated damages Contractor owes the City.

The said amount is fixed and agreed upon by and between Contractor and the City because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would in such event sustain, and said amount is agreed to be the amount of damages which the City would sustain and said amount shall be retained from time to time by the City from current periodical estimates.

It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that Contractor shall not be charged with liquidated damages or any excess cost when the City determines, in its sole discretion, that Contractor is without fault and Contractor's reasons for the time extension are acceptable to the City. Provided, further, that Contractor shall not be charged with liquidated damages of any excess cost when the delay in completion of the work is due:

a. To any preference, priority or allocation order duly issued by the Government;

b. To unforeseeable cause beyond the control and without the fault or negligence of Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the City, acts of another contractor in the performance of a contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

c. To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article.

Provided, further, that Contractor shall, within ten (10) calendar days from the beginning of such delay, unless the City shall, in its sole discretion grant a further period of time prior to the date of final settlement of the contract, notify the City, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify Contractor within a reasonable time of its decision in the matter.

CONTRACTOR AGREES THAT THE PAYMENT OF SUCH LIQUIDATED DAMAGES MAY BE RECOVERED BY THE CITY FROM RETAINAGE HELD BY THE CITY. NOTWITHSTANDING ANY OTHER PROVISION HEREOF, CONTRACTOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER ARISING FROM THE CITY WITHHOLDING PAYMENT FROM CONTRACTOR AS LIQUIDATED DAMAGES FOR CONTRACTOR'S FAILURE TO COMPLETE THE WORK WITHIN THE TIME SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE.

CONTRACTOR SHALL RECEIVE NO FINANCIAL COMPENSATION FOR DELAY OR HINDRANCE TO THE WORK. IN NO EVENT SHALL THE CITY BE LIABLE TO CONTRACTOR OR ANY SUBCONTRACTOR OR SUPPLIER, ANY OTHER PERSON OR ANY SURETY FOR OR ANY EMPLOYEE OR AGENT OF ANY OF THEM, FOR ANY DAMAGES ARISING OUT OF OR ASSOCIATED WITH ANY DELAY OR HINDRANCE TO THE WORK, REGARDLESS OF THE SOURCE OF THE DELAY OR HINDRANCE, INCLUDING EVENTS OF FORCE MAJEURE, AND EVEN IF SUCH DELAY OR HINDRANCE RESULTS FROM, ARISES OUT OF OR IS DUE, IN WHOLE OR IN PART, TO THE NEGLIGENCE OF THE CITY. CONTRACTOR'S SOLE REMEDY IN ANY SUCH CASE SHALL BE AN EXTENSION OF TIME.

46. ERRORS AND OMISSIONS

The Contractor will not be permitted to take advantage of any error or omission in these specifications. Suitable instructions will be given by the Engineer when such error or omission is discovered.

47. SPECIFICATIONS AND DRAWINGS

The Contractor shall keep on the work a copy of the Specifications and Drawings, and shall at all times give the Engineer access thereto. Any drawings or plans listed in the detailed specifications shall be regarded as part thereof and of the Contract. Anything mentioned in these specifications and not mentioned or shown in the drawings, or shown in the drawings and not mentioned in these specifications, shall be done as though shown or mentioned in both. The Engineer will furnish from time to time, such detailed drawings, plans, profiles and information as he may consider necessary for the Contractor's guidance.

In the event of any discrepancy between the plans and these specifications, the decisions of the Engineer will be decisive thereon. The written dimensions on the plans are to be taken as correct, but the Contractor is required to check carefully all dimensions before beginning work thereon. Should any errors or omissions be discovered, the Engineer's attention shall be called to the same, and the proper corrections made. All notes on the plans shall be carefully observed by the Contractor and are a part of the Contract.

48. CONSTRUCTION STAKING

The Engineer will furnish a complete set of plans and profiles and set control stakes at fifty foot (50') intervals along the entire length of the project and at such control points he deems necessary for proper execution of the work. The Contractor will thereafter be required to lay out the work accurately and furnish at his own expense, all lines, levels, and dimensions necessary to the proper and correct execution of the entire work and be responsible for any errors resulting from his own work.

The Contractor shall give the Engineer at least 36 hours notice in writing before requiring stakes to be set on any new portion of the work, and he shall state clearly in such notice the exact locality or localities where such stakes are needed for immediate use.

The Contractor must satisfy himself, before commencing work, as to the meaning or correctness of all stakes or marks, and no claim will be entertained by the Owner for or on account of any alleged inaccuracies, or for the alterations subsequently rendered necessary on account of such alleged inaccuracies unless the Contractor notifies the Engineer thereof in writing before commencing to work thereon.

The Contractor will at all times conduct the work in such a manner as to prevent damage to construction stakes set by the Engineer. When construction stakes are damaged to such extent that they must be reset, as a result of carelessness or negligence on the part of the Contractor or his workmen, the costs thereof shall be kept by the Engineer and shall be deducted from the moneys due or to become due the Contractor under the terms of his contract.

Benchmark and survey stakes shall be preserved by the Contractor, and in case of their destruction or removal by him or his employees, they will be replaced by the Engineer at the Contractor's expense.

49. SANITATION

The Contractor shall provide suitable drinking water receptacles or containers equipped with dust-tight covers and spigots or faucets. A supply of sanitary paper drinking cups shall be kept on hand for general use near the drinking water containers. The use of common drinking cups or tin cups will not be permitted.

The Contractor shall furnish "Porta-Johns" or other approved sanitary facilities for use by all workers on the Project. Such facilities shall be placed and kept in close proximity of the site where work is being performed. Such facilities shall be properly serviced and maintained.

The Engineer may establish such other sanitary rules and regulations as may seem necessary and desirable to the safe prosecution of the work, such rules and regulations to apply to all forces employed under this Contract, and if, the Contractor fails to observe and enforce these rules, the Engineer may enforce them at the expense of the Contractor.

50. WATER FOR CONSTRUCTION

The Contractor may obtain all water necessary for construction purposes from the Municipal Waterworks System at the regular customer service rate, but the Contractor must make all necessary arrangements with the Director of Utilities for necessary connections and meters. The Contractor must make his own provisions and provide such equipment as is necessary for conveying water from point of service to point of use. No extra compensation will be allowed and the Contractor shall anticipate the expense connected herewith and absorb said expense in the prices bid for the various bid items.

51. SEQUENCE AND SPEED OF WORK

The Engineer shall direct the order and sequence of the work. If at any time before the commencement or during the progress of the work, the materials and appliances used appear to the Engineer as insufficient and improper for securing the quality of work required or the required rate of progress, he may order the Contractor to increase their efficiency or to improve their character and the Contractor shall conform to such order. The

failure of the Engineer to demand any increase of such efficiency or improvement shall not release the Contractor from his obligations to secure the quality of work or the rate of progress specified.

52. INSPECTION AND TESTING OF MATERIAL

The sampling and testing of materials used or proposed to be used in the construction of this project will be made by the Engineer, his designated representative or certified testing laboratory personnel in accordance with methods prescribed by the American Society of Testing Materials and/or the American Association of State Highway Officials, with subsequent approved revisions made prior to the date of the Proposal. The selection of the method of test shall be designated by the Engineer. The Contractor shall bear the cost of all tests required before a material or a method is approved for use on the job, unless the Owner specifically agrees to bear the cost of these tests.

All tests required by the Owner after materials and/or methods have been approved and after they have been incorporated or used in the job will be paid for by the Owner, except if the Owner's tests reveal non-conformance with the specifications, subsequent tests on that part of the work required to determine if the replaced or reworked material meets the specifications, will be paid for by the Contractor. The City will pay only one time for any required testing.

The following is a summary of test required for the approval of materials or methods:

Material	**Test**
Subgrade	Maximum density, optimum moisture
Caliche Base:	Maximum density, optimum moisture, hardness, gradation, liquid limit, plasticity index, Texas Triaxial Classification
Aggregates for hot-mix:	Gradation, unit weight, abrasion, soundness, liquid limit, plasticity index, density
Asphalt, emulsions and tars:	Certified plant test and certificates of compliance with each shipment
Hot- Mix asphaltic concrete:	Design mix, swell test, stripping test
Portland cement concrete pavement:	Design mix with test cylinders

Any materials shipped by the Contractor from the factory prior to having satisfactorily passed such testing and inspection by the Owner's representative or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated in the work.

The Owner may, at its discretion, approve materials and/or methods for use on this project without testing when they are from sources previously tested and approved for City of Midland projects.

53. CONSTRUCTION SCHEDULE

It shall be the responsibility of the Contractor to furnish the Construction Engineer prior to construction a schedule out – lining the anticipated time each phase of construction will begin and be completed, including sufficient time being allowed for clean – up.

54. PROFILES AND ELEVATIONS

Profiles and elevations of the ground are shown on the plans hereto attached. These profiles and elevations are believed to be reasonably correct, but are not guaranteed to be absolutely so, and are represented only as an approximation. Elevations are referred to datum given by the Engineer.

55. CLEANUP

During the progress of the work, the Contractor shall maintain the work area in a reasonably clean and safe condition. Dirt, debris, excess excavation and other objectionable materials shall be removed from the site and disposed of on a daily basis.

After completion of all the work contemplated to be done in accordance with the detailed plans and these specifications, the premises and area along the entire line of the work shall be thoroughly cleaned up and all remaining structural materials, excess or surplus excavation and debris of any nature shall be removed and disposed of in a satisfactory manner and as directed by the Engineer. The site of all work shall appear neat and finished. All portions of the project when completed shall be ready for use or occupancy.

No compensation or payment shall be made for any cleanup work. The price for such cleanup work shall be absorbed in the items covered in the proposal.

56. GUARANTEE

The contractor shall and hereby does guarantee: (1) all work performed by him directly and all work performed by his subcontractors; (2) that all material specified; and (3) that any defect due to improper workmanship or material discovered and made known to him within one year (1) f the date of final acceptance of the improvements shall be repaired, replaced, corrected or otherwise made good by him without additional expense to the Owner. The Contractor shall, in case of work performed by his subcontractors and where guarantees are required, secure guarantees from said subcontractors and deliver copies of same to the Engineer upon completion of the work.

57. WAIVER OF ATTORNEY FEES:

BY EXECUTING THIS CONTRACT, CONTRACTOR AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE CONTRACTOR SPECIFICALLY AGREES THAT IF THE CONTRACTOR BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE CONTRACTOR AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH CONTRACTOR MIGHT OTHERWISE BE ENTITLED.

CONTRACTOR AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE CONTRACTOR ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE CONTRACTOR FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN

THE OWNER AND THE CONTRACTOR. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE CONTRACTOR AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

58. GOVERNING LAW AND VENUE

This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way that would direct application of the laws of another jurisdiction.

59. SOVEREIGN IMMUNITY

By executing this Contract, the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

60. NO THIRD – PARTY BENEFICIARY

The City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

61. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES

As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this agreement, Contractor or his legal representative, shall give the City Manager or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one hundred and twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Contractor will settle, the physical and mailing addresses of Contractor at the time and date the claim was presented and the physical and mailing addresses of Contractor for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Contractor relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Contractor that Contractor's notice is insufficient. City reserves the right to request additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Contractor's failure to comply with the requirements herein shall perpetually bar Contractor's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Contractor agrees that the requirements of this entire Agreement are reasonable.

62. ASSIGNMENT

Contractor shall not, either directly or indirectly, assign all or any part of this contract or any interest, right or privilege herein, without the prior written consent of the owner. The issue on whether or not to grant consent to an assignment is in the sole discretion of the owner.

63. FEDERAL WAGE REQUIREMENTS

If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

64. PROMPT PAY ACT

The owner and contractor agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

Updated September 2020

SPECIAL PROVISIONS

ATTENTION: All Bidders are directed to pay special attention to the NOTICE TO BIDDERS section of the bid packet. The Coronavirus (COVID-19) pandemic has resulted in several changes to the City of Midland's normal bid process, and bidders have sole responsibility for complying with the current bid process requirements. Bidders also have sole responsibility for verifying that any bid submitted is completed correctly and includes all of the required documentation, including addendums.

1. SCOPE OF WORK:

Included in this Project will be New York Avenue & Benton Street Water Improvements to be performed as outlined in the Plans and Specifications, which are necessary to satisfactorily complete the work.

The project will include the removal, relocation, and installation of existing and proposed water infrastructure and appurtenances including all necessary mobilization, saw-cutting, pavement removal, excavation, embedment, backfill, pavement repair, curb repair, sidewalk repair, ramp repair, concrete joint sealing, erosion control, traffic control, seeding and vegetation, watering, coordination with the City of Midland staff and organizations such as OSHA, franchise utilities, etc. as needed, One Call (Texas 811) notifications for pending work, notifications to adjacent property owners as directed by City of Midland staff, and all other work to be performed as outlined in the Construction Drawings and Specifications, to satisfactorily complete the work.

The Owner reserves the right to abandon, without obligation to the Contractor, any part of the project, or the entire project, at any time before the Contractor begins any construction work authorized by the Owner.

Standard Specifications for Construction of the City of Midland will govern all construction, except as modified by these Special Provisions.

2. ORDER OF PRECEDENCE:

The Special Provisions take precedence over the General Conditions in this bid packet anywhere these two sections are not in agreement.

The Special Provisions take precedence over the City of Midland Specifications in this bid packet anywhere these two sections are not in agreement.

The Contractor is to bid the quantities in the Proposal section of the bid packet even if there is a discrepancy between the Proposal quantities and those noted or measured in the construction drawing set.

In the construction drawing set any written or noted dimension takes precedence over dimensions measured based on the drawing scale unless otherwise directed by the Engineer.

Any changes or revisions made as part of an Addendum for this project take precedence over the original bid packet and construction drawing set where the documents are in conflict.

3. EXAMINATION OF SITE:

Prospective bidders shall make a careful examination of the entire site of the project and shall make such explorations as may be necessary to determine the subsoil and/or water conditions to be encountered;

improvements and obstructions which may be encountered; methods of providing ingress-egress to private as well as public property; methods of handling traffic during construction and maintenance of the entire project as well as any section thereof, protection of all existing structures both above and below ground; and how the plans fit the proposed project and especially if any discrepancies exist.

4. PAYMENT:

Payment and retainage (five percent, 5%) shall be per the General Conditions.

Payment will be made for material installed, not for material delivery.

5. SAFETY REQUIREMENTS:

It is the responsibility of the Contractor to follow and comply at all times with Occupational Safety and Health Administration (OSHA) and all other applicable safety regulations and requirements throughout the course of the project's work.

6. SAFETY RESTRICTIONS – WORK NEAR HIGH VOLTAGE LINES:

The following procedure will be followed regarding the subject item on this contract:

1) A warning sign painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

   "**WARNING – UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES"**

2) Equipment that may be operated within ten feet of high voltage lines shall have an insulation cage-type of guard about the boom or arm, except back hoes or dippers, and insulator links on the lift hook connections.

3) When necessary to work within six feet of high voltage electric lines, notification shall be given to the power company of who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

4) The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

5) No person shall work within six feet of a high voltage line without protection having been taken as outlined in Paragraph (3).

7. TRAFFIC CONTROL:

All proposed traffic control shall be approved by the City where applicable. All traffic control plans must be submitted to and approved by the Traffic Operations Division no less than two (2) business days prior to starting the construction work. Traffic control for each phase of work must be approved prior to starting that work.

Generic traffic control plans or typical details may be submitted for shoulder work on any class of roadway, or for work on local or collector streets that does not require the closure of any travel lanes (i.e., all lanes are open to traffic on striped roadways, or adequate width remains available for two-way traffic on unstriped roadways). Once a generic traffic control plan or typical detail for a certain type of setup has been approved one time, the Contractor shall only be responsible for notifying the Traffic Operations Division of the location, type of setup, and dates on which they intend to utilize the pre-approved traffic control for the duration of the contract. No additional plan submittals will be required in these cases, except that the City reserves the right to suspend this exception at its discretion. For any work not fitting the above exception, or in the event that the exception is suspended by the City, a site-specific traffic control plan will be required for each work location and time period.

1. All temporary traffic control shall be in general conformance with the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD) (latest edition as adopted by the Texas Department of Transportation), except as specifically directed by the City Engineer or City Traffic Engineer.
2. All temporary traffic control shall be designed, installed, and maintained by competent and qualified personnel with adequate experience in traffic control.
3. All temporary traffic control involving multiple lane closures or traffic shifts, full closures of collector or arterial streets, traffic control extending through a railroad crossing, or any setup reasonably determined by the City to be "complex", shall be implemented only by a contractor with specific experience and expertise in the field of traffic control (i.e., a qualified "barricade company").
4. A Traffic Control Plan (TCP) shall be submitted to the Engineering Services Department, Traffic Operations Division, in advance of any work in the right-of-way that impacts traffic. No work shall occur until an approved TCP has been returned to the Contractor.
5. A copy of the approved TCP shall be kept in the possession of the person responsible for supervising the traffic control at all times while working in the right-of-way. The approved TCP shall be presented to City staff or law enforcement upon demand at any time.
6. Depending on site conditions and the nature of the work, temporary traffic control may be approved by the City for either of the following:
    a. All Times – All traffic control, including closures, may remain in place 24 hours per day until expiration of the approved TCP.
    b. Off-Peak Only – Lane or road closures are NOT permitted from 6:00-9:00 AM and 4:00-7:00 PM on weekdays (Monday through Friday). Other traffic control not related to lane or road closures may remain in place 24 hours per day until expiration of the approved TCP.
7. The contractor setting the temporary traffic control shall be responsible for the maintenance and upkeep of all signs, barricades, and other devices, at all times.
    a. All temporary traffic control setups shall be maintained at least one time per day, including weekends and holidays.
    b. More frequent maintenance shall be performed as needed, with particular emphasis to following up after severe weather events or during times of high winds.
    c. Maintenance shall include:
        i. Verifying and correcting the location and orientation of all signs, barricades, and other devices;
        ii. Keeping signs and reflective areas of barricades and other devices clean and free of dirt buildup so as to maintain appropriate visibility and legibility; and

iii. Ensuring the proper location, orientation, and operation of arrow boards or message boards, if present.

8. Arrow boards shall be required for lane closures under the following conditions:
    a. On roadways with a posted speed limit of 55 MPH or greater, for closures lasting more than one (1) hour;
    b. On roadways with a posted speed limit of 45 MPH or greater, for closures lasting more than four (4) hours;
    c. On any roadway if lanes will remain open to traffic travelling in the same direction on both sides of a closed lane during any overnight hours (from 7:00 PM to 6:00 AM); and

At other times as shown on the approved TCP, or as otherwise directed by the City.

8. DETOURS:

The Contractor shall prosecute his work in such a manner as to create a minimum of interruption to traffic and pedestrian facilities and to the flow of vehicular and pedestrian traffic within the project area.

9. PROPERTY AND RIGHT-OF-WAY ACCESS:

Access to adjacent property shall be maintained at all times unless otherwise directed by the Engineer. If the contractor will not be working in an area for a period of one week or more, special care should be taken to address any unsafe conditions such as excavated areas or obstructions outside the worked area that could be tripping hazards, etc.

10. CONSTRUCTION SCHEDULE:

It is the responsibility of the Contractor to furnish the Construction Engineer, prior to construction, a schedule outlining the anticipated time each phase of construction will begin and be completed, including sufficient time being allowed for clean-up.

11. CONSTRUCTION STAKING:

It is the responsibility of the Contractor to provide the project construction staking at fifty foot (50') intervals along the entire length of the project as well as at such control points as the Contractor deems necessary for proper execution of the work. Construction staking shall include grading and cuts. Cut sheets are to be provided to the Engineer by the Contractor for review and approval.

12. SURVEY:

The Contractor is to provide GPS survey shots for all meters replaced to the City of Midland with each completed work order submittal. Survey data is to be shot in Texas Central Zone with 1983 NAD at 1.0' accuracy or better. Survey data is to be provided in Excel csv. file format with all rounding functions turned off.

13. CONSTRUCTION MATERIALS:

The Contractor is to only provide new materials for permanent installation in any and all parts of this project, and all such materials must comply with the General Conditions, the Bid Packet Specifications, and all applicable City of Midland Standards and Specifications.

Concrete is only to be placed when the ambient temperature is between 40 degrees and 95 degrees Fahrenheit and the ambient temperature in the shade is higher than 40 degrees Fahrenheit or is 40 degrees Fahrenheit and rising.

All concrete pavement joints are to be sealed with Texas Department of Transportation (TxDOT) DMS-6310 SL-2 sealant, an American Society for Testing and Materials (ASTM) D 1190 Hot-Applied Single Component Joint Sealant, or a City of Midland approved equal. This will not apply to curb or sidewalk joints.

No construction materials are to be placed or installed during rain events unless they are necessary to resolve an emergency situation or to facilitate the project site erosion control measures.

14. EROSION CONTROL:

Erosion control is the responsibility of the Contractor and erosion control measures are to be implemented so as to prevent sediment erosion from wind, rain, and other elements from the project site. Should the Owner feel that supplementary erosion control measures are required in addition to those implemented by the Contractor then the Contractor will include additional erosion control measures within reason to the Owner's satisfaction and/or TCEQ requirements.

Reasonable erosion control measures include but are not limited to: construction entrance(s), concrete washout(s), perimeter silt fence or fiber wattle, rock rip-rap dams for concentrated runoff control, gutter and inlet protection measures such as sand bags, and stabilization of the construction area surfaces when construction work is not actively occurring by means of vegetative cover or seeded erosion control blankets.

Supplemental erosion control measures are ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes.

Site cleanup work is to be done for this project as soon as possible as per the General Conditions and will be ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes. Site cleanup is to take place throughout the project's construction as needed to maintain a clean and professional looking work area. No more than three calendar days are to elapse after completion of construction before the final roadway and right-of-way cleanup has been completed to the satisfaction of the Engineer.

15. WASTE MATERIAL:

Excess material from excavation and other construction or demolition activity will become the property of the Contractor unless otherwise noted in the bid packet or construction drawing set. Excess excavation will be disposed of at locations secured by the Contractor and if necessary, approved by the Engineer. No material is to be placed on private property or City property without the approval of the Engineer and the property owner. Removal of excess material, excavation, and waste material are ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes.

Excess concrete material must be washed out in a concrete washout within the project's job site area, or else any and all other concrete material washout must occur away from the job site area in the Contractor's or

concrete Supplier's own operation yards or properties. Under no circumstances are concrete trucks allowed to washout in any job site excavations, channels, public right-of-way, or on private property.

Existing fire hydrants indicated for removal as part of the project are to be returned to the City of Midland by the Contractor and remain City property. This is ancillary to the project and will not be paid as a separate item.

16. TESTING

It is the Contractor's responsibility to perform all required testing for any and all materials and workmanship performed or installed as part of the project's work. The cost of all such testing shall be borne solely by the Contractor unless required by the Engineer for work or materials that had previously been tested and approved and had not experienced any change in condition since that time as a result of the Contractor's work or actions; or unless additional testing outside of the project scope is performed at the request of the Engineer.

Required testing includes:

Concrete Pavement For Trench Repair – A Slump Test is required only if directed by the Engineer for pavement patches that are equal to or greater than 50 cubic yards (roughly equal to an 8' wide by 340' long by 6" thick pavement section). The slump test is to be performed once for every cylinder set (3 cylinders), and no less than 1 cylinder set per day when concrete is placed. Test results are to be given to the engineer upon completion of each test. There will be no testing for curb, ramps, and sidewalks.

Asphalt Hot-Mix Pavement For Trench Repair – A Nuclear Gauge Density Test is required only if directed by the Engineer for pavement patches that are equal to or greater than 620 square yards (roughly equal to an 8' wide by 700' long pavement section). The laboratory density limits will be a minimum limit of 96%, a maximum limit of 98%, and an optimum limit of 97%. The acceptable field density limit will be a minimum limit of 93%, a maximum limit of 98%, and an optimum limit of 95%. Test results are to be given to the Engineer upon completion of each test.

Water Pipes & Fittings – Perform Pressure Testing and Bacterial Testing (Bac T)/Chlorination testing for all water mains and fire hydrants.

- Pressure Test – Perform test as described in the City of Midland Water Line Specifications, PART 10, Hydrostatic Tests, with the sole difference being that a continuous pressure of 180 pounds per square inch (psi) must be maintained over a continuous period of not less than four (4) hours rather than eight (8) hours. The acceptable field pressure limit will be a minimum 180 psi and a maximum 185 psi. A 2-3 psi drop in the measured pipe pressure during the first two (2) hour period will be acceptable to account for the compression of air within the pipe so long as the minimum and maximum allowed field pressure limits are not exceeded. There can be no variation in the measured pipe pressure during the last two (2) hours of the pressure test.

- Bac T/Chlorination Testing – Perform disinfection and test as described in the City of Midland Water Line Specifications, Part 9, Disinfection Of Pipe Lines.

17. COMPLIANCE:

The said Contractor further agrees to comply with all applicable provisions of the laws and building and construction codes of the City of Midland and the State of Texas, and with any regulations for the protection of

workers which may be promulgated by the Government, and shall protect such work with all necessary lights, barriers, safeguards, and warnings as provided for in said specifications and the Ordinance regulations.

18. PERSONNEL:

It is the Contractor's responsibility to have a supervising representative of the Contractor on the construction site any time that construction work is taking place. The Contractor's representative must be on the Contractor's direct payroll. Sub-contractors or paid consultants will not satisfy this requirement.

It is also the Contractor's responsibility to provide the City with a reliable contact for issue escalation coordination. Such contacts would include the Contractor's site foreman, the Contractor's construction project manager, etc.

19. INTENT OF THE PROPOSAL:

The intent of the proposal is to determine the lowest responsible bidder based on the total of the quantities and unit prices. Once the lowest responsible bidder is selected, the project will be awarded based on the terms and requirements of the contract outlined in the bid packet and construction drawings.

20. CONTRACT DEADLINE:

The deadline for substantial completion of this project is _240_ calendar days total starting from the Notice to Proceed date.

Extensions of the project deadline may be requested by the Contractor for documented excepting conditions such as weather days, delays due to conflicts with existing franchise lines, etc. which are reasonably beyond the Contractor's control. Any and all deadline extensions must be submitted by the Contractor in writing to Engineer for review, and the approval or denial of the request rests solely with the Engineer.

Unless specifically granted in writing by the Engineer, there will be no suspension of project time between phases of construction.

21. WARRANTY PERIOD:

There is a one (1) year calendar warranty period on this project for all work performed or materials installed effective immediately upon acceptance of the improvements by the Owner. The warranty period will be based on the acceptance date of the project as a whole, and not any individual phases of the project.

22. BID PACKET COMPLETION ITEMS OF NOTE:

Bidders must be willing to sign the Contract as is if a bid is submitted. Revisions, alterations, deletions, additions, or any other changes of any kind by the bidder to the bid packet or other bid documents (such as the construction drawing set, addendums, etc.) will result in the bid submittal being deemed 'Non-Responsive' and the bid will not be accepted.

Bidders are reminded to make sure that the Conflict of Interest forms are completed if applicable before submitting a bid.

All bid items in the Proposal section must be completed for a bid submittal to be considered complete. Any bid item left blank or that the bidder indicates they chose to not provide a bid for will be considered incomplete, and the entire bid submittal will also be deemed incomplete, the bid submittal will be deemed 'Non-Responsive', and the bid will not be accepted. Bidders bear sole responsibility for making sure that the Proposal is complete and in accordance with the instructions provided to bidders in the bid packet.

All acknowledgement forms for all addendums that are issued during the bid process for this project must be filled out and be included with any bid submittal for that bid submittal to be considered complete. Any bid submittal lacking these completed addendum acknowledgement forms will be deemed 'Non-Responsive' and the bid will not be accepted. Bidders bear sole responsibility for making sure that they have obtained all addendums issued prior to submitting their bid.

Bidders must provide documentation as part of the bid packet submittal proving that they possess either an active Water Operator D license, an active Wastewater D license, or an active Class 1 Collections license, and the Contractor must maintain at least one of these active licenses for the entirety of the project. Any bid submittal that does not include this required documentation will be rejected as a non-responsive bid. If a Contractor allows the required license or licenses to lapse at any time during the course of the project then all work under this project will be halted and the City of Midland will have sole discretion to either allow the Contractor to renew their active licenses before resuming work or to end the project immediately.

PROPOSAL

TO: Honorable Mayor and City Council
City of Midland
Midland, Texas

Gentlemen: The undersigned bidder, having examined the drawings, specifications and contract documents, the location of the proposed work, and being fully advised as to the extent and character of the work, proposes to furnish all material, equipment, and to perform all labor and work necessary for the completion of the construction of the work described by and in accordance with the attached drawings, specifications, and contract, for the following prices, to wit:

Project Name: New York Avenue & Benton Street Water Improvements
Project Number: U19-04

Base Bid: Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	8 MO	Mobilization, furnished, installed, complete and in place, for the sum of: **Thirteen Thousand Eight Hundred Seventy-Five** dollars and **no** cents per month. (Pay Note M1)	$ 13,875.00	$ 111,000.00
2)	300 LF	16" Steel Pipe Casing (1/4" Wall Thickness), furnished, installed, complete and in place, for the sum of: **Seventy-One** dollars and **no** cents per linear foot. (Pay Note M2)	$ 71.00	$ 21,300.00
3)	8 MO	Erosion/Sediment Control, furnished, installed, complete and in place, for the sum of: **Seven Hundred Seventy-Five** dollars and **no** cents per month. (Pay Note M3)	$ 775.00	$ 6,200.00
4)	8 MO	Traffic Control, furnished, installed, complete and in place, for the sum of: **Three Thousand Three Hundred Fifty** dollars and **no** cents per month. (Pay Note M4)	$ 3,350.00	$ 26,800.00

Base Bid: Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
5)	8 MO	Job Site Safety, furnished, installed, complete and in place, for the sum of: **Six Hundred Seventy-Five** dollars and **no** cents per month. (Pay Note M5)	$ **675.00**	$ **5,400.00**
6)	N/A	Material Mark-up, complete and in place, for the sum of: **Twenty** percent. (Pay Note M6)	% **20**	$ N/A
7)	N/A	Labor Mark-up (Regular Work Hours), complete and in place, for the sum of: **Twenty** percent. (Pay Note M7)	% **20**	$ N/A
8)	N/A	Equipment Rental Mark-up (Non-Standard Equipment Only), complete and in place, for the sum of: **Twenty** percent. (Pay Note M8)	% **20**	$ N/A
Total Miscellaneous Items 1-8		$ **170,700.00**		

Base Bid: Demolition Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	5,940 LF	Removal & Disposal of Existing Water Main, complete and in place, for the sum of: **Eleven** dollars and **Seventy-Five** cents per linear foot. (Pay Note D1)	$ **11.75**	$ **69,795.00**
2)	9 CY	Flowable Fill for Existing Pipes Abandoned In Place, furnished, installed, complete and in place, for the sum of: **Ninety-Five** dollars and **no** cents per cubic yard. (Pay Note D2)	$ **95.00**	$ **855.00**
3)	5 EA	Removal & Disposal of Existing Fire Hydrant Assembly, complete and in place, for the sum of: **Six Hundred** dollars and **no** cents per each. (Pay Note D3)	$ **600.00**	$ **3,000.00**
4)	4,340 SY	Removal & Dispose of Existing Unclassified Pavement, complete and in place, for the sum of: **Nine** dollars and **no** cents per square yard. (Pay Note D4)	$ **9.00**	$ **39,060.00**
5)	160 LF	Removal & Dispose of Existing Concrete Curb & Gutter, complete and in place, for the sum of: **Ten** dollars and **no** cents per linear foot. (Pay Note D5)	$ **10.00**	$ **1,600.00**
6)	20 SY	Removal & Disposal of Existing Concrete Sidewalk & Ramps, complete and in place, for the sum of: **Thirty-Five** dollars and **no** cents per square yard. (Pay Note D6)	$ **35.00**	$ **700.00**
Total Demolition Items 1-6		$ **115,010.00**		

Base Bid: Water Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	140 LF	12" AWWA C-900 DR18, PVC, Water Main, furnished, installed, complete and in place, for the sum of: **Fifty-Six** dollars and **no** cents per linear foot. (Pay Note W1)	$ **56.00**	$ **7,840.00**
2)	140 LF	10" AWWA C-900 DR18, PVC, Water Main, furnished, installed, complete and in place, for the sum of: **Forty-One** dollars and **no** cents per linear foot. (Pay Note W1)	$ **41.00**	$ **5,740.00**
3)	6,000 LF	8" AWWA C-900 DR18, PVC, Water Main, furnished, installed, complete and in place, for the sum of: **Thirty-Eight** dollars and **no** cents per linear foot. (Pay Note W1)	$ **38.00**	$ **228,000.00**
4)	1,300 LF	6" AWWA C-900 DR18, PVC, Water Main, furnished, installed, complete and in place, for the sum of: **Thirty-Six** dollars and **no** cents per linear foot. (Pay Note W1)	$ **36.00**	$ **46,800.00**
5)	3 EA	12" Gate Valve & Box (MJxMJ/FL), furnished, installed, complete and in place, for the sum of: **Three Thousand One Hundred Twenty-Five** dollars and **no** cents per each. (Pay Note W2)	$ **3,125.00**	$ **9,375.00**
6)	1 EA	10" Gate Valve & Box (MJxMJ/FL), furnished, installed, complete and in place, for the sum of: **Two Thousand Five Hundred** dollars and **no** cents per each. (Pay Note W2)	$ **2,500.00**	$ **2,500.00**

Base Bid: Water Items				
Item No.	Quantity	Description	Unit Price	Total Amount
7)	17 EA	8" Gate Valve & Box (MJxMJ/FL), furnished, installed, complete and in place, for the sum of: **One Thousand Eight Hundred Seventy-Five** dollars and **no** cents per each. (Pay Note W2)	$ **1,875.00**	$ **31,875.00**
8)	33 EA	6" Gate Valve & Box (MJxMJ/FL), furnished, installed, complete and in place, for the sum of: **One Thousand Four Hundred Twenty-Five** dollars and **no** cents per each. (Pay Note W2)	$ **1,425.00**	$ **47,025.00**
9)	16 EA	Fire Hydrant Assembly, furnished, installed, complete and in place, for the sum of: **Three Thousand Four Hundred Seventy-Five** dollars and **no** cents per each. (Pay Note W3)	$ **3,475.00**	$ **55,600.00**
10)	5,100 LBS	Ductile Iron Fittings, furnished, installed, complete and in place, for the sum of: **Seven** dollars and **Fifty** cents per pound. (Pay Note W4)	$ **7.50**	$ **38,250.00**
11)	69 EA	8"x1" Tapping Saddle for water service connection, furnished, installed, complete and in place, for the sum of: **Two Hundred One** dollars and **no** cents per each. (Pay Note W5)	$ **201.00**	$ **13,869.00**

Base Bid: Water Items				
Item No.	Quantity	Description	Unit Price	Total Amount
12)	69 EA	1" Water Service Connection, furnished, installed, complete and in place, for the sum of: **Seven Hundred Thirty** dollars and **no** cents per each. (Pay Note W6)	$ **730.00**	$ **50,370.00**
13)	2,050 LF	1" Water Service Lateral, furnished, installed, complete and in place, for the sum of: **Eighteen** dollars and **no** cents per linear foot. (Pay Note W7)	$ **18.00**	$ **36,900.00**
14)	20 EA	Water Meter Installation (New Service Lateral), furnished, installed, complete and in place, for the sum of: **Three Hundred Seventy** dollars and **no** cents per each. (Pay Note W8)	$ **370.00**	$ **7,400.00**
15)	7,600 LF	Open Trenching of Water Main, furnished, installed, complete and in place, for the sum of: **Twenty** dollars and **no** cents per linear foot. (Pay Note W9)	$ **20.00**	$ **152,000.00**
Total Water Items 1-15		$ **733,544.00**		

Base Bid: Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	20 SY	4" Concrete Pavement Repair, furnished, installed, complete and in place, for the sum of: Ninety-Five dollars and no cents per square yard. (Pay Note P1)	$ 95.00	$ 1,900.00
2)	160 LF	Concrete Curb & Gutter Repair, furnished, installed, complete and in place, for the sum of: Thirty-Two dollars and no cents per linear foot. (Pay Note P2)	$ 32.00	$ 5,120.00
3)	20 SY	2" Concrete Sidewalk Repair, furnished, installed, complete and in place, for the sum of: Ninety-Five dollars and no cents per square yard. (Pay Note P3)	$ 95.00	$ 1,900.00
4)	3,400 SY	2" Type D HMAC Asphalt Pavement Repair (PG70-22), furnished, installed, complete and in place, for the sum of: Forty-Five dollars and Fifty cents per square yard. (Pay Note P4)	$ 45.50	$ 154,700.00
5)	700 GAL	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY), furnished, installed, complete and in place, for the sum of: Six dollars and Fifty cents per gallon. (Pay Note P5)	$ 6.50	$ 4,550.00
6)	3,450 SY	Flowable Fill / 2-Sack Backfill, furnished, installed, complete and in place, for the sum of: Eighty-Six dollars and no cents per square yard. (Pay Note P6)	$ 86.00	$ 296,700.00
Total Paving Items 1-6			$ 464,870.00	

Bid Price For:	
1. Miscellaneous Items	$ 170,700.00
2. Demolition Items	$ 115,010.00
3. Water Items	$ 733,544.00
4. Paving Items	$ 464,870.00
Total Price	$ 1,484,124.00

In addition to providing the individual prices for the items above, Contract shall write the total bid amount in the sum of

One Million Four Hundred Eighty-Four Thousand One Hundred Twenty-Four dollars

and **no** cents total.

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the contract documents pertaining to the work covered by the above bid. The selected contractor will receive written notice to proceed.

Bidder agrees to substantially complete all work within 240 calendar days after receipt of notice to proceed.

PUBLIC INFORMATION

To the extent that Bidder is submitting a bid for a contract described by Section 552.371 of the Texas Government Code, Bidder agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this bid, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

Enclosed herewith in this proposal is a cashier's check, cash or bid bond on a form approved by the City Attorney, for

Seventy-Four Thousand Two Hundred Six dollars

and **Twenty** cents total. ($ **74,206.20**)

which it is agreed shall be collected and retained by the owner as liquidated damages in the event this proposal is accepted by the Owner within thirty days (30) after the date advertised for the reception of bids and the undersigned fails to execute the contract and required bonds with the owner, under the conditions thereof, within (15) days after the date said proposal is accepted; otherwise said check or bond shall be returned to the undersigned on demand.

Boler Equipment Service, Inc.

Name of Contractor

Submitted By | **Greg Boler - Vice President** Print Name and Title

4611 Sinclair Ave.

Mailing Address

Midland City | **Texas** State | **79707** Zip

PAY NOTES

New York Avenue & Benton Street Water Improvements

Bid Item		Pay Quantity Note
Miscellaneous Items		
1	Mobilization	M1
2	16" Steel Pipe Casing (1/4" Wall Thickness)	M2
3	Erosion/Sediment Control	M3
4	Traffic Control	M4
5	Job Site Safety	M5
6	Material Mark-up	M6
7	Labor Mark-up (Regular Work Hours)	M7
8	Equipment Rental Mark-up (Non-Standard Equipment Only)	M8
Demolition Items		
1	Removal & Disposal of Existing Water Main	D1
2	Flowable Fill for Existing Pipes Abandoned In Place	D2
3	Removal & Disposal of Existing Fire Hydrant Assembly	D3
4	Removal & Disposal of Existing Unclassified Pavement	D4
5	Removal & Disposal of Existing Concrete Curb & Gutter	D5
6	Removal & Disposal of Existing Concrete Sidewalk & Ramps	D6
Water Items		
1	12" AWWA C-900 DR18, PVC, Water Main	W1
2	10" AWWA C-900 DR18, PVC, Water Main	W1
3	8" AWWA C-900 DR18, PVC, Water Main	W1
4	6" AWWA C-900 DR18, PVC, Water Main	W1
5	12" Gate Valve & Box (MJxMJ/FL)	W2
6	10" Gate Valve & Box (MJxMJ/FL)	W2
7	8" Gate Valve & Box (MJxMJ/FL)	W2
8	6" Gate Valve & Box (MJxMJ/FL)	W2
9	Fire Hydrant Assembly	W3
10	Ductile Iron Fittings	W4
11	8"x1" Tapping Saddle	W5
12	1" Water Service Connection	W6
13	1" Water Service Lateral	W7
14	Water Meter Installation (New Service Lateral)	W8
15	Open Trenching of Water Main	W9
Paving Items		
1	8" Concrete Pavement Repair	P1
2	Concrete Curb & Gutter Repair	P2
3	2" Concrete Sidewalk Repair	P3
4	2" Type D HMAC Asphalt Pavement Repair (PG70-22)	P4
5	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	P5
6	Flowable Fill / 2-Sack Backfill	P6

PAY QUANTITY NOTES

M1 Includes the necessary equipment, labor, materials, and incidentals for all Mobilization to the job site complete and in place. Measurement and payment to be made per month.

M2 Includes the necessary equipment, labor, materials, and incidentals for the installation of Pipe Casing per the construction drawings and City of Midland standards and specifications, including all spacers, grout, embedment, detector wire, tracer tape, and appurtenances. Measurement and payment to be per linear foot measured along the ground surface following the pipe centerline through all valves, fittings, structures, and appurtenances.

M3 Includes the necessary equipment, labor, materials, and incidentals to implement the Erosion Control Plan per the construction drawings and City of Midland standards and specifications. Measurement and payment to be made per month.

M4 Includes the necessary equipment, labor, materials, and incidentals to implement Job Site Safety and to provide a safe work environment for the project work area (including all personal protection equipment, trench safety, etc.) per the construction drawings and in compliance with all applicable Federal, State, and Local requirements or regulations including those of OSHA and the City of Midland. JOB SITE SAFETY IS THE RESPONSABILITY OF THE CONTRACTOR. Measurement and payment to be made per month.

M5 Includes the necessary equipment, labor, materials, and incidentals to implement the Traffic Control per the approved Traffic Control Plan. Any required traffic control devices are to meet the City of Midland Traffic Division Standards. Measurement and payment to be made per month.

M6 Includes the Material Mark-up for materials and material sizes (pipe, valve, manhole, etc.) required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of the material in question plus the set percent increase established by this bid item. The Contractor must provide a copy of the invoice for the material cost from the supplier to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any material. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

M7 Includes the Labor Mark-up (Regular Work Hours) for labor required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of labor in question plus the set percent increase established by this bid item. The Contractor must provide a typical hourly pay rate for work crews prior to the percent increase along with the number of workers on the crew and the number of hours worked by the crew for the project in question to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any labor. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

M8 Includes the Equipment Rental Mark-up (non-standard equipment only) required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of the equipment rental in question plus the set percent increase established by this bid item. The Contractor must provide a copy of the invoice for the rented equipment from the equipment supplier to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any rented equipment. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

D1 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Utility Mains per the construction drawings and City of Midland standards and specifications, including the removal and disposal of all pipes, fittings, and appurtenances. Measurement and payment to be made per linear foot measured along the ground surface following the pipe centerline through all valves, manholes, fittings, junctions, structures, and appurtenances.

D2 Includes the necessary equipment, labor, materials, and incidentals for the placement of Flowable Fill for Existing Pipes Abandoned In Place (Portland Cement 2-Sack = 188 LBS/CY) per the construction drawings and City of Midland standards and specifications, including plugging or caping the pipe to be abandoned, and appurtenances. Measurement and payment to be made per cubic yard volume of flowable fill placed in pipe abandoned in place.

D3 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Fire Hydrant Assembly per the construction drawings and City of Midland standards and specifications. Fire hydrant assemblies are to be returned to the City Utility Maintenance Department unless otherwise directed by the Engineer of Record or their representative. This includes removal and disposal of all structures, fittings, pipes, and appurtenances. Measurement and payment to be per each fire hydrant assembly removed.

D4 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Unclassified Pavement per the construction drawings and City of Midland standards and specifications including all saw-cutting and appurtenances. Depths given are approximate and pavement material is to be removed in its entirety. No additional compensation will be made for increased pavement depth removal. Saw-cut pavement edges are to be full pavement depth, cleanly cut, and clearly defined edges free of breaks. Measurement and payment to be made per square yard of unclassified pavement removed.

D5 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Concrete Curb & Gutter per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per linear foot.

D6 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Concrete Sidewalk & Ramps per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard.

W1 Includes the necessary equipment, labor, materials, and incidentals for the installation of Water Mains per the construction drawings and City of Midland standards and specifications, including all embedment, detector wire, tracer tape, necessary testing, and appurtenances. Measurement and payment to be made per linear foot measured along the ground surface following the pipe centerline through all valves, fittings, structures, and appurtenances.

W2 Includes the necessary equipment, labor, materials, and incidentals for the installation of a Gate Valve & Box per the construction drawings and City of Midland standards and specifications, including all embedment, valve box, joint restraint, thrust blocking, concrete collar, and appurtenances. Measurement and payment to be made per each valve and box installed. Includes valves associated with tapping sleeves.

W3 Includes the necessary equipment, labor, materials, and incidentals for the installation of a Fire Hydrant Assembly to a depth per the construction drawings and City of Midland standards and specifications, including all risers, embedment, gravel sump, thrust blocking, necessary testing, and appurtenances. Measurement and payment to be made per each fire hydrant assembly installed.

W4 Includes the necessary equipment, labor, materials, and incidentals for the installation of Ductile Iron Fittings per the construction drawings and City of Midland standards and specifications, including all embedment, wrapping, thrust blocking, joint restraints, and appurtenances. All fittings are to be C153 ductile iron compact fittings. Fitting weights are established from Tyler Union Quality Waterworks Products Catalog PC-U2014, December, 2014 and payment will be made at the standard compact weight. Nuts, bolds, glands, and other associated accessories are not included as part of the fitting weight and are considered subsidiary to the weight of the fitting. Any additional required fittings not shown on the drawings will be paid for at weights established in the Tyler Union Waterworks Catalog.

W5 Includes the necessary equipment, labor, materials, and incidentals for the installation of a Tapping Saddle for a water service connection per the construction drawings and City of Midland standards and specifications, including all embedment, thrust blocking, and appurtenances. Measurement and payment to be per each tapping saddle installed.

W6 Includes the necessary equipment, labor, materials, and incidentals for the installation of a Water Service Connection per the construction drawings and City of Midland standards and specifications, including all brass goods from the corporation stop to the brass angle valve (inclusive), and all appurtenances. Measurement and payment to be made per each water service connection installed.

W7 Includes the necessary equipment, labor, materials, and incidentals for the installation of Water Service Lateral pipe per the construction drawings and City of Midland standards and specifications, including all excavation, embedment, backfill, polyethylene service line, and appurtenances. Measurement and payment to be made per linear foot measured along the ground surface following the pipe centerline through all valves, fittings, and appurtenances.

W8 Includes the necessary equipment, labor, materials, and incidentals for a new Water Meter Installation as part of a new water service lateral installation per the construction drawings and City of MIdland standards and specifications including all appurtenances. The new water meter will be provided by the City of Midland. Measurement and payment to be per each water meter set.

W9 Includes the necessary equipment, labor, materials, and incidentals for Open Trenching of Water Main per the construction drawings and City of Midland standards and specifications, including all unclassified excavation, backfill not including flowable fill backfill, providing trench safety and protection for workers to install pipe, structures, and appurtenances. Measurement and payment to be made per linear foot measured along the ground surface following the pipe centerline through all structures, fittings, and appurtenances.

P1 Includes the necessary equipment, labor, materials, and incidentals for Concrete Pavement Repair per the construction drawings and City of Midland standards and specifications, including all forming, placement, jointing, fiber or rebar reinforcement, sealing, finishing, and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P2 Includes the necessary equipment, labor, materials, and incidentals for Concrete Curb & Gutter Repair per the construction drawings and City of Midland standards and specifications including all forming, placement, jointing, fiber reinforcement, finishing, and appurtenances. Measurement and payment to be made per linear foot measured along the back-of-curb.

P3 Includes the necessary equipment, labor, materials, and incidentals for Concrete Sidewalk Repair per the construction drawings and City of Midland standards and specifications, including all forming, placement, jointing, fiber reinforcement, finishing, and appurtenances. Measurement and payment to be made per square yard.

P4 Includes the necessary equipment, labor, materials, and incidentals for the installation of Type "D" HMAC Asphalt Pavement Repair (110 LBS / SY at 1" thick, PG 70-22) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P5 Includes the necessary equipment, labor, materials, and incidentals for application of Bituminous Prime Coat (MC-30, or AEP, 0.20 GAL / SY) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per gallon of material applied at the designated rate.

P6 Includes the necessary equipment, labor, materials, and incidentals for installation of Flowable Fill / 2-Sack Backfill (Portland Cement 2 Sack = 188 LBS/CY) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

BID BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

SURETY NO RCB0021036

KNOW ALL MEN BY THESE PRESENTS, THAT Boler Equipment Service, Inc. (Hereinafter called the Principal), as Principal, and RLI Insurance Company (Hereinafter called the Surety, as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of Five Percent of the Greatest Amount Bid Dollars ($ 5% GAB) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid or Proposal to enter into a certain written contract for the construction of New York Avenue & Benton Street Water Improvements .

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully, enter into such written Contract, then this obligation shall be void; otherwise to remain in full force and effect.

IT IS EXPRESSLY UNDERSTOOD AND AGREE that if said Principal should withdraw its Bid anytime after such Bid is opened and before official rejection to such Bid or, if successful in securing the award thereof, said Principal should fail to enter into the Contract and furnish satisfactory Performance Bond and Payment Bond, the Obligee, in either of such events, shall be entitled and is hereby given the right to collect the full amount of this Bid Bond as liquidated damage.

PROVIDED, further that if any legal action be filed upon this Bond venue shall lie in Midland County, Texas.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this 18th day of November, 2020

Principal

By Greg Boler

Address 4611 Sinclair Avenue

Midland, TX 79707

Surety

By Jessica Ervin-Battles, Attorney In Fact

Address 3100 N. A St. Bldg. D

Midland, TX 79705

RLI INSURANCE COMPANY CORPORATE SEAL ILLINOIS

APPROVED AS TO FORM:

City Attorney

NOTE: Attach Power of Attorney

Form Revised October 2020

POWER OF ATTORNEY

RLI Insurance Company
Contractors Bonding and Insurance Company

9025 N. Lindbergh Dr. Peoria, IL 61615
Phone: 800-645-2402

Know All Men by These Presents:

That this Power of Attorney is not valid or in effect unless attached to the bond which it authorizes executed, but may be detached by the approving officer if desired.

That **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, each an Illinois corporation, (separately and together, the "Company") do hereby make, constitute and appoint:

Deborah Ervin, Beverly Richardson, Jessica Ervin-Battles, jointly or severally

in the City of Midland, State of Texas its true and lawful Agent(s) and Attorney(s) in Fact, with full power and authority hereby conferred, to sign, execute, acknowledge and deliver for and on its behalf as Surety, in general, any and all bonds and undertakings in an amount not to exceed **Twenty Five Million** Dollars (**$25,000,000.00**) for any single obligation.

The acknowledgment and execution of such bond by the said Attorney in Fact shall be as binding upon the Company as if such bond had been executed and acknowledged by the regularly elected officers of the Company.

RLI Insurance Company and/or **Contractors Bonding and Insurance Company**, as applicable, have each further certified that the following is a true and exact copy of a Resolution adopted by the Board of Directors of each such corporation, and is now in force, to-wit:

> "All bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or Agents who shall have authority to issue bonds, policies or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile."

IN WITNESS WHEREOF, the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, as applicable, have caused these presents to be executed by its respective Vice President with its corporate seal affixed this 19th day of December, 2019.

CONTRACTORS BONDING AND INSURANCE COMPANY — CORPORATE SEAL — ILLINOIS

RLI INSURANCE COMPANY — CORPORATE SEAL — ILLINOIS

RLI Insurance Company
Contractors Bonding and Insurance Company

By: B. W. D.
Barton W. Davis — Vice President

State of Illinois
County of Peoria } SS

On this 19th day of December, 2019, before me, a Notary Public, personally appeared Barton W. Davis, who being by me duly sworn, acknowledged that he signed the above Power of Attorney as the aforesaid officer of the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company** and acknowledged said instrument to be the voluntary act and deed of said corporation.

By: Gretchen L Johnigk
Gretchen L. Johnigk — Notary Public

GRETCHEN L JOHNIGK
NOTARY PUBLIC STATE OF ILLINOIS
"OFFICIAL SEAL"
My Commission Expires
May 26, 2020

CERTIFICATE

I, the undersigned officer of **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company**, do hereby certify that the attached Power of Attorney is in full force and effect and is irrevocable; and furthermore, that the Resolution of the Company as set forth in the Power of Attorney, is now in force. In testimony whereof, I have hereunto set my hand and the seal of the **RLI Insurance Company** and/or **Contractors Bonding and Insurance Company** this 19th day of November, 2020.

RLI Insurance Company
Contractors Bonding and Insurance Company

By: Jean M. Stephenson
Jean M. Stephenson — Corporate Secretary

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/17/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Jessica Ervin-Battles
ERVIN INSURANCE AGENCY 3100 North A Street Bldg D Midland, TX 79705	PHONE (A/C, No, Ext): (432) 682-3717 FAX (A/C, No): (432) 682-3002 E-MAIL ADDRESS: jessica@ervinins.com

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Boler Equipment Service PO Box 80428 Midland, TX 79708	INSURER A: Mid-Continent Casualty	23418
	INSURER B: Liberty Mutual Insurance Company	23043
	INSURER C: Texas Mutual Insurance Company	22945
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:	Y	Y	04GL1043279	7/13/2020	7/13/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 100,000 $ 0 $ 1,000,000 $ 5,000,000 $ 5,000,000 $
B	AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] OWNED AUTOS ONLY [X] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY	Y	Y	BAS60891370	3/2/2020	3/2/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ $ $ $
A	[X] UMBRELLA LIAB [X] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 10,000	Y	Y	04XS215638	7/13/2020	7/13/2021	EACH OCCURRENCE AGGREGATE $	$ 5,000,000 $ 5,000,000 $
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	0001118970	7/13/2020	7/13/2021	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
A	Inland Marine-Rented Equipment			04CIM12826	7/13/2020	7/13/2021		$200,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Install New Gas Pumps, Tanks, Piping and Canopies. Installation of Underground Utilities. The City of Midland is listed as an Additional Insured, on a claims occurred basis, on all policies listed above. The Insured and Insuror hereby waive all rights of subrogation with respect to claims against the City of Midland, its agents, employees and officers, on all policies of insurance captioned above.

CERTIFICATE HOLDER

City of Midland
PO Box 1152
Midland, TX 79702
432-686-1609(F)

PACKET 8.711

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

December 15, 2020

© 1988-2015 ACORD CORPORATION. All rights reserved.

The ACORD name and logo are registered marks of ACORD

CONTRACT

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

THIS CONTRACT, made and entered into this 16th day of December, 20 20, by and between the City of Midland of the County of Midland and State of Texas, acting through its Mayor thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and Boler Equipment Services, Inc. of the City Midland, County of Midland, State of Texas, Party of the Second Part, herein-after termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the first Part (OWNER), and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follows: New York Avenue & Benton Street Water Improvements together with appurtenances and incidentals.

Conditions of the Contract and at his (or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendent, labor, insurance and other accessories and services necessary to complete the said construction in accordance with the conditions and prices stated in the Proposal attached hereto, and in accordance with the Notice to the Contractors, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore as prepared by Engineering and Transportation Department of the City of Midland, Texas, herein entitled the ENGINEER, together with the CONTRACTOR'S written Proposal, the General Conditions of the Contract, and the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire Contract.

The CONTRACTOR hereby agrees to commence work within fifteen (15) calendar days after the written notice to do so and to substantially complete the same within 240 calendar days after receipt of notice to proceed, subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this Contract, such payments to be subject to the General and Special Conditions of the Contract.

The SUM TOTAL of this Contract shall be: $1,484,124.00.

INSURANCE

Contractor shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
— Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
— Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on an occurrence basis. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Business Automobile Liability insurance provided by Contractor shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the

work that is the subject of this Contract. The insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Workers' Compensation coverage provided by Contractor shall inure to the benefit of employees injured during the course and scope of their employment by Contractor pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of the City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of the City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name the City as an additional insured on a claims occurred basis. City shall be provided the notice by Contractor's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Contractor shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Contractor shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of the City. The City shall not be required to provide any insurance whatsoever pursuant to this Contract.

The Contractor certifies that the certificate of insurance provided as required herein complies with the requirements of Senate Bill 425, passed during the 82nd regular session of the Texas Legislature, and effective January 1, 2012. The Contractor shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of the Contractor.

WAIVER OF ATTORNEY FEES

WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, CONTRACTOR AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE CONTRACTOR SPECIFICALLY AGREES THAT IF THE CONTRACTOR BRINGS OR COMMENCES

ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMEDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE CONTRACTOR AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH CONTRACTOR MIGHT OTHERWISE BE ENTITLED.

CONTRACTOR AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE CONTRACTOR ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE CONTRACTOR FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE OWNER AND THE CONTRACTOR. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE CONTRACTOR AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

SOVEREIGN IMMUNITY

By executing this Contract, the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

GOVERNING LAW AND VENUE

This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas.

COMPLIANCE – Contractor agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Contractor agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

VERIFICATION

To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Contractor hereby verifies that Contractor does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Contractor shall be deemed to have not made such verification.

RECORDS RETENTION AND PRODUCTION OF INFORMATION

To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Contractor shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to the City of Midland for the duration of the contract, (2) promptly provide to the City of Midland any contracting information related to the Contract that is in the custody or possession of Contractor on request of the City of Midland, and (3) on completion of the Contract, either (i) provide at no cost to the City of Midland all contracting information related to the Contract that is in the custody or possession of Contractor, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to the City of Midland.

PUBLIC INFORMATION

To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Contractor agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Parties of the First Part (Owner)

By: _____
Patrick Payton, Mayor

ATTEST:

_____
Amy Turner, City Secretary

APPROVED ONLY AS TO FORM:

By: _____
John Ohnemiller, City Attorney

By: _____
Party of the Second Part (CONTRACTOR)

By: _____
Title

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, on this _____ day of _____, 20__ personally appeared _____, an officer of Boler Equipment Services, Inc., known to me to be the person and official whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as an act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this _____ day of _____, 20_____

_____
Notary Public

Form Revised October 2020

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of ___New York Avenue & Benton Street Water Improvements___ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for New York Avenue & Benton Street Water Improvements, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20___ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

CERTIFICATE OF PAYMENT

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

New York Avenue & Benton Street Water Improvements

The undersigned states that all debts, bills, and expenses that were incurred by the undersigned, his agents, or subcontractors employed by him, for labor, wages, materials and other purposes furnished for the above project have been paid and satisfied in full.

The undersigned, as general contractor for the above described project agrees to indemnify, hold harmless and defend the City, its officers, agents, and employees, from and against all claims and suits for damages, expenses, including court costs and attorney fees, arising out of or resulting from the undersigned contractor, his agents or subcontractors employed by him for expenses, warranties for items furnished, or labor performed and for any party that has supplied materials in connection with the repair or construction of the above referenced premises.

The undersigned contractor agrees to waive any and all claims it may have against the City, associated with, resulting from or arising out of the work performed at the above premises.

Further, the undersigned states that all labor performed by the undersigned, his agents, and subcontractors employed by him, has been completed in the usual and customary workmanlike manner and all work performed is accompanied with the usual and appropriate warranties for such work or repair, absent any disclaimer previously approved by the City of Midland.

I, the undersigned, release and relinquish unto the City of Midland, and their assigns the above described lien upon the above referenced property and hereby certify that all debts, bills, and expenses incurred by the undersigned, his agents, or subcontractors employed by him in connection with work done at the above

premises have been fully paid, in exchange for payment in full to be made by the City of Midland for the performance on the above described premises.

WITNESS MY HAND on this _____ day of _____, 20_____.

_____
Signature

_____
Typed or Printed Name

_____
Title

_____
Name of Company

SUBSCRIBED AND SWORN to before me on the _____ day of _____, 20_____.

_____
Notary Public, State of Texas

_____
Typed or printed name

_____
My Commission expires:

Form Revised October 2020

City of Midland Specifications

PREPARATION OF RIGHT OF WAY

1. GENERAL

Includes the preparation of right-of-way for construction by clearing, grubbing, removing and disposing of all obstructions and objectionable material from the right-of-way and designated easements, which is not specifically provided for on the plans.

Obstructions and objectionable material refer to all objects or material that do not meet the quality of standards for the courses of pavement to be constructed or which protrude into the excavation for slopes.

Measurement and Payment - Measurement and payment will be at the units and prices for the applicable bid item in the proposal.

When no specific bid items are included in the bid proposal for work specified under this section this work shall be considered as incidental to other items of work and the cost shall be included in the bid for these items. No separate payment will be made.

2. CONSTRUCTION METHODS

Removal - Obstructions and objectionable material to be removed by blading, plowing, bulldozing, or other methods approved in writing by the Engineer. The use of explosives will not be permitted. Solid objects must be removed to a depth of at least one (1) foot below the finished slope or subgrade elevation. Hollow objects must be removed entirely.

Disposal - Material to be removed from the right-of-way becomes the property of the Contractor. If disposal areas are available, they will be indicated on the plans.

Preservation of Trees and Shrubs - Trees and shrubs to be preserved in the right of way are shown on the plans and must be protected from injury during construction.

Removal of Concrete - Cut concrete at the right-of-way line straight and vertical by sawing or other approved methods prior to the removal of concrete in the right-of-way.

EXCAVATION, EMBANKMENT AND PREPARATION OF SUBGRADE 1
1. GENERAL 2
2. CONSTRUCTION METHODS 2

EXCAVATION, EMBANKMENT AND PREPARATION OF SUBGRADE

1. GENERAL

Includes the excavation, embankment and preparation of subgrade determined by the lines, grades and sections shown on the plans and in accordance with the provisions of the specifications.

Excavation - Includes excavation to planned grade, disposal of the material, removal of unsuitable subgrade material and borrow material when required in the construction. All excavation to be classified as common.

Embankment - Consists of excavated or borrow materials placed and compacted in horizontal layers in accordance with the specifications.

Subgrade - The upper eight inches (8") of embankment or the upper eight inches (8") below the roadway excavation finished grade. The subgrade shall extend from six inches (6") back of curb to six inches (6") back of curb where curb and gutter is to be constructed.

Measurement and Payment - Measurement and payment to be at the units and prices for the applicable bid items in the proposal.

2. CONSTRUCTION METHODS

Excavation - Made at the location and to the lines and grades shown on the plans in areas previously prepared in accordance with provisions of Section 2A. Dispose of excess material not required in the embankment and material that is unsuitable for subgrade. Excavation tolerance to be plus or minus 1/10 foot from the plan grade.

The area between the curb and property line shall be excavated or filled, whichever is necessary, to curb height at back of curb and finished to a straight even surface to the property line. The minimum elevation at the property line shall be the elevation of the top of the curb. The maximum elevation at the property line shall be equal to a rise of 1/4 inch per foot from the back of the curb to the property line.

During the excavation of this project, it will be required that all parkways be excavated and shaped at the same time the roadway is excavated. Excess excavation will be disposed of at locations approved by the Engineer.

Embankment shall be constructed at the locations and to the lines and grades shown on the plans in areas previously prepared in accordance with Section 2A of these specifications. Top eight inches (8") of natural ground to be compacted

to embankment density requirements. Embankment shall be constructed from suitable material obtained from the excavation or borrow free of roots, rocks in excess of three inches (3"), debris and other objectionable material. Excavation deficiencies shall be supplemented from a borrow source approved by the Engineer. Embankment shall be constructed in uniform horizontal layers not to exceed eight inches (8") of loose depth and compact with suitable equipment to a minimum of ninety percent (90%) AASHTO T180. The materials shall be processed by aeration or watering to bring the material to the approximate optimum moisture. Dry layers will not be permitted. Soft spots that develop in the embankment shall be removed and replaced with suitable material. No payment will be made for removal of soft spots. Tolerance for embankment grading shall be one-half foot (1/2) plus or minus the plan grade.

Preparation of Subgrade - Eight inches (8") of the upper portion of the embankment or excavation shall be shaped and compacted to a minimum density of 95 percent (95%) AASHTO T180 and finished within a tolerance of one-half inch (1/2") in ten feet (10'). The finished subgrade shall be protected and maintained in a satisfactory condition until covered by succeeding construction.

Compaction Tests - Field density tests will be made by the Owner or by a laboratory selected by the Owner. The Contractor shall notify the Engineer when compaction has been achieved. The Contractor shall allow 24 hours for scheduling of test. Prior to the taking of subgrade density test, the entire subgrade will be tested by proof-rolling using a pneumatic roller weighing not less than 50,000 lbs. gross with tire pressure being not less than 110 psi. Any soft spots, pumping, or other evidence of weakness shall be remedied before density tests are made. Proof rolling shall be in the presence of the Engineer or his duly authorized representative.

The City will pay the cost of initial density tests made on the subgrade. If the subgrade fails to meet the density requirements on the first test, the contractor will be required to have subsequent density tests made by the commercial lab selected by owner. The cost of all subsequent density tests will be born by the contractor.

08/07

CONCRETE CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS,

VALLEY GUTTERS, CENTER DRAINS AND RIP RAP

1. GENERAL

Includes the construction of concrete curb and gutter, sidewalks, driveways, valley gutters, center drains and rip rap in accordance with lines, grades and the sections shown on the plans and constructed in full compliance with provisions of the specifications.

A proven performance record by the Texas Highway Department shall be supplied by material producers for all materials supplied by them.

2. MATERIALS

Concrete - All concrete other than rip rap shall be Class "A" concrete in accordance with Texas Highway Department specifications Item No. 421. Concrete for rip rap shall be the class as shown on the plans and detail drawings. When no concrete class is shown the plans concrete for rip rap shall be Class "B" concrete.

Concrete batch designs shall be furnished for each project and shall include all classes of concrete proposed for use on the project.

Reinforcing Steel - Reinforcing steel shall be deformed bars or wire mesh fabric conforming to the requirements of "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" Item No. 440 and shall be of the sizes and grades as shown on the plans.

The contractor, at his option, may use fiber reinforcing in lieu of the wire mesh for all concrete slab on grade. When fiber reinforcing is used, it shall be "Fiber Mesh" or "Caprolan RC" or approved equal. The material and rate of application shall be approved by the Engineer prior to its use.

Expansion Joints - Bituminous pre-molded joint filler shall be composed of top grade fiber, treated by special impregnation system with water repellent bituminous materials. It shall be a non-extruding type, resilient, expanding on release of compression, preventing open joint crevices. The pre-molded joint filler shall be of such character, that it will not be deformed by handling during hot weather, nor shall it become brittle in cold weather. It shall be free from visible external defects such as holes, ragged or untrue edges, breaks, cracks or tears. It may be covered on both sides with paper to facilitate handling.

The joint filler shall be accurately cut to the dimensions and shapes required. It shall be of the thickness required by the plans, or as specified elsewhere.

3. CONSTRUCTION METHODS

GENERAL

No concrete shall be placed when, in the Engineers opinion, weather or other conditions would be detrimental to the structure placed. No concrete shall be placed on grade when the ground temperature is 35^{o} F or lower. Concrete may be placed when the ground temperature is rising from 35^{o} F. Concrete placed in cold weather shall be protected from freezing for 72 hours after being placed.

CURB AND GUTTER

EXCAVATION AND SUBGRADE - Excavation for curb, gutter, and combined curb and gutter shall be done with the subgrade excavation for the street. Street subgrade shall extend from six inches (6") back of curb to (6") back of curb and shall be compacted for a full width to a minimum of 95% AASHTO T180-61. Where subgrade is more than three inches (3") below bottom of curb, fill shall be compacted caliche base constructed from six inches (6") back of curb to six inches (6") back of curb as specified for base course.

Whenever subgrade or base is dry or dusty, it shall be thoroughly moistened, not made muddy, before the concrete is placed.

Forms - Forms shall be of steel, of a type to be approved by the Engineer, except that curves may be formed with wood sections built up or laminated, upon prior approval by the Engineer.

The forms shall be attached securely to stakes, shall be set true to line and grade, and braced sufficiently to remain true during the placing and tamping of the concrete. Forms shall be thoroughly cleaned and oiled before each use.

Curves - All changes in direction of the curbs shall be by means of true circular curves of the radii as shown on the plans.

Expansion Joints - Expansion joints shall be placed between curb and gutter sections at the tangent points of all curves, at each side of the inlet boxes, drives, alleyways, and at intervals of not more than forty feet (40') in straight runs. The expansion material shall be pre-molded three-fourths inch (3/4") in thickness, and shall conform to the requirements of expansion material as specified herein. It shall be cut to the full size and shape or the cross section of the curb and gutter, less one-half inch (1/2") from the finished surface thereof. The edges of sections against the joint shall be finished with an edging tool and the joint raked clean of concrete.

Finishing - There shall be provided on the job a metal screed or mule designed to give proper shape to the curb and gutter. It shall be bent to the exact shape of the finished curb and gutter and the forward edge turned up slightly to prevent disturbing the mortar. It shall be designed to ride on the forms and when properly manipulated shall leave the curb and gutter in its proper shaped condition. An "S" trowel shall be used to finish the surface and minor imperfections shall be corrected with a mason's trowel. Care shall be taken to finish

the gutter flow line to a true, uniform grade. All edges shall be finished with an edging tool, and joints marked with a jointer. Joint marks shall coincide with actual joints and shall be straight and true.

Curing - The completed curb and gutter, shall be cured in accordance with the requirements of the item "Membrane Curing", Texas Highway Department Item 531.

DRIVEWAYS AND ALLEY RETURNS

Driveways and alley returns shall be constructed of Class "A" concrete to the lines and grades as shown on the plans and detail sheets. All driveways and alley returns shall be reinforced as shown on the detail drawings.

Excavation and Subgrade - Excavation shall be accomplished in the same manner as for streets and curbs. The subgrade for all driveways and alley returns shall be compacted to 95% modified proctor density for 8 inches depth.

Driveways for single family residences and property used for two family residential purposes (duplexes) may be placed on the compacted subgrade. All other driveways shall be considered as commercial driveways and shall be constructed on 6 inches compacted flexible base.

Flexible Base - Commercial driveways and alley returns shall be constructed on 6 inches of flexible base conforming to Section 2-C- Flexible Base, Caliche.

Forms - Forms shall be constructed of steel or, when approved by the engineer, wood conforming to the requirements for curb and gutter forms.

Expansion Joints - Expansion joints shall be placed at the ends of abutting curb and gutter at the end of radii for all driveways and alley returns. In addition, expansion joints shall be placed at the ends of abutting sidewalk sections and at any point where the driveway or alley return abuts another concrete structure. Expansion joint material shall be pre-molded three fourths inch (3/4") in thickness, cut to the shape and dimensions required and shall extend the full depth of the concrete.

Finishing - Shaping and finishing of driveways and alley returns shall be accomplished by using a screed to shape the driveway or alley return to the lines and grade required. Finishing shall be accomplished by use of wooden floats and stiff bristled brushes or brooms. The last finish shall be by brushing or brooming in
A direction transverse to the direction of traffic.

During the entire finishing process care shall be taken to maintain the true gutter invert in line with the street curb and gutter.

Curing - Finished driveways and alley returns shall be cured in accordance with the requirements "membrane curing" "Texas Department of Highways and Public Transportation, 1982 Standard Specifications for Highways, Streets and Bridges", Item Number 531.

CONCRETE VALLEY GUTTERS, CENTER DRAINS AND DRAINWAYS

Concrete slab type street drainage structures with or without curbs, shall be constructed of Class "A" concrete to the lines and grades as shown on the plans and detail sheets or as may be established in the field by the engineer.

Subgrade excavation preparation and compaction and flexible base shall be the same as specified for street construction. All drainage structures within the roadway shall be constructed on a flexible caliche base so that the thickness of the concrete slab plus base is equal to the thickness of the hot mix asphaltic concrete surface plus base.

Forms - Forms shall be as specified for curb and gutter.

Reinforcing - All slab type drainage structures shall be reinforced as shown on the plans and detail drawings. Care shall be taken to maintain all reinforcing in good condition and at its proper location within the slab.

Expansion Joints - Expansion joint material shall be as specified for curb and gutter and for driveways and alley returns.

Expansion joints for valley gutter shall be placed at the ends of radii and at the juncture between the fillet and the cross valley as shown on the detail sheet.

For center drains, expansion joints shall be placed at the ends of widened or transition sections and at each end of a section containing a manhole or other structure and at intervals of sixty feet (60') measured along the center line of the drain.

Additional expansion joints shall be placed where drainage slabs abut backs of curbs, sidewalks and at contact points with other concrete structures.

Contraction Joints - Contraction joints shall be spaced at 15' intervals along the center line of center drains. These contraction joints shall be saw cut 3/8" wide minimum and 1/4 the depth of the slab using an approved concrete saw.

Saw cut contraction joints shall be made after the concrete has set sufficiently to prevent excessive raveling during sawing and shall be completed before the concrete is 48 hours old.

Finishing - Finishing shall be the same as for alley returns and driveways with the last finishing operation for structures subject to vehicular traffic being by broom or stiff brush in a direction transverse to the direction of traffic.

Curing - Curing shall be the same as for curb and gutter and driveways and alley returns.

SIDEWALKS

Sidewalks shall be constructed of Class A" concrete to the lines and grades as shown on the plans and detail drawings or as may be established in the field by the engineer. Sidewalks shall be constructed parallel to the back of the curb and on a grade parallel to

the top of curb grade. The minimum thickness for any sidewalk is 4 inches. The minimum width of any sidewalk is 4 feet.

Excavation and Subgrade - Excavation for sidewalk shall be made with street excavation where applicable. Care shall be exercised in excavating for sidewalks. Any over excavation or any fill required for sidewalk must be brought to grade in lifts not to exceed two inches (2") and thoroughly tamped. Subgrade for sidewalks shall be compacted to at least the density of the adjacent soil or to 85% modified proctor whichever is greater.

When a sidewalk is to be constructed on an embankment the fill must extend at least 3 feet beyond the edge of the sidewalk.

If the subgrade is dry or dusty it must be thoroughly moistened but not made muddy before concrete is placed.

Forms - Forms for sidewalks may be either steel or wood. Forms must be in good shape and true to line and grade. If nominal 2" x 4" lumber is used the subgrade must be finished one half inch (1/2") below the bottom of the form to provide the required 4 inch thickness.

Expansion Joints - Expansion joint material shall be pre-molded conforming to these specifications and shall be one half inch (1/2") thick. The expansion joint shall extend the full depth of the sidewalk.

Expansion joints shall be placed at points where the sidewalk contacts the back of curb, at all junctures between sidewalks all directions, and at all points where the sidewalk abuts a driveway, alley return or other concrete structure including fence foundations.

Transverse expansion joints shall be constructed in the sidewalk at intervals not exceeding twenty eight feet (28') as measured along the centerline of the walk except for sidewalks that are constructed wider than four feet (4') in which case expansion joints may be placed at intervals that are multiples of the width but not exceeding thirty feet (30').

Contraction Joints - Contraction joints consisting of trowel cuts one and one half inches (1-1/2") deep shall be spaced at four foot (4') intervals along the sidewalk. Contraction joints shall be edged using an edging tool with a 1/4 inch or 3/8 inch radius.

For sidewalks wider than four feet (4') contraction joints may be placed at intervals equal to the width of the walk up to but not exceeding ten feet (10').

Finishing - Sidewalks shall be "struck off" with a screed to provide an even surface and float finished using a wooden float.

The final finish on the sidewalk shall be accomplished by brooming or brushing using a stiff bristled brush or broom with the final strokes being in the transverse direction.

Curing - Curing shall be as specified for curb and gutter and driveways and alley returns.

CONCRETE RIP RAP

Concrete rip rap shall be constructed of concrete of the class and to the line and grades as shown on the plans.

Excavation and Subgrade - Care shall be taken not to over excavate for rip rap. The subgrade for rip rap shall be compacted to at least the density of the adjacent undisturbed soil or 85% modified proctor whichever is higher.

Forms - Forms, where required, may be either steel or wood. Forms must be in good condition and true to line and grade.

Expansion Joints - Expansion joints, where required, will meet the requirements of expansion joints materials as specified herein and will be placed as shown on the plans or directed by the engineer.

Finishing - Finishing shall be by screed and wooden float to produce true uniform surface.

Curing - Curing shall be as specified for other concrete herein.

Slope Paving - Slope paving may be required behind the curb or behind sidewalks where street paving requires deeper cuts in developed areas. Slope paving shall be constructed of Class "A" concrete and shall be constructed to the lines and grades as shown on the plans or as established in the field. Slope pavement shall be four inches (4") thick and shall be constructed in accord with the specifications for sidewalks.

When no slope grade is given on the plans the slope gradient shall be l:l.

Unless listed separately on the bid proposal, slope pavement shall be measured and paid for as sidewalk.

4. BACKFILL AND CLEANUP

GENERAL

Backfill and clean up are an integral part of the various items covered by this specification and must be completed for each item before that item will be considered for payment.

CONCRETE STRUCTURES WITHIN THE PAVED AREA OF STREETS

Backfill and clean up for concrete structures within the paved areas of streets, alleys, etc. shall receive special attention to assure the integrity of the street pavement.

Structures constructed in previously paved areas shall have sufficient surface removed along with base and subgrade where necessary to set full face forms for the concrete. As soon as the forms are removed all loose material shall be removed from the form trench and the trench filled to the base level with Portland cement stabilized backfill material

consisting of two (2) sacks Portland cement to one (l) cubic yard of caliche base material or one (l) cubic yard "blow sand". When the cement stabilized backfill has cured the pavement edge shall be saw cut to provide true and straight lines and the pavement restored to its original or revised grade using Hot mix asphaltic concrete conforming to the requirements of Section 2-F of these specifications.

For structures constructed on previously prepared subgrade or base course, clean up and backfill shall be considered complete when the subgrade or base course has been made ready to receive the next course.

When a structure is constructed on a finished base course and it is necessary to remove base material to set forms, backfill and cleanup shall be as described for previously paved areas and shall be considered complete when the base course is made ready to receive the surface course or courses.

BACKFILL BEHIND CURBS AND ALONG SIDEWALKS

Backfill behind curbs and along sidewalks that is to be grassed shall be made using good top soil. Top soil shall be free of caliche, rocks, clods, lumps, debris and other objectionable material. This backfill shall be compacted to at least the density of undisturbed adjacent soil but not less than 85% modified proctor.

Backfill behind curbs and along sidewalks that is to receive paving shall be constructed to conform to the base and subgrade of the adjacent paving and shall be compacted to 95% modified proctor. Or the contractor may elect to backfill to the top of the base with two (2) sack cement stabilized backfill.

In undeveloped areas and in areas where no sidewalks exist the contractor shall slope from the back of the curb to a maximum height of 1/4 inch per foot rise from the top of the curb to the property line on a straight line grade. The minimum elevation at the property lines shall be top of curb elevation.

In deeper cut areas slope paving may be required. When slope paving is required it shall be constructed to the lines and grades shown on the plans. Backfill and shaping beyond the slope paving shall be in accord with the applicable portions of this specification.

08/07

CONCRETE CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS **1**

VALLEY GUTTERS, CENTER DRAINS AND RIP RAP **1**

1. GENERAL 1
2. MATERIALS 1
3. CONSTRUCTION METHODS 2

GENERAL *2*
CURB AND GUTTER *2*
DRIVEWAYS AND ALLEY RETURNS *3*
CONCRETE VALLEY GUTTERS, CENTER DRAINS AND DRAINWAYS *4*
SIDEWALKS *4*
CONCRETE RIP RAP *6*

4. BACKFILL AND CLEANUP 6

GENERAL *6*
CONCRETE STRUCTURES WITHIN THE PAVED AREA OF STREETS *6*
BACKFILL BEHIND CURBS AND ALONG SIDEWALKS *7*

CONCRETE STRUCTURES

1. GENERAL

This specification covers concrete structures including but not limited to junction boxes, culverts, head walls, cast in place manholes, valve vaults, meter vaults and retaining walls.

2. MATERIALS

CONCRETE

Concrete for cast in place manholes, junction boxes, storm sewer inlet boxes, valve vaults and direct traffic culvert and bridge decks shall be a modified class "C" concrete using a minimum of 6 sacks cement per cubic yard with a maximum water content of 5 gallons per sack of cement and producing a concrete with 4000 psi 28 day compressive strength.

Concrete for other structures shall be class "A" as specified in "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" item number 421. Concrete for riprap shall be class "B".

Reinforcing steel shall conform to the requirements of item number 440 or "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" and shall be of the sizes and grades as shown on the plans.

3. CONSTRUCTION

Construction of concrete structures shall be in accordance with the provisions of item 420 "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges".

FLEXIBLE BASE, CALICHE 1
1. GENERAL 2
2. MATERIALS 2
3. CONSTRUCTION 3
4. TESTING 3

FLEXIBLE BASE, CALICHE

1. GENERAL

This item consists of the construction of a caliche flexible base course to the lines, grades and thickness shown on the plans and in accordance with the provisions of the specifications.

Qualification of Material Source - There will be no designated material sources, but the source proposed by the Contractor must be approved by the Engineer. The contractor shall furnish evidence of capability to crush and screen the material with suitable equipment.

Measurement and Payment - Measurement and payment to be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Material from the approved source shall meet the following requirements when tested in accordance with the referenced testing standards:

Gradation - Tested by ASTM C 136-67 to meet the following gradation limits:

Sieve Size	Percent Passing
1-3/4"	100.0
7/8"	65-90
3/8"	50-70
No. 4	30-60
No. 40	15-35

Liquid Limit and Plasticity Index **-** Tested by ASTM D423-66 and D 424-59.

Liquid Limit - 30.0 Maximum
Plasticity Index - 10.0 Maximum
Triaxial Classification - Tested by Texas Highway Department Method TEX 117-E, Part II - minimum class 3.0.

Source Quality Control - The contractor shall exercise caution in the operation of the material source to prevent the inclusion of inferior materials.

3. CONSTRUCTION

A. The subgrade shall be finished true to the lines and grades as shown on the plans or as established by the Engineer and finished within specified tolerances and properly maintained to prevent drying and/or loosening of the surface.

No base material may be dumped on any subgrade until it has been tested and approved by the Engineer.

B. Flexible caliche base material shall be placed in uniform courses and processed to provide a uniformly mixed base course of the proper moisture content for compaction. The processing and compaction procedure used shall provide a uniform base course compacted to ninety-five percent (95%) modified proctor density (YACHT T180) minimum. The minimum thickness of any one compacted course shall be three inches (3"). The maximum thickness of any one compacted course shall be eight inches (8").

Any soft or segregated spots that appear in the base shall be removed, replaced or reprocessed and recompacted prior to final finishing of the base. The finished base shall conform to the lines and grades as shown on the plans or established by the Engineer. Finished tolerances shall not exceed one half inch (1/2") in ten feet (10').

The finished base shall be primed as soon after finishing as practical and shall be protected until the hot mix asphaltic concrete surface is applied. In no case will prime be applied until the finished base has been approved by the Engineer.

4. TESTING

A. All test for approval of the source shall be performed by a commercial lab selected by the owner and shall be paid for by the contractor.

B. Gradation and soil constants tests (ASTM C-136, D423 and D424) and THD Triaxial Test (THD TEX117-E Part II) will be performed for source approval. Should the appearance, workability or other visual checks indicate a possible change in the material being furnished, the Engineer may require the contractor to retest the material for source approval.

C. Field quality control test will consist of the finish tolerance test and density test.

The finish tolerance test will be performed by the contractor at his expense using a 10' rolling straight edge. This test shall be performed at the direction of the Engineer or his representative. When required, the test shall consist of checking one path in each lane with the rolling straight edge.

Density test will be made by the City or a commercial laboratory chosen by the City using Troxler 3411-B nuclear density gauges or approved equal at the minimum rate of one test for each 1000 square yards of base. In no case shall less than three tests be run on any one area processed as a unit. The City will bear the cost of the first test or set of tests only. If the base fails the first test the contractor, at his own expense, will be required to have all subsequent tests performed by the commercial laboratory chosen by the city.

8/07

BITUMINOUS PRIME

1. GENERAL

This item consists of the application of a bituminous prime coat to the finished caliche base in accordance with the provisions of the Specifications.

Qualification of Material Source - Material shall be supplied by a producer with a proven performance record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment will be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Cut-back asphalt grade MC-30, Texas Highway Department Item 300.

Source Quality Control - Certificates of compliance to be furnished by the producer to the Engineer.

3. CONSTRUCTION METHODS

Condition of Base - The surface of the base shall be tightly compacted to the line and grade shown on the plans and within the tolerances of the specifications. The surface shall be clean and the base shall contain sufficient moisture to assure the proper penetration of the prime.

The prime shall be applied with an approved distributor to the surface of the base at a rate of between 0.15 and 0.40 gallon per square yard. The application rate shall be varied to meet field conditions and to obtain uniform coverage, and adequate penetration. Properly applied prime coat should penetrate from 3/8" to 1/2" into the base and should cure in approximately 72 hours with ambient temperatures at or near 70 degrees F. The prime shall be applied at a temperature within the range of temperatures recommended in Item 300 of Texas Highway Department Standard Specifications. The temperature shall be varied within this range to provide a viscosity that will assure even spreading and penetration of the base. Air Temperatures at the time of application shall be above 50'F.

BITUMINOUS TACK

1. GENERAL

This item consists of the application of a bituminous tack coat to the primed base or existing asphaltic concrete or Portland cement concrete pavement in accordance with the provisions of the specification.

Qualification of Material Source - Material shall be supplied by producer with a proven performance record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment will be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Cut-back asphalt grade RC-250, Texas Highway Department Item 300.

3. CONSTRUCTION METHODS

Conditions of Surface - Prior to application of tack to the base course the prime must be completely penetrated into the base and the surface cleaned of foreign objects.

The tack shall be applied with an approved distributor at a rate of between 0.05 and 0.10 gallons per square yard. The temperature of application shall be within the range recommended by the Texas Highway Department in Item 300. The surface temperature to which tack is being applied shall be above 50 degrees F. at the time of application.

When the asphaltic concrete surface is being placed on primed caliche base, use of the tack coat may be waived by the Engineer if the contractor can show that adequate adhesion of the surface being placed to the base course is achieved without it.

Tack coat shall be placed on all asphaltic concrete or portland cement concrete surfaces on which an additional course of asphaltic concrete surfacing is to be placed. The tack coat shall be rolled with a pneumatic roller to assure even distribution over the entire surface and to achieve proper penetration into and adhesion to the surface being overlayed.

HOT MIX ASPHALTIC CONCRETE

I. GENERAL

Includes the construction of the hot mix asphaltic concrete surface in accordance with lines, grades and the sections shown on the plans and with the provisions of the specifications.

Qualification of Material Sources - Producers of oil asphaltic concrete mixture to have a proven record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment to be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Oil Asphalt - Oil asphalt grade AC-l0 or AC-20, Texas Highway Department Item 300. When no asphalt grade is shown on the plans, and unless directed otherwise by the Engineer, asphalt for this project shall be grade AC-10.

Coarse Aggregate - Crushed stone or crushed gravel with a minimum of 75 percent of the aggregates having two or more crushed faces. Additional requirements:

(a) Los Angeles Abrasion: ASTM C l3l, Wear not to exceed 40.

(b) Decantation: Maximum 2.0 percent by weight

Fine Aggregates - Natural sand and screenings crushed from the same or similar material meeting the requirements of the course aggregates. Additional requirements.

(a) Plasticity Index: Maximum of 6.

(b) Sand Equivalents: Minimum of 50 for each individual fine aggregate.

Paving Mixtures - The paving mixture(s) shall be as shown on the plans and details. If no mixtures are shown on the plans surface or wearing courses up to l-3/4 inches thick shall be Type D, base courses up to 2 inches thick shall be Type C and base courses over 2 inches thick shall be Type B or Type A.

(a) Gradation: The master gradations for the paving mixtures are:

TYPE "A" (Coarse Graded Base Course):	Percent Aggregate by weight or volume
Passing 2" sieve	100
Passing l-3/4" sieve	95 to 100
Passing l-3/4" sieve, retained on 7/8" sieve	16 to 42
Passing 7/8" sieve, retained on 3/8" sieve	16 to 42
Passing 3/8" sieve, retained on No. 4 sieve	10 to 26
Passing No. 4 sieve, retained on No. l0 sieve	5 to 21
Total retained on No. l0 sieve	68 to 84
Passing No. l0 sieve, retained on No. 40 sieve	5 to 21
Passing No. 40 sieve, retained on No. 80 sieve	3 to 16
Passing No. 80 sieve, retained on No. 200 sieve	2 to 16
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

TYPE "B" (Fine graded Base or Leveling-up course)	Percent Aggregate by Weight or Volume
Passing l" sieve	100
Passing 78" sieve	95 to 100
Passing 7/8" sieve, retained on 3/8" sieve	21 to 53
Passing 3/8" sieve, retained on No. 4 sieve	11 to 42
Passing No. 4 sieve, retained on No. l0 sieve	5 to 26
Total retained on No. l0 sieve	58 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 21
Passing No. 80 sieve, retained on No. 200 sieve	3 to 21
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

Type "C" (Coarse Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing 7/8" sieve	100
Passing 5/8" sieve	95 to 100
Passing 5/8" sieve, retained on 3/8" sieve	16 to 42
Passing No. 4 sieve, retained on No. l0 sieve	11 to 37
Total retained on No. l0 sieve	54 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 27
Passing No. 80 sieve, retained on No. 200 Sieve	3 to 27
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

TYPE "D" (Fine Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing l/2" sieve	100
Passing 3/8" sieve	85 to 100
Passing 3/8" sieve, retained on 4" sieve	21 to 53
Passing No. 4 sieve, retained on No. l0 sieve	54 to 74
Total retained on No. l0 sieve	54 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 27
Passing No. 80 sieve, retained on No. 200 sieve	3 to 27
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 4 to 8 percent of the mixture by weight.

TYPE "F" (Fine Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing 3/8" sieve	100
Passing No. 4 sieve	95 to 100
Passing No. 4 sieve, retained on No. l0 sieve	58 to 73
Passing No. l0 sieve, retained on No. 40 sieve	6 to 26
Passing No. 40 sieve, retained on No. 80 sieve	3 to 13
Passing No. 80 sieve, retained on No. 200 sieve	2 to 11
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 6.5 percent of the mixture by weight.

(b) Tolerances: Deviations from job mix formula limited to:

(l) Sizes larger than the l0 sieve- Plus or Minus 4 percent.

(2) No. l0 sieve and smaller - Plus or Minus 3 percent.

(3) The deviation from the job mix formula shall be further limited in that the total deviation from the job mix formula between any two adjacent aggregate grades shall not exceed the allowable deviation for either one.

(4) Asphalt - Plus or Minus 0.3 percent.

(c) Density - The mixture shall be designed to produce an acceptable mixture within tolerance, at or near optimum density. The mixture molded in the laboratory should have the following percent of maximum theoretical density:

Minimum	Maximum	Optimum
96	98	97

(d) Stability: Minimum of 35 Hveem

Source Quality Control - Paving mixture and plant tests to be performed by laboratory selected and paid by the Owner, except as noted.

Job Mix Formula - The contractor shall submit a job mix formula, prepared by laboratory chosen by the owner, at least l0 days in advance of laying operations to allow time for review by the engineer. Substitution of one or more materials will require a new job mix formula and must be approved by the engineer.

The design of job mix formula whether for original submittal or revisions shall be paid for by the contractor.

Plant Tests - Check of raw material uniformity, quality and flow, hot bin gradations, temperature of mixture, mixture tests for density, stability and percent asphalt and other necessary tests to be performed bythe laboratory selected by the owner for each day's production.

Oil Asphalt - Producer to furnish certificates of compliance to the Engineer.

3. CONSTRUCTION METHODS

A. GENERAL

Condition of Base - The surface of the base shall be tight and free of debris. The prime coat shall be uniformly distributed, well penetrated and completely cured prior to application of the tack coat. If the mixture will adhere to the surface of the base without the application of a tack coat, the tack coat can be eliminated. If the surface of the base is one half (l/2") inch or more lower than the proposed bottom of the asphaltic concrete it shall be corrected by placing and compacting a level up course of the asphaltic concrete before the mat is placed on it.

Stockpiling, Storage, Batching and Mixing - Shall meet the requirements of Item 340, "Texas Highway Department l982 Standard Specifications for Road and Bridge Construction.

Weather Limitations - Shall be the requirements of Item 340,"Texas Highway Department l982 Standard Specifications for Road and Bridge Construction." With the added provision that no asphaltic concrete shall be placed when the surface on which the mat is to be placed is below 50 degrees F.

Thickness - Shall be as shown on plans. Unless shown otherwise on the plans, the maximum compacted thickness of any one course of asphaltic concrete shall be two and one-half (2-l/2) times the maximum aggregate size of the mixture being placed. The minimum shall be one (l) inch or one and one fourth (1-1/4) times the maximum particle size which ever is greater.

B. PLACING

Placing of Asphaltic Concrete shall be accomplished using an approved self propelled spreading and finishing machine with a heated vibrating screed capable of producing a surface that will meet the requirements of the typical cross section and the surface test, and when the mixture is dumped directly into the finishing machine shall have adequate power to propel the delivery vehicles in a satisfactory manner. The finishing machine shall be equipped with a flexible spring and/or hydraulic type hitch sufficient in design and capacity to maintain contact between the rear wheels of the hauling equipment and the pusher rollers of the finishing machine while the mixture is being unloaded.

The use of any vehicle which requires dumping directly into the finishing machine and which the finishing machine cannot push or propel in such a manner as to obtain the desired lines and grades without resorting to hand finishing will not be allowed. Vehicles dumping directly or indirectly into the finishing machine shall be so designed and equipped that unloading into the finishing machine can be mechanically and/or automatically operated in such a manner that overloading the finishing machine being used cannot occur and the required lines and grades shall be obtained without resorting to hand finishing.

Automatic screed controls will be required and shall meet the requirements item, 528 "automatic screed controls for asphaltic concrete spreading and finishing machines "Texas Department of Highways and Public Transportation 1982 Specifications for Construction of Highways, Streets and Bridges".

The screed shall be ski controlled using a ski of not less than l8' in length. Curb shoe control will not be allowed.

The spreading and finishing machine shall be maintained in good working order and operated by competent trained personnel.

The Engineer may require the contractor to place a test strip to prove the capability of the machine and the competency of the operating personnel to produce a satisfactory finished surface.

In dips and on curved surfaces where the ski control cannot be used, the surface will be controlled using a l0' straight edge.

Fillet areas, turn outs and other areas not accessible to the spreading machine may be hand laid provided a satisfactory surface is produced.

C. COMPACTION AND FINISHING

Compaction Requirements - The asphaltic concrete surface shall be compacted so that the compacted mixture will contain not more than seven percent (7%) nor less than three percent (3%) air voids.

The surface of the pavement, after compaction, shall be smooth and true to the established line, grade and cross section, and when tested with a l0 foot rolling straightedge, except as provided herein, the maximum deviation shall not exceed l/8 inch in l0 feet, and any surface not meeting this requirement shall be corrected as directed by the engineer.

Raking and Leveling - Minor leveling may be accomplished using asphalt rakes prior to compacting the surface. The surface shall be leveled by loosening the surface of the asphaltic concrete using an asphalt rake then adding or removing material and smoothing the surface. Any large aggregate worked to the surface in this process shall be removed before compaction. The large aggregate shall not be spread over the new asphaltic concrete surface.

Edges and joints with compacted asphalt or concrete gutters shall be carefully squared and excess material removed before compaction. Care shall be taken to see that NO excess material laps over onto the surface of existing asphaltic concrete paving or concrete gutters. Large aggregate worked to the surface in this process shall be removed. It shall not be spread over the new asphaltic concrete surface.

Rolling - In general rolling shall conform to the requirements of item 340 of the Texas Department of Highways and Transportation 1982 Specifications for Construction of Highways, Streets an Bridges except as modified herein.

It shall be the responsibility of the contractor to have rolling equipment available on the job to properly compact the paving mixture in place as required without delay to the lay down operation. Rollers provided shall meet the qualifications for their type as follows:

PNEUMATIC TIRE ROLLERS: The rollers shall be acceptable medium pneumatic tire rollers conforming to the requirements of the item, "Rolling (pneumatic tire)", Type B, unless otherwise specified on plans.

TWO AXLE TANDEM ROLLER: This roller shall be an acceptable power driven tandem roller weighing not less than 8 tons.

THREE WHEEL ROLLER: This roller shall be an acceptable power driven three wheel roller weighing not less than l0 tons.

THREE AXLE TANDEM ROLLER: This roller shall be an acceptable power driven three axle roller weighing not less than l0 tons.

Vibrating rollers will not be used without prior written approval of the engineer. Written approval will be granted only upon demonstration by the contractor that the roller and operator can produce a satisfactory surface within the tolerances of these specifications. Only the operator or operators thus approved will be allowed to operate the vibrating roller on this project.

Areas not accessible to standard rollers shall be compacted using trench rollers, impact tampers, hand tamps or other approved means that will produce the density and surface required.

JOINTS- Shall be carefully rolled to provide compaction of the asphalt against the existing surface or face of the concrete gutter. Joints between concrete gutters and Hot Mix Asphaltic Concrete shall be placed so that the HMAC will be approximately l/2 inch higher than the concrete when compaction is completed. At transverse joints such as valley gutters and fillet areas where finishing asphalt paving 1/2 inch above the edge of concrete will adversely affect ride quality the asphalt shall be finished 1/4 inch above the edge of the concrete.

Transverse joints shall be rolled in the transverse direction with the first pass extending approximately six (6") inches onto the new asphalt each additional pass shall extend approximately twelve (12") inches further onto the new asphalt until the full width of the roller is on the new asphalt. Longitudinal rolling may begin then.

All transverse joints shall be checked with a l0" straight edge while the material is

still hot enough to roll. Any corrections shall be made by loosening the material using an asphalt rake and adding or removing material and recompacting the surface. The surface shall be rechecked and when the joint is acceptable the asphalt spreading machine may proceed with the pass.

Final or finish rolling shall be accomplished using a two axle tandem roller to remove roller marks. This rolling shall be accomplished after the surface has cooled sufficient to minimize further marking but before it is too cool to respond to rolling.

STRAIGHTEDGES AND TEMPLATES - The contractor shall provide acceptable l0 foot straightedge for surface testing. Satisfactory templates shall be provided as required by the Engineer.

4. FIELD QUALITY CONTROL

Test Lots - Field Quality Control Tests shall be made by lot with a lot being the amount of contiguous surface laid in one day. No lot shall exceed l0,000 S.Y. If a days laying exceeds l0,000 S.Y., that days laying shall be divided into two approximately equal lots. The same lot divisions shall be used for all Quality Control Tests. Each separate block or combination of contingeous (blocks) of paving shall be considered as a separate lot even though they may be placed in a single day and do not comprise l0,000 S.Y. of surface.

Surface Tests - Surface tolerance tests will be performed in both longitudinal and transverse directions. The test for longitudinal surface tolerance will be performed with a ten-foot rolling straightedge furnished by the contractor, and calibrated and used in accordance with the manufacturer's recommendation or other approved method.

The maximum allowable deviation in surface shall be 1/8 inch in 10 feet. Tests for longitudinal surface tolerance will be performed by the contractor, accompanied by the engineer within 24 hours of the completion of a lot. One path in each lane for the length of the entire lot will be tested. The location of the test path (Distance from centerline or pavement edge) will be determined by the engineer through the use of random numbers. Any deviations in the surface finish of a roadway wearing course which exceeds l/4 inch must be corrected. After corrections have been made, the entire lot must meet the l/8 inch surface tolerance.

Thin course "scab on" patching will NOT be permitted. Corrections may be made by planning, milling and patching or by removing and replacing affected surface area.

When milling and patching is used to correct surface defects the minimum depth of removal shall be l".

For milling and patching or surface removal the area removed or milled shall be sufficiently large to avoid the appearance of patching.

When planning is used to correct defects the thickness of the remaining paving shall meet the thickness requirements as shown on the plans.

Surface tolerance test will be performed on the last or wearing course only.

Asphaltic concrete pavement constructed under these specifications that does not meet the surface tolerance requirements and is allowed to remain in place will be paid for at a reduced rate determined by multiplying the price bid for the wearing surface course by a surface tolerance quality factor. This rate shall apply to the entire lot.

Lower courses will not be affected by this quality factor but will be paid for at the price bid or such price as it may be affected by other quality factors.

The surface tolerance quality factor will be determined according to the following schedule:

Linear % of pavement exceeding 1/8 inch surface tolerance	Surface tolerance quality factor
0.0 to 1.0	1.0
1.1 to 1.5	0.9
1.6 to 2.5	0.8
over 2.5	0.5

Roadway surface requirements will not be applied for paved drives, aprons, turnouts, and other irregular sections, however, asphaltic concrete shall be placed in such a manner as to provide a neat and uniform appearance and shall be compacted by methods satisfactory to the engineer.

The contractor may request permission to reconstruct a portion of the pavement when, in his opinion, the surface tolerance quality factor can be improved. Upon approval of the engineer, the contractor shall take sufficient tests to isolate the portion or portions of pavement to be pre- constructed and remove and reconstruct the pavement. All costs in connection with this reconstruction are to be born by the contractor. The minimum width of this reconstruction shall be l/2 the street width unless approved otherwise in writing by the engineer. The portions reconstructed shall be re-tested and the surface tolerance quality factor recomputed using the new information along with the test from the area within the portion of the lot not reconstructed.

When other quality factor reductions are provided for on the plans or in the specifications the effect shall be cumulative ie: QFl x QF2 x QF3 x ....x QFn x unit price.

No payment will be made for pavement with a combined quality factor of less than 0.5.

Thickness Test - Thickness test will be made by the engineer on each course of asphaltic concrete laid. Test specimens shall be made by a commercial laboratory selected by the owner. Test specimens shall be cores having a minimum nominal diameter of 6". These cores shall be made in the presence of the inspector at locations designated by the inspector using an approved power operated coring machine.

For thickness and compaction test, each lot shall be divided into approximately equal sublots corresponding in width to each pass of the lay down machine and containing up to but not exceeding 2,000 square yards each. If a lot contains less than 2,000 square yards the engineer may, at his option, divide the lot into two equal sublots, or, if the contractor has a record of satisfactory workmanship, the engineer may waive tests on said lots.

The engineer will locate one test spot for each l,000 S.Y. and/or fraction thereof in each sub-lot using random numbers. If a spot thus located falls within one foot of a longitudinal joint or lip of gutter or within two feet of an unsupported edge or within l5 feet of the beginning or ending edge of a pass, the engineer will relocate the spot using random numbers. The commercial laboratory chosen by the owner will remove the test specimen from each designated spot, mark the specimen and the adjacent pavement for future reference and perform the required tests. Test specimens shall be removed with special caliper type tongs having circular jaws of the diameter of the specimen being removed. These jaws shall grip at least 1/2 of the circumference of the specimen. Screw drivers or other type of prying instruments shall not be used to remove the specimens.

The thickness of a specimen shall be determined by averaging four (4) measurements made at ninety degree (90) intervals around the specimen. Any thickness less than design thickness shall be considered as deficient.

For hot mix asphaltic concrete pavement less than 2 inches thick the maximum allowable deficiency in any one test specimen is l/8 inch provided that no more than twenty five percent (25%) of the specimens tested show a deficiency. For pavement in excess of 2 inches in thickness the maximum allowable deficiency in any one specimen shall be l/8 inch plus l/l6 inch for each additional inch of thickness provided that no more than twenty five percent (25%) of the test specimens show a deficiency.

When a test specimen has a greater deficiency and less than (25%) of the test specimens show a deficiency the contractor shall, at his own expense, determine the extent of the deficiency and correct it by removing and replacing the surface. The minimum width for such correction will be the full width of the pass or passes of the lay down machine in which the deficiency occurs.

The minimum length of such correction shall be three times the width removed. When more than (25%) of the test specimens show a deficiency the surface may at

the engineers option be declared uniformly deficient and the contractor shall correct the deficiency by removing and reconstructing the surface or by constructing an overlay of not less than l inch thickness over the deficient area. The construction of an overlay will require milling at lip lines and dips.

The corrected surface shall meet all the requirements of these specifications.

Asphaltic concrete pavement constructed under these specifications that is less than design thickness, if allowed to remain in place, will be paid for at a reduced rate determined by multiplying the unit price bid in the bid proposal by a thickness quality factor. This rate shall apply to the entire lot in which the deficiency is found.

The thickness quality factor for hot mix asphaltic concrete pavement less than 2 inches in thickness shall be:

Thickness Deficiency	Quality Factor
Maximum l/8" for any one specimen with no more than 25% of the specimens showing a deficiency.	l.0
Pavement not meeting the 25% limitation with an average specimen deficiency up to l/8 inch.	0.75
Average specimen deficiency of l/8 inch to l/4 inch	.55
Average deficiency of more than l/4 inch	0.0

The thickness quality factor for hot mix asphaltic concrete more than 2 inches thick will be l.0 if the maximum deficiency for any one specimen is l/8 inch plus l/l6 inch for each additional inch of thickness over 2 inches and not more than twenty five percent (25%) of the test specimens in the lot are deficient. For thickness test that fall outside this area either by single specimen thickness deficiency or more than twenty five percent (25%) of the specimens showing deficiency the thickness quality factor shall be computed as follows:

$$\text{Thickness Quality Factor} = \frac{1}{\left(\frac{1}{\text{Thickness Ratio}}\right)^2}$$

The thickness ratio for a lot is the average specimen thickness for that lot, with no allowance for thickness in excess of design, divided by the design thickness. For determining the average specimen thickness, those specimens in excess of design thickness shall be considered at design thickness.

The minimum thickness quality factor for which payment will be allowed is .55. Any pavement with a thickness quality factor below .55 will be considered as having a thickness quality factor of 0. This shall apply only if the contractor requests, in writing, to have this paving remain in place and this request is approved in writing by the engineer.

When the deficient area is in a lower course of a multi-course paving structure the contractor may reduce or correct the deficiency by increasing the thickness of the subsequent course or courses as follows:

When subsequent course is	Maximum increase in course thickness
Type B	1/2"
Type C	3/8"
Type D	1/4"

When corrected in this manner the thickness quality factor shall be determined using the combined thickness of the corrected courses and shall apply to all unit prices applicable to this lot.

The contractor may request permission to reconstruct a portion of the pavement when, in his opinion, the thickness quality factor can be improved. Upon approval of the engineer, the contractor shall take sufficient tests to isolate the portion or portions of pavement to be reconstructed and remove and reconstruct the pavement. All cost in connection with this reconstruction are to be born by the contractor. The minimum width of this reconstruction shall be l/2 the street width unless approved otherwise in writing by the engineer. The portions reconstructed shall be retested and the thickness quality factor recomputed using the new information along with the test from the area within the portion of the lot not reconstructed.

When other quality factor reductions are provided for on the plans or in the specifications the effect shall be cumulative ie: QFl x QF2 x QF3 x....x QFn x unit price.

No payment will be made for pavement with a combined quality factor of less than 0.5.

Compaction Test: Compaction test will be made by the commercial laboratory chosen by the owner on the core samples removed from the paving for thickness testing.

The percent air voids will be calculated using maximum theoretical specific gravity of the mixture.

The contractor may attempt to correct deficiencies in compaction by additional pneumatic rolling upon written permission of the engineer. Requests for permission to conduct additional rolling shall be submitted, in writing, to the engineer no later than three days following notification of the deficiency by the commercial laboratory and the additional rolling shall be completed within ten (l0) days following said notification weather permitting.

In no case shall the additional rolling be delayed beyond thirty (30) days from the date the surface was laid. All cost for additional rolling and additional coring and testing of the re-rolled surface shall be born by the contractor.

Asphaltic concrete pavement not meeting this specification and that is allowed to remain in place shall be paid for at a reduced rate determined by multiplying the price bid in the bid proposal by a compaction quality factor determined according to the following schedule:

Percent air voids (average of all specimens for the lot)	Compaction Quality factor	
less than 3	0	
3.0 to 8.0	1.0	
8.1 to 9.0	0.9	
9.1 to 10.0	0.7	
10.1 to 11.0	0.5	and the engineer may require a chip seal to be applied at the contractor's expense
More than 11		0 and the engineer may require a chip seal to be applied at the contractor's expense.

NOTE: HMAC surfacing with between 11% and 15% air voids may, upon written request by the Contractor, be reviewed by the Engineer to determine if it may be left in place. The Engineer's review will consider the type of street and expected traffic conditions among other factors and a written determination will be issued. If the surface is allowed to remain in place, a chip seal will be required at the Contractor's expense. The quality factor for this paving will remain at 0.

The reduced rate shall apply to the entire lot.

The effect of compaction quality factors shall be cumulative and shall be applied as described for surface quality factors and thickness quality factors.

Cost for Field Quality Control - The surface tolerance test shall be made by the contractor at his expense.

The initial thickness and compaction test will be made at no cost to the contractor except for the cost of materials and labor to repair the holes left when cores are removed.

The cost of all thickness test to isolate a deficient area and the cost of retesting the corrected area shall be born by the contractor.

The cost of all retesting of compaction after additional rolling to correct compaction deficiencies shall be born by the contractor.

Areas reconstructed to remedy deficiencies shall meet all the requirements of these specifications and shall be tested in the same manner as original construction. The cost of all tests on reconstructed areas shall be born by the contractor.

5. ADDITIVES

Anti-stripping: An approved liquid anti-stripping agent shall be added to the asphalt used in the hot mix asphaltic concrete. The rate of application shall be in accordance with the manufacturer's recommendation. The minimum anti-stripping agent added shall be one-half (l/2) of l%.

The anti-stripping agent used shall have a proven record when used with similar aggregate and shall be approved by the engineer in writing prior to the date set for reception of bids.

DOUBLE COURSE ASPHALT SURFACE TREATMENT

1. SCOPE

The work to be done under this section consists of furnishing all labor, materials and equipment necessary to construct a Double Asphalt Surface Treatment on the prepared base course in accordance with the sections shown on the plans and as specified herein or as directed by the Engineer.

2. MATERIALS

2.1 Asphalt

The asphalt used shall be of the grade and type specified below. The material shall be homogeneous and free from water, shall not foam when heated to 347° F., and shall meet the following requirements.

Viscosity Grade AC-5
Texas Highway Department 1982 Specifications

Viscosity 140 F. Stokes	500 +/- 100	
	Min.	Max.
Viscosity 140 F. Stokes	1.4	--
Penetration 77° F. 100 g. 5 sec.	135	--
Flash Point C.O.C.F.	425	--
Solubility in trichlorethylene percent	99.0	--

Tests on residues from thin film oven test:

Viscosity 140 F. Stokes	--	1500
Ductility, 77° F. 5 cms per min. cms.	100	--

Spot Test – negative for all grades.

2.2 Aggregate

All aggregate shall be composed of sound and durable particles of crushed stone or crushed gravel. At least eighty-five percent (85%) of the particles of the aggregate retained on the No. 4 sieve shall have one or more crushed faces. Aggregate particles shall be free from organic matter, clay, loam, or pebbles coated therewith, and shall not contain more that (5%) of slate, shale, schist or soft particles of sandstone. The aggregates shall have a percent of wear of not more than thirty-five (35). (Los Angeles Abrasion Tests of Coarse Aggregate, AASHO Designation

T-96 as revised). Crushed limestone will not be acceptable for this project.

Double Asphalt Surface Treatment

No. 1 Aggregate – (Texas Highway Department 1982 Grade 3)	Retained on ¾" Sieve -	0% by weight
	Retained on 5/8" Sieve -	0 – 2% by weight
	Retained on ½" Sieve -	20, 35% by weight
	Retained on 3/8" Sieve -	85 – 100% by weight
	Retained on ¼" Sieve	95 – 100% by weight
	Retained on No. 10 Sieve-	99-100% by weight

No. 2 Aggregate - (Texas Highway Department 1982 Grade 5)	Retained on ½" Sieve -	0% by weight
	Retained on 3/8" Sieve -	0 – 5% by weight
	Retained on No. 4 Sieve -	40 – 85% by weight
	retained on No. 10 Sieve -	98 –100% by weight
	Retained on No. 20 Sieve-	99 100% by weight

3. CONSTRUCTION METHODS

3.1 Preparation of base

If the surface of the base course is not in proper condition for placement of surfacing, it shall first be brought true to the section and grade as established. The base shall be checked, and any deviation in excess of ¼-inch from grade or from true cross section shall be corrected by scarifying then adding or removing material, reshaping and re-compacting by sprinkling and rolling. No "scab" or "featheredge" patches will be permitted. After correction of any defects in the base, it shall be cleaned of dirt, dust, or other deleterious material by sweeping or other approved methods and primed.

The base course shall be primed with MC-30 Asphalt as directed by the Engineer. The asphalt used shall meet the 1982 Texas Highway Department Specifications Item 300.

The base course shall be checked at least 24 hours in advance of placing the surfacing and any defects shall be repaired and re-primed. Immediately prior to placing the surfacing, the base shall be cleaned of all dirt, dust, or other deleterious materials by sweeping with rotary and hand brooms or other approved methods.

Prime coats shall not be applied more than 7 days in advance of placing the surface course. Areas that have been primed longer than the time

specified above prior to placing the surface course shall be re-primed at the Contractor's expense.

3.2 Handling and Applying Asphalt

All storage tanks, piping, retorts, booster tanks, and distributors used in storing or handling asphalt shall be kept clean and in good operating condition at all times, and they shall be operated in such a manner that there will be no contamination of the asphalt with foreign material. Asphalt shall not be heated above 400° F. at any time, and when applied, it shall be at a temperature of not less than 300° F. and not more than 350° F. The Engineer will select the temperature of application, and the Contractor shall apply the asphalt at a temperature within 15° of the temperature selected. All asphalt material heated above 400° F. will be rejected. Re-circulating heating equipment shall be equipped with recording temperature gauges.

The prime coat shall not be applied when the air temperature is below 50° F. and falling or when in the opinion of the Engineer weather conditions are not suitable. Prime coat shall not be applied when the temperature of the surface on which it is to be applied is less than 40° F. The prime coat shall be applied at least 24 hours in advance of placing the surface course. Prime coat shall be applied with an approved distributor at a rate of 0.30 gallon per square yard, or as directed by the Engineer.

Double Asphalt Surface Treatment shall not be applied when the temperature of the surface on which it is to be placed is below 50° F. and is falling but may be applied when the air temperature is above 40° F. and rising. No asphalt shall be placed when general weather conditions, in the opinion of the engineer, are unsuitable. No double asphalt surface treatment shall be placed from September 30 to April 15.

Asphalt shall be applied on the clean surface by an approved type of self-propelled pressure distributor so operated as to distribute the material in the quantity specified, evenly and smoothly, under a pressure necessary for proper distribution. The Contractor shall provide necessary facilities for determining the temperature of the asphalt in all of the heating equipment and in the distributor, for determining the rate and pressure at which it is applied, and for securing uniformity at the junction of two distributor loads. The beginning and ending of each shot of asphalt shall start and stop on a strip of heavy craft paper of not less than thirty (30) inches in width.

In areas inaccessible to the distributor, asphalt shall be applied by means of a hose and spray nozzles attached to the distributor. Care shall be

taken during application of any asphalt to shield the curb and gutter from the asphalt spray; satisfactory means of handling this matter will be insisted upon.

3.3 Application of Aggregate

Immediately after making the first application of asphalt, the surface shall be covered with No. 1 aggregate. The aggregate shall be spread with an approved self-propelled continuous feet aggregate spreader box, or approved equal, at rates as specified below or as directed by the Engineer. If necessary to obtain uniform distribution of aggregates, hand brooming and hand spotting of aggregates will be required. After completion of placing the aggregates, all areas shall be bull-wheeled with a three- wheeled roller weighing not less than 8 tons followed immediately by two complete passes with an approved self propelled pneumatic roller.

The second application of asphalt shall then be made and the No. 2 aggregate shall be applied in the same manner as stated above for the No. 1 aggregate. The Contractor shall be responsible for the maintenance of the surface and the distribution of the excess aggregate until the work is accepted.

On the two successive days following completion of the work as specified above, all areas shall be rolled with at least four complete coverage's with a pneumatic roller. This rolling shall be done in the warm part of the day.

3.4 Rate of Application of Materials

The asphalt and aggregate shall be applied at the rates specified in the following schedule:

Double Asphalt Surface Treatment

Application	Aggregate Gal. Asphalt/Sq. Yd.	Aggregate Cu. Yd. To Sq. Yds.	Designation
First	0.30	1:70	No. 1
Second	0.40	1:110	No. 2

3.5 Cleanup

After completion of the asphalt surfacing, all debris resulting from the construction shall be cleaned up and removed from the site of the work to

an approved place of disposal. The ditches, shoulders and back slopes shall be bladed and graded to true grades and cross sections as shown on the plans. The entire premises of the work shall be left in a clean condition satisfactory to the Engineer, and all costs of cleanup shall be included in the contract unit prices for the items of work involved.

DOUBLE COURSE ASPHALT SURFACE TREATMENT 1
1. SCOPE 1
2. MATERIALS 1
2.1 Asphalt 1
Viscosity Grade AC-5 1
Texas Highway Department 1982 Specifications 1
Viscosity 140 F. Stokes 1.4 --..... 1
2.2 Aggregate 1
Double Asphalt Surface Treatment 2
3. CONSTRUCTION METHODS 2
3.1 Preparation of base 2
3.2 Handling and Applying Asphalt 3
3.3 Application of Aggregate 4
3.4 Rate of Application of Materials 4
Double Asphalt Surface Treatment 4
3.5 Cleanup 4

3/2006

PREPARATION OF ASPHALTIC CONCRETE SURFACE FOR OVERLAY OR SEAL COAT

1. GENERAL

This item includes patching, milling and incidentals to prepare the asphaltic concrete surface for tack coating and overlay or for application of a seal coat.

2. MATERIALS

a. Asphalt

Asphalt for hot mix asphaltic concrete shall be Grade ACl0 Texas Highway Department Item 300.

Asphaltic concrete shall be Type D or Type F Texas Highway Department Item 340 except when the overlay is the second phase of phased construction in which case the asphaltic concrete for full depth patching shall be the grade as shown on the plans.

b. Portland Cement Stabilized Base

Cement stabilized base shall conform to Texas Highway Department Item 274 and shall consist of caliche base materials described in Section 2-C of this specification. Stabilized using 2 sacks of Portland cement per cubic yard. Cement stabilized base may be blade mixed at or near the job site if the contractor can produce a uniformly mixed acceptable product by this method.

3. PATCHING

a. Patching Surface Raveling

Where, in the opinion of the engineer, surface raveling has caused sufficient loss of material to require patching, the contractor shall thoroughly clean the area to be patched by brooming, and/or compressed air nozzle. When the patched area is completely free of loose aggregate and other foreign matter the contractor shall lightly brush the area with emulsified asphalt type SS1 and apply Type F hot mix asphaltic concrete. The asphaltic concrete shall be raked using an asphalt rake and finished smooth a little higher than the existing surrounding surface and compacted using a steel wheel roller and/or a pneumatic roller. Rollers shall be sufficient size and weight to achieve

adequate compaction. Small areas may be compacted using vibrating plate compacters when approved by the Engineer.

b. Patching Deteriorated Surface

When, in the opinion of the engineer, the surface has deteriorated to a point where replacement is required the engineer shall mark the area to be removed and replaced. The contractor shall saw cut for the full depth of the asphaltic concrete and remove said pavement. The saw cut shall be rectangular in shape with the edges being parallel to and at 90` to the centerline of the street. The minimum width for any patch shall be one (l') foot. After the surface has been removed the base shall be carefully smoothed and all loose base material shall be removed. When needed the base shall be reprimed using a light shot of RC 250 or MC 30 asphalt. After the prime coat has penetrated the base material, the contractor shall apply tack coat to the sawed edges of the surface and place Type D asphaltic concrete to a sufficient depth above the existing surface to provide a compacted surface slightly higher than the adjacent surface. The patch shall be compacted to a density of 92% to 97% Rice density using steel wheel and or pneumatic rollers.

c. Patching Deteriorated Substructure

When the base and or subgrade have failed and are to be removed, the contractor shall remove the surface as specified for deteriorated surface patching. The weakened base shall be removed to a uniform depth to expose undamaged base or subgrade. The minimum depth of removal shall be six (6") inches. The base and subgrade thus removed shall be replaced with Portland cement stabilize base and compacted to 95% modified proctor density and finished at the level of the abutting base. The finished base shall be primed and the surface replaced as specified for patching deteriorated surface.

4. MILLING

Surface milling shall be accomplished using approved asphalt milling machines. The maximum depth of milling shall be one (l") inch.

Milling shall be as directed by the engineer to remove asphaltic concrete placed at valley gutters, gutters and at the ends of the first phase of phased construction for drainage and to remove the asphaltic concrete placed for a smooth connection between that phase and the existing paving. The Engineer may also direct milling to

remove ridges and ruts that have formed on the pavement surface.

The Contractor shall be responsible for controlling the milling operation so that only these areas which require milling are milled. No measurement or payment will be made for milling where only superficial surface marks are left and from which no material is removed. When milling is required to remove ridges and ruts the low areas between ridges and ruts will be considered as "milled surface" for payment.

If a smooth straight joint can not be made by milling the contractor may be required to saw cut a one (l") inch depth groove at the edge of the milled area and remove material between the saw cut and the milled area by hand. No separate payment will be made for this saw cut when required.

5. MEASUREMENT AND PAYMENT

a. Patching Surface Raveling

Measurement will be made of the actual square footage of surface area patched. Payment will be made at the price bid per square foot for patching surface raveling in the bid proposal.

b. Patching Deteriorated Surface

Measurement will be made of the square yards of street surface replaced.

Payment will be made for the actual number of square yards of street surface replaced at the price bid per square yard for patching deteriorated surface in the bid proposal.

c. Portland Cement Stabilized Base

Measurement will be made of the actual cubic yards of compacted cement stabilized base in place.

Payment will be made at the price per cubic yard bid for compacted in place Portland cement stabilized base in the bid proposal.

d. Saw Cutting

Measurement will be made of the actual length of full depth saw cut made as directed by the engineer. No measurement will be made of the sawing required to square up poor milling edges.

Payment will be made at the price per linear foot of full depth saw cutting for the actual number of feet of saw cut as measured above.

No payment will be made for saw cutting required to square up the edges left by improper, inadequate or poor quality milling.

e. Milling

Measurement will be made of the actual area milled. No measurement will be made of areas where milling leaves only superficial surface marks from which no material was removed.

Payment will be made for the actual number of square yards of surface milling as measured above at the unit price bid per square yard of surface milling in the bid proposal.

01/04

SEAL COAT

I. DESCRIPTION

This item shall consist of the application of liquid asphalt to the existing pavement surface followed by placement of cover aggregate and rolled to increase adhesion, together with other operations necessary to form a complete durable seal coat.

II. MATERIALS

A. Asphaltic Materials

The material shall be homogeneous, shall be free from water, shall not foam when heated to 347 degrees F and shall meet the following requirements:

		VISCOSITY GRADE	
TEST		AC-5 Min/Max	AC-10 Min/Max
Viscosity, 140 F stokes		500+100	1000+200
Viscosity, 275 stokes		1.4	1.9
Penetration, 77F, 100g, 5 sec.		135	85
Flash Point, C.O.C.F.		425	450
Solubility in trichlorethylene	%	99.0	99.0
Tests on residues from thin film oven test: Viscosity, 140 F stokes		1500	3000
Ductility, 77 F 5cms per min, cms		100	70
Spot Test		Negative for all grades	

B. Storage, Heating and Application Temperatures

Asphalt materials should be applied at the temperature which provides proper and uniform distribution and within practical limits avoiding higher temperatures than necessary. Satisfactory application usually should be obtained within the recommended ranges shown below. No material shall be heated above the following maximum temperatures:

Applications and Mixing

TYPE-GRADE	Recommended Range, F	Maximum Allowable, F	Heating and Storage Maximum, F
AC-5, 10	275-350	375	400

NOTE:Heating of asphalt materials (except emulsions) constitutes a fire hazard to various degrees. Proper precautions should be used in all cases and especially with RC cutbacks.

Warning to Contractors: Attention is called to the fact that asphaltic materials are very flammable. The utmost care shall be taken to prevent open flames from coming in contact with the asphaltic materials or the gases of same. The Contractor shall be responsible for damages from any fires or accidents which may result from heating the asphaltic materials.

C. Additives

1. Latex Additive: A minimum of two percent by weight latex additive (solids basis) shall be added to AC-5 asphalt when specified on the plans or in other specifications in the contract. The latex additive shall be governed by the following specifications:

The latex is to be an anionic emulsion of butadiene-styrene low-temperature copolymer in water, stabilized with fatty-acid soap so as to have good storage stability, and possessing the following properties:

Monomer ratio, B/S 70/30
Minimum solids content 67%
Solids content per gal @ 67% ..... 5.3 lbs
Coagulum on 80-mesh screen ..... 0.1% max

Type Anti-oxidant ..... staining
Mooney Viscosity of Polymer
(M/L4 @ 212 F) ....100 min
pH of Latex ..... 9.4 - 10.5
Surface Tension ..... 28-42 dynes/cm^2
Brookfield Viscosity
of Latex ..... 1200 ps max @ 67% solids

The finished latex-asphalt shall meet the following requirements:

Viscosity at 140 F, stokes ..... 1500 max
Ductility at 39.2F, 1cm per min, cm..... 100 min

2. Anti-stripping Agent. An approved liquid anti-stripping agent shall be added to the asphalt used on this project when called for on the plans or elsewhere in the specifications or bid proposal. The rate of application shall be in accordance with the manufacturers recommendations. The minimum anti-stripping agent added shall be one/half (1/2) of 1%. The anti-stripping agent shall be Permatac or approved equal.

D. Regular Aggregate

Regular aggregate shall be Type B Grade 4 or Grade 5 crushed gravel, or crushed stone as specified in Item 302 of the Texas State Department of Highways and Public Transportation (T.S.D.H.P.T.) 1982 Standard Specification for Construction of Highways, Streets, and Bridges with the following exceptions:

1. Limestone other than natural limestone rock asphalt will not be approved for use on this project.

2. Aggregate shall contain not more than 1% by weight of organic matter, clays, loam or pebbles coated therewith and shall contain not more than 5% by weight of any one of or combination of slate, shale, schist or soft particles of sandstone when tested in accordance with Test Method Tex-217-F.

3. Aggregate Gradation, expressed as a percentage of weight, shall be as follows:

Grade 4	Percent by Weight		
Retained on 5/8" sieve			0
Retained on 1/2" sieve	0	-	2
Retained on 3/8" sieve	5	-	35
Retained on No. 4 sieve	80	-	100
Retained on No. 10 sieve	98	-	100
Passing No. 200 sieve	0	-	0.5

Grade 5	Percent by Weight		
Retained on 1/2" sieve			0
Retained on 3/8" sieve	0	-	5
Retained on No. 4 sieve	40	-	85
Retained on No. 10 sieve	98	-	100
Retained on No. 20 sieve	99	-	100

When no aggregate grade is shown on the plans or called for elsewhere in the specifications or bid proposal, Grade 5 aggregate will be furnished.

4. The percent of wear, as determined by ASTM C-131, shall not exceed 25%.

5. The percent loss of the aggregate, as determined by ASTM C-88 using a magnesium sulfate solution and a four cycle test, shall not exceed 30%.

E. Precoated Aggregate

Precoated aggregate shall be Type PB Grade 4 or Grade 5 crushed gravel, or crushed stone as specified in Item 304 of the T.S.D.H.P.T. 1982 Standard Specification for Construction of Highways, Streets, and Bridges with the following exceptions:

1. Those exceptions listed in Paragraph II 2(B) above.

2. The precoated aggregate shall be coated with 1.0 to 2.0 per cent by weight of asphaltic cement of Grade AC-20.

F. Joint Paper

Paper used for starting and stopping asphalt application, as well as making fabricated paper discs to protect manhole covers and valve covers, shall be a non-absorbent, high grade 60# Kraft paper, 30" in width.

The contractor shall cover all manhole and valve box lids with paper discs, furnished by Contractor, immediately before application of asphalt and remove same immediately after application of rock.

G. Delivery Tickets

A legible copy of the delivery tickets for all materials to be used on this project shall be furnished to the City's representative at the time materials are delivered to the project stock pile and storage site.

III. CONSTRUCTION METHODS

A. Equipment

In general, all equipment used on this project shall be in good working order and in sufficient quantity to insure proper expedition of the seal operation.

1. Asphalt Handling Equipment

The asphalt distributor shall have been recently calibrated and the Engineer shall be furnished an accurate and satisfactory record of such calibration. The distributor shall be an approved type of self-propelled pressure distributor so operated as to distribute the material in the quantity specified, evenly and smoothly, under a pressure necessary for proper distribution. The Contractor shall provide all necessary facilities for determining the temperature of the asphaltic material in all of the heating equipment and in the distributor, for determining the rate at which asphalt is applied, and for securing uniformity at the junction of two distributor loads. All storage tanks, piping, retorts, booster tanks, and distributors used in storing or handling asphaltic material shall be kept clean and in good operating

condition at all times, and they shall be operated in such manner that there will be no contamination of the asphalt with foreign material. It shall be the responsibility of the Contractor to provide and maintain in good working order a recording thermometer at the storage heating unit at all times.

2. Drag Broom

A drag broom shall be required if the aggregate is not properly distributed. The drag broom shall be furnished at no additional cost to the City.

3. Pneumatic-tire Roller

Pneumatic-tire rollers shall be of the self-propelled type consisting of not less than 7 pneumatic-tired wheels, running on axles in such manner that the rear group of tires will not follow in the tracks of the forward group, and mounted on a rigid frame and provided with a loading platform or body suitable for ballast loading. The roller shall be not less that 10 tons in weight and carry not less than 50 pounds pressure in each tire.

4. Aggregate Spreader

Aggregate spreader shall be an approved self-propelled continuous feed aggregate spreader. The spreader shall be equipped with a disposable trash box for placing debris removed from spreader box scalping screen.

5. Miscellaneous Equipment

The Contractor shall have available for immediate use at no additional cost one rock blade and one drag broom if their use is required by the Engineer. These pieces of equipment shall not be pulled by rollers. In addition, the Contractor shall furnish one tail gate aggregate spreader and one dump truck, equipped to receive the tail gate spreader.

6. Truck Scale

A truck scale conforming to the requirements of item 520 of "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" shall be furnished by the Contractor at aggregate stockpile sites.

B. Surface Preparation

The City of Midland will sweep all streets to be sealed ahead of the Contractor. This sweeping by the City of Midland is not intended to be a final cleaning preparation for the application of asphalt but is intended as an aid to the Contractor.

Prior to placing the seal coat, loose dirt and other objectionable material shall be removed from the existing surface by the Contractor. The surface will be cleaned with rotary brooms. Hand brooms will be used in areas not accessible to the rotary broom. The Engineer shall approve all streets before application of any asphalt.

C. Application of Bituminous Material

Paper shall be spread on the surface for a sufficient distance back form the end of each application so that flow through sprays may be started and stopped on the paper, and so that all sprays will operate properly over the entire length being treated.

No asphaltic material shall be applied when the total of air temperature plus pavement surface temperature is less than 120" F.

No equipment or vehicular traffic shall be allowed to cross over joint paper in place, except the distributor.

Immediately following the application of asphaltic material, the Contractor shall remove all joint paper and load same on a designated vehicle. At the end of each day, all paper shall be disposed of at the City Landfill.

Following all preparation outlined above, the Contractor shall immediately apply asphaltic materials at the specified rates and temperatures designated by the Engineer.

If the Contractor employs only one distributor in the seal operation, he shall be required to seal all designated filets and street stubs in the seal area before moving to another section of the City. If two distributors are used, one distributor will be employed only to seal filets and street stubs.

The use of a second distributor to seal filets and street stubs shall require the following additional equipment; one dump truck equipped with tailgate spreader, and one self-propelled pneumatic roller. All rolling shall be deferred until aggregate is dry.

D. Application of Aggregate

Aggregate shall be immediately and uniformly applied and spread by an approved self-propelled continuous-feed aggregate -8- spreader, unless otherwise authorized by the Engineer. Aggregate shall be applied at the approximately rate directed by the Engineer.

Vehicles used to transport aggregate from stockpiled area to spreading machine shall be weighed and a weight ticket issued for each load. Weight tickets shall show truck identification No., tare weight of truck, gross weight, and net weight of aggregate. The weight ticket shall be delivered to the city's representative at the aggregate spreader.

E. Rolling

A minimum of three (3) rollers shall be employed by the Contractor. Rolling shall be controlled by the Engineer during the entire project. The speed of all rollers will be held to a maximum of 5 miles per hour during the rolling process. When surface moisture is present on aggregate, "Rolling shall be deferred until aggregate is dry.

F. Stockpiling

All aggregate stockpiles shall be placed on a paved surface or areas acceptable to the Engineer.

When dust from the aggregate creates a nuisance or when aggregate fails to adhere to the asphalt the Engineer may require the Contractor to "water down" the aggregate stock pile.

When, directed by the Engineer, or desired by the Contractor, aggregate stockpiles will be "watered down". When the "watered down" aggregate does not adhere to the asphalt properly the Engineer may direct that water for this purpose contain 5% EA10S emulsified asphalt and/or an approved wetting agent. The Engineer may direct the contractor to increase the amount of emulsified asphalt added to the water if, in his opinion, desired results are not being achieved. No separate payment shall be made for emulsified asphalt, water or wetting agent but the cost shall be considered as an incidental cost for furnishing satisfactory aggregate.

G. Cleanup

Clean up shall be maintained on a timely manner as the work progresses. All debris scattered on the sidewalks and driveways shall be swept up by the Contractor. Sweeping debris onto freshly sealed streets shall not be allowed.

City forces will remove excess aggregate from the street and gutters after the project is completed.

H. Maintenance

The Contractor will be required to maintain all sealed streets until final acceptance of the project by the Engineer. Maintenance shall consist of adding additional coverstone when required, rolling, pony blading, or drag brooming.

IV. MEASUREMENT

Asphaltic material shall be measured in gallons at the applied temperature at the point of application.

Aggregate shall be measured by the ton in vehicles as delivered to the aggregate spreader and applied on the street. Trucks will not be allowed to leave the construction area with a partial load. If it becomes necessary for a truck to leave the area because of mechanical failure or other reasons, a second weigh ticket for that truck will be required.

Rolling shall be measured by the hours of actual rolling for each roller.

V. PAYMENT

Payment shall be made as provided under "Measurement" at the unit price bid for "aggregate", "asphalt", and "rolling" and shall be full compensation for furnishing and incorporating the materials "Aggregate" and "Asphalt" (and additives where applicable) into a composite product; for delivering, stockpiling; for brooming, compaction, and rolling; for cleaning the existing surface; for cleaning excess bituminous material; cleaning gutters; for cleaning sidewalks and driveways; for cleaning stockpile sites; for all required maintenance; for pony blading; for drag brooming; for adding additional cover aggregate; for all labor, equipment, supervision, tools, overhead, profit, and any other incidentals necessary to complete the work required under the conditions of these plans and specifications to the satisfaction of the Engineer.

ASPHALT - RUBBER SEAL COAT

(Stress Absorbing Membrane)

1. SCOPE

This specification covers the material, equipment, and construction procedures for a Stress Absorbing Membrane (seal coat).

2. PREQUALIFICATION OF A NEW ASPHALT-RUBBER MATERIAL

Pre-qualification of a new asphalt-rubber material or applicator may be requested at any time. Pre-qualification will be based on three controlled field applications evaluated after three years' performance under traffic. New asphalt-rubber material that has been evaluated and pre-qualified by an agency recognized nationally may be pre-qualified by that agency upon disclosure of suitable evidence of successful performance. Notwithstanding other agency pre-qualification, the City reserves the right to withhold pre-qualification pending the performance evaluation of local controlled field applications.

3. MATERIALS

3.1 Asphalt

The grade of asphalt cement for the asphalt-rubber mixture shall be AC - 5 or AC - 10 which shall comply with the requirements of Item 300 "Asphalt, oils and emulsions" of Texas State Department of Highways and Public Transportation 1982 Standard Specification for Construction of Highways, Streets and Bridges. The grade selected shall be based on laboratory testing by the asphalt-rubber supplier, to insure compatibility with the granulated reclaimed rubber.

If indicated necessary by laboratory testing, an approved anti-stripping additive may be added to the asphalt cement up to 1.0 percent by weight of asphalt.

3.2 Granulated Reclaimed Rubber

The granulated reclaimed rubber used shall be produced primarily from the processing of automobile and truck tires. The rubber shall be produced by ambient temperature grinding processes only.

The gradation of the granulated reclaimed rubber when tested in accordance with ASTM C-136 and using a 50 gram +/- 1 gram sample, shall meet the

following requirements:

Sieve Sizes	Percent Passing
#8	100
#10	95 - 100
#16	40 - 60
#30	0 - 10
#50	0 - 5

The use of rubber from multiple sources is acceptable provided that the overall blend of rubber meets the gradation requirements.

The individual granulated rubber particles, irrespective of diameter, shall not be greater in length than 3/16 inch (5mm).

The granulated rubber shall have a specific gravity of 1.15 +/- 0.05 and shall be free of loose fabric, wire and other contaminants except that up to 4 percent (by weight of rubber) calcium carbonate or talc may be added to prevent rubber particles from sticking together. The rubber shall be sufficiently dry so as to be free flowing and not produce a foaming problem when blended with the hot asphalt cement.

The granulated reclaimed rubber shall be accepted by certification from the rubber supplier.

3.3 **Diluent**

The diluent shall have the following properties:

Flash Point	130^{o} F Minimum
Initial Boiling Point (ASTM D-86)	340^{o} F Minimum
Dry Point (ASTM D-86)	390^{o} - 415^{o} F
Total Saturates	85% Minimum

3.4 **Asphalt - Rubber**

The asphalt-rubber supplier shall furnish to the engineer a minimum of 10 days before the beginning of membrane placement, the asphalt-rubber mix formulation which shall contain the following information:

Asphalt Cement
Source of Asphalt Cement

Grade of Asphalt Cement
Percentage of Asphalt Cement by total weight of the asphalt-rubber mixture.

Granulated Reclaimed Rubber
Source of Granulated Rubber
Grade of Granulated Rubber
Percentage of Granulated Rubber by total weight of the asphalt-rubber mixture.

If granulated rubber from more than one source is utilized the above information will be required for each granulated rubber used.

Diluent
Source of Diluent
Grade of Diluent
Percentage of Diluent allowable by volume of the asphalt-rubber mixture.

3.5 **Cover Aggregate**

Aggregate shall be composed of a clean and durable crushed rock, crushed gravel or crushed slag conforming to Item 304 "Aggregate for Surface Treatments (pre-coated)" of Texas State Department of Highways and Public Transportation 1982 Standard Specification for Construction of Highways, Streets and Bridges, grade No. 3 or No. 4.

Proposed aggregate samples shall be submitted to the asphalt-rubber supplier a minimum of 21 days prior to application, to test for aggregate stripping characteristics. The results shall be submitted to the engineer. Anti-strip will be included as a contingency bid item.

4. **EQUIPMENT**

4.1 **General**

The equipment used by the contractor shall include a self propelled rotary power broom or mobile pickup broom for pavement cleaning and excess cover material removal.

4.2 **Asphalt-Rubber Equipment**

All equipment utilized in the production and application of the asphalt-rubber shall be so designed and accessible that the Engineer can readily determine

the percentage by weight for each material being incorporated into the mixture and shall be as described as follows:

4.2.1 An asphalt heating tank with a hot oil heat transfer system or retort heating system capable of heating asphalt cement to the necessary temperature for blending with the granulated rubber. This unit shall be capable of heating a minimum of 3,000 gallons of asphalt cement.

4.2.2 An asphalt-rubber mechanical blender with a two stage continuous mixing process capable of producing a homogenous mixture of asphalt cement and granulated rubber, at the mix design specified ratios, as directed by the engineer. This unit shall be equipped with a granulated rubber feed system capable of supplying the asphalt cement feed system, as not to interrupt the continuity of the blending process. A separate asphalt cement feed pump and finished product pump are required. This unit shall have both an asphalt cement totaling meter in gallons and a flow rate meter in gallons per minute.

4.2.3 A truck mounted self powered distributor truck equipped with a retort heating unit, and an internal mixing device capable of maintaining a uniform mixture of asphalt cement and granulated rubber. It shall be equipped with a full circulating spreader bar and a pumping system capable of applying asphalt-rubber material within +/- .05 gallons per square yard tolerance of the specified application rate and must give a uniform covering of the surface to be treated. The distributor shall have a boot board on the rear of the vehicle and a bootman shall accompany the distributor. The bootman shall ride in a position so that all spray bar tips are in full view and readily accessible for unplugging if a plugged tip should occur. The distributor shall also include a tachometer, pressure gauge, volume measuring device and a thermometer.

4.3 Cover Material Spreader

The cover material (chip) spreader shall be a self-propelled machine with an aggregate receiving hopper in the rear, belt conveyors to carry the aggregate to the front, and a spreading hopper equipped with a full-width distribution auger and spread roll. The spreader shall be in good mechanical condition and be capable of applying the cover material uniformly across the spread at the specified rate.

4.4 Rolling Equipment

A minimum of three operational self-propelled pneumatic-tired rollers shall be used for the required rolling of the cover material. The pneumatic tired rollers shall carry a minimum loading of 3,000 pounds on each wheel and a

minimum air pressure of 100 pounds per square inch in each tire.

4.5 **Hauling Equipment**

Trucks for hauling cover material shall be tailgate discharge and shall be equipped with a device to lock onto the hitch at the rear of the cover material spreader. Haul trucks shall also be compatible with the cover aggregate spreader so that the dump bed will not push down on the spreader when fully raised or have too short a bed which results in aggregate spillage while dumping into the receiving hopper.

5. **CONSTRUCTION**

5.1 **General**

Streets to receive the asphalt-rubber stress absorbing membrane or seal coat shall be prepared in accord with Section 2-C-1 "Preparation of Asphaltic Concrete Surface for Overlay or Seal Coat" of these specifications.

Immediately prior to the application of the asphalt-rubber membrane, the surface shall be thoroughly cleaned in order to insure adequate adhesion of the asphalt-rubber to the pavement.

Due to the handling characteristics of asphalt-rubber, when radii and other irregular areas are to be sealed it is recommended that this be done with an RS or CRS chip seal emulsion or paving grade asphalt cement.

5.2 **Asphalt-Rubber Mixing and Reaction**

The percentage of granulated rubber shall be 23 percent plus or minus 3 percent by weight of total asphalt-rubber mixture, the exact granulated rubber content shall be as determined by the mix design submitted by the asphalt-rubber supplier. During membrane placement the granulated rubber percentage shall not fluctuate more than 1 percent by weight of total asphalt-rubber mixture.

The temperature of the asphalt cement shall be between 350^{o} and 400^{o} F at the addition of the granulated rubber. The asphalt and rubber shall be combined and mixed together in the asphalt-rubber blending unit and reacted in the distributor for a period of time as required by the engineer which shall be based on laboratory testing by the asphalt-rubber supplier. The temperature of the asphalt-rubber mixture shall be above 350^{o} F during the reaction period.

After the reaction between asphalt cement and granulated rubber has occurred, the viscosity of the hot asphalt-rubber-mixture may be adjusted for spraying and/or better "wetting" of the cover material by the addition of a diluent. The diluent shall comply with the requirements of Section 3.3 and shall not exceed 7.5 percent by volume of the hot asphalt-rubber mixture.

When a job delay occurs after full reaction, the asphalt-rubber may be allowed to cool. The asphalt-rubber shall be reheated slowly just prior to application but not to a temperature exceeding 350° F. An additional quantity of diluent not exceeding 3 percent by volume of the hot asphalt-rubber mixture may be added after reheating.

5.3 Application of Asphalt-Rubber Material

Placement of the asphalt-rubber membrane shall be made only under the following conditions.

1. The pavement surface temperature shall be 45° F and rising.

2. The pavement surface is clean and absolutely dry.

3. The wind conditions are not excessive.

4. All construction equipment such as asphalt-rubber distributor, cover material spreader, haul trucks with cover material, and rollers are in position and ready to commence membrane placement operations.

5. Rain is not imminent.

The asphalt-rubber mixture shall be applied at a temperature of 300° to 350° F at a rate of between .55 and .65 gallons per square yard. Transverse joints shall be constructed by placing building paper across and over the end of the previous asphalt-rubber application. Once the spraying has progressed beyond the paper, the paper shall be removed immediately and disposed of as directed by the engineer. All longitudinal joints shall not exceed a four inch overlap.

5.4 Application of Cover Material

Cover material shall be applied immediately to the asphalt-rubber after spreading at a rate of 25 to 35 pounds per square yard.
At the time of application to the asphalt-rubber, cover material shall be

surface dry so as to gain proper adhesion to the asphalt-rubber material.

5.5 Rolling

At least three operational pneumatic-tired rollers complying with the requirements of Section 4.4 shall be provided to accomplish the required embedment of the cover material. At some project locations or where production rates dictate, fewer rollers may be utilized as directed by the engineer. At no time shall there be less than two operational pneumatic tired rollers on a project.

Sufficient rollers shall be used for the initial rolling to cover the width of the aggregate spread with one pass. The first pass shall be made immediately behind the cover material spreader, and if the spreading is stopped for an extended period, the cover material spreader shall be moved ahead or off the site so that all cover material may be immediately rolled. Four complete passes with rollers shall be made with all rolling completed within one hour after the application of the cover material.

5.6 Traffic Control

Except when it is necessary that hauling equipment must travel on the newly applied membrane, traffic of all types must be kept off the membrane until it has had time to set properly. The speed of all hauling equipment shall not exceed 15 miles per hour when traveling over a membrane which is not adequately set. The minimum traffic free period shall not be less than one hour.

5.7 Removing Loose Cover Material

Sweeping can begin a minimum of one hour after membrane placement.

5.8 Method of Measurement and Basis of Payment

5.8.1 Asphalt-Rubber

a) Measurement will be made of the actual number of gallons of Asphalt-Rubber including asphalt placed in accord with these specifications.

b) Payment will be made at the price bid per gallon of Asphalt-Rubber in the bid proposal and will be full compensation for furnishing all asphalt, rubber, extender and for all labor,

equipment and incidentals for placing the asphalt-rubber on the Street surface.

5.8.2 **Cover Aggregate**

a) Measurement will be made of the actual number of tons of pre-coated aggregate placed in accord with these specifications.

b) Payment will be made at the price bid per ton of pre-coated aggregate in the bid proposal and shall be full compensation for furnishing all pre-coated aggregate and for all labor and equipment including rollers and rolling for the complete surface in place.

5.8.3 **Rolling**

a) No measurement will be made of rolling but rolling shall be considered as incidental to placing of the cover aggregate.

b) No separate payment will be made for rolling. The cost of rolling shall be included in the price per ton of cover aggregate in the bid proposal.

5.8.4 **Anti strip agent**

a) Anti stripping agent, when used, shall be measured by the gallon.

b) Payment for anti stripping agent shall be made at the price per gallon of anti stripping agent bid in the bid proposal.

08/07

POLYMER MODIFIED SLURRY SEAL (MICRO-SURFACE)

I. SCOPE

This specification covers the design, application, testing, quality control and measurement and payment for a complete in place "polymer modified micro surface" constructed on existing paved surfaces cleaned and prepared in accordance with the item 2-C-1 "PREPARATION OF ASPHALTIC CONCRETE SURFACE FOR OVERLAY OR SEAL".

2. DESCRIPTION

This specification covers all materials, equipment, construction and application procedures for rut filling and/or surfacing of existing paved surfaces. The micro-surfacing shall be a mixture of cationic polymer modified asphalt emulsion, mineral aggregate, mineral filler, water and other additives, properly proportioned, mixed and spread on the paved surface in accordance with this guideline and as directed by the Engineer.

3. MATERIALS

3.1 Emulsified Asphalt

(1.) The emulsified asphalt shall be a cationic emulsified type, designated as CSS-1P and shall comply with the following requirements.

	Min.	Max.
Viscosity, Saybolt Furol, 25 C (77 F), Sec.	**20**	**100**
Storage Stability test, one day, percent	**-**	**1**
Particle charge test		**Positive**
Sieve test, percent	**-**	**0.1**
Distillation:		**-** **-**
Oil distillate, by volume of emulsion, %	**-**	**0.5**
Residue, %		**62** **-**
Test on Residue from Distillation:		
Penetration, 77 F, 100 g, 5 seconds	**55**	**90**
Ductility, 77 F, 5 cm/min, cm	**70**	**-**
Solubility in trichloroethylene , %	**97**	**-**
Softening Point, R. & B., F	**135**	**-**
Viscosity, absolute 60 C (140 F), Poise		**8000** **-**

This standard distillation procedure shall be modified as follows: The temperature on the lower thermometer shall be brought slowly to 350 degrees plus or minus 10 degrees F and maintained at this point for 20 minutes. Complete the total distillation in 60 plus or minus 5 minutes from the first application of heat.

(2). The emulsion shall be modified with an approved Polymer. The distillation residue of the modified emulsion shall contain a minimum of three percent (3%) polymer solids by weight. The modified emulsion shall pass all applicable storage and settlement tests. The polymer material shall be milled into the emulsion or blended into the asphalt cement prior to the emulsification process. The cement-mixing test shall be waived for this emulsion.

(3). The polymer modified emulsified asphalt shall be so formulated that when the paving mixture is applied with the relative humidity at not more than 50% and the ambient temperature at least 75^{o} F, the paving mixture will sufficiently cure so that uniformly moving traffic can be allowed in approximately one hour. Locations such as driveways, Intersections and where sharp turning may take place or where vehicles may accelerate sharply, additional curing time may be required.

(4). The contractor shall notify the Engineer of the source of his asphaltic material prior to the design or production of the surfacing mixture and this source shall not be changed during the course of the project, except on written permission by the Engineer.

3.2 Mineral Aggregate

(1) Description. One Hundred percent (100%) of the mineral aggregate shall be crushed and shall be composed of clean, tough and durable particles of traprock, granite, sandstone or other approved aggregates. A sand equivalent of 65 or higher is required. The aggregate shall have a weight loss of not more than 12% when sodium sulfate is used or 18% when magnesium sulfate is used in accordance with Test Method Tex-411-A, using 5 cycles. The aggregate shall be one that has proven resistant to polishing in roadway surfacing.

(2.) Grades. When tested by Test Method Tex-200-F, Part I, the gradation requirements shall be as follows:

Grade 1 (Fine Graded Surface Course)	Percent Aggregate By Weight
Passing 3/8" sieve	100
Passing No. 4 sieve	98-100
Passing No. 8 sieve	75 -90
Passing No. 16 sieve	50- 75
Passing No. 30 sieve	30- 50
Passing No. 50 sieve	18- 35
Passing No. 200 sieve	5 -15

Grade 2 (Coarse Graded Surface Course)	Percent Aggregate By Weight
Passing 1/2" sieve	100
Passing 3/8" sieve	99-100
Passing No.4 sieve	86- 94
Passing No. 8 sieve	45- 65
Passing No. 16 sieve	25- 46
Passing No. 30 sieve	15 - 35
Passing No. 50 sieve	10 - 25
Passing No. 200 sieve	5- 15

(3.) Mineral Filler. Mineral filler shall be non-air entrained Portland cement that is free of lumps or foreign matter.

3.3 Water

The water shall be portable and shall be free of harmful soluble salts.

3.4 Other Additives

Additives supplied by the emulsion manufacturer may be added to the emulsion mix or to any of the component materials to provide control of the set time in the field.

4. LABORATORY EVALUATION

4.l General

Before work commences, the contractor shall submit a signed mix design covering the specific materials to be used on the project. This design shall be performed by the contractors or suppliers laboratory or by a qualified laboratory chosen by the owner. Once the materials are approved, no substitution will be permitted, unless first tested and approved by the laboratory preparing the mix design. The cost of mix design shall be born by the contractor.

4.2 Designing Job Mix

The qualified laboratory shall develop the job mix design and present certified test results for the contractor approval. Compatibility of the aggregate and modified CSS-1P shall be verified by the mix design. The mix design must be made using samples taken from the actual materials proposed for use in the project and in accordance with the procedures and requirements of Article 5.1 below.

5. PAVING MIXTURE

5.1 Mixture Design.

The mix shall be designed in accordance with Texas State Highway Department Bulletin C-14 and Test Method Tex-204-F, using Test Method Tex-227-F to supplement Test Method Tex-201-F and Tex-202-F to conform to the requirements herein. The above laboratory mixing and curing procedures may be modified as approved by the Engineer. The emulsified asphalt content will be selected by the Engineer to provide an optimum laboratory compacted density within the range of 94 to 97%. A minimum Hveem stability of 35 is required for placements exceeding a depth of twice the maximum aggregate size.

This is a mix design requirement, to be verified by testing of trial batch material prior to placement of project material. Hveem Stability testing will be performed by the selected laboratory. The Engineer will determine the frequency of job control density and stability testing. The Contractor shall furnish the mix design for the type of mixture specified together with applicable design worksheets and data. The Bulk Specified Gravity will be determined for each aggregate to be used in the design mixture. If the determined values vary by 0.300 or more, the mixture design will be by the Volumetric Method, Test Method Tex-204-F, Part II. To substantiate the design, trial mixtures will be produced and tested using all of the proposed project materials and equipment prior to any placement. The Engineer may waive trial mixtures if the same design has been proven to be in conformance with these requirements.

5.2 Composition of Mixture.

The Engineer shall approve the design mix and all micro-surfacing materials and methods prior to use and shall designate the proportions to be used within the following limits.

Residual Asphalt	**6 to 9 percent by weight of dry aggregate or 13.5 to 23 percent by volume of the aggregate**
Mineral Filler	**0.5% to 3.0% by dry weight of aggregate**
Modifier	**As required to provide the specified properties**
Water	**As required to provide proper consistency**

5.3 Type

The paving mixture shall consist of a uniform mixture of coarse aggregate, fine aggregate and asphaltic material. The mix may also contain mineral filler and/or additives when required.

The mixture shall be designed so that the mineral aggregate will produce a gradation, which conforms to the limitations for the master grading for the type specified herein. The gradation will be determined in accordance with Test Method Tex-200-F (Dry Sieve Analysis) and shall be based upon aggregate only. The amount of asphaltic material shall conform to the limitation for the type specified.

The aggregate grade shall be as shown on the plans. If no grade is shown on the plan grade 2 aggregate shall be used.

5.4 Tolerances

The aggregate portion of the paving mixture produced shall not vary from the design gradation by more than the tolerances that follow. The material passing the No. 200 sieve is further restricted to conform to the limitations for the master grading for the type specified. The asphaltic material portion of the paving mixture shall not vary from the design amount by more than the allowed tolerance and is also restricted to conform to the master limits. The method of test for determining the aggregate gradation and asphalt content of the mixture shall be Test Method Tex-210-F or other methods of proven accuracy.

	Percent by Weight or Volume as Applicable
Passing 3/8" sieve, retained on No. 4 sieve	**Plus or minus 5**

Passing No. 4 sieve, retained on No. 8 sieve	**Plus or minus 5**
Total retained on No. 8 sieve	**Plus or minus 5**
Passing No. 8 sieve, retained on No. 16 sieve	**Plus or minus 3**
Passing No. 16 sieve, retained on No. 30 sieve	**Plus or minus 3**
Passing No. 30 sieve, retained on No. 50 sieve	**Plus or minus 3**
Passing No. 50 sieve, retained on No. 200 sieve	**Plus or minus 3**
Passing No. 200 sieve	**Plus or minus 2**

Asphaltic Material Plus or minus 0.5 by wt. or l.2 by vol.

6. EQUIPMENT

6.1 General.

All equipment for the handling of all materials and mixing and placing of the mixture shall be maintained in good repair and operating condition and subject to the approval of the Engineer. Any equipment found to be defective and potentially affecting the quality of the paving mixture will be replaced or, at the option of the Contractor, satisfactorily repaired. It will be the contractor responsibility to prove to the Engineer that the repaired equipment is properly functional.

6.2 Mixing and Proportioning Equipment.

(1.) The material shall be mixed by a self-propelled micro-surfacing mixing machine which shall be a continuous flow mixing unit able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, field control additive and water to a revolving multi-blade twin shafted mixer and discharge the mixed product on a continuous flow basis. The machine shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, field control additive and water to maintain an adequate supply to the proportioning controls. The machine shall be equipped with self-loading devices, which provide for the loading of all materials while continuing to lay micro surfacing.

The machine shall be equipped with opposite side driving stations to optimize longitudinal alignment. The machine shall be equipped to allow the mix operator to have full hydrostatic control of the forward and reverse speed during application of the micro-surfacing material.

The self-loading devices, opposite side driving stations and forward and reverse speed controls shall be original equipment manufacturer design.

(2). Individual volume or weight controls for proportioning each material to be added to the mix shall be provided. Each material control device shall be calibrated and properly marked.

(3) The aggregate feed to the mixer shall be equipped with a revolution counter or similar device so the amount of aggregate used may be determined at any time.

(4) The emulsion pump shall be a positive displacement type and shall be equipped with a revolution counter or similar device so that the amount of emulsion used may be determined at any time.

(5.) The mixing machine shall be equipped with a water pressure system and nozzle type spray bar to provide a water spray immediately ahead of and outside the spreader box.

(6.) The mixing machine shall be equipped with an approved fines feeder that shall provide a uniform, positive, accurately metered, predetermined amount of the specified mineral filler.

6.3 Spreading Equipment.

The paving mixture shall be spread uniformly by means of a mechanical type spreader box attached to the mixer, equipped with paddles, screws or augers to agitate and spread the materials throughout the box. A front seal shall be provided to insure no loss of the mixture at the road contact surface. The rear seal shall act as a final strike off and shall be adjustable and shall break in the middle so that the screed can be adjusted to fit the crown of the street including inverted crowns. The rear seal carrier shall be capable of being fitted with a rubber seal or a steel strike off bar.

The spreading equipment shall be readily adjustable in width so that laying widths can be changed without undue delay before starting each pass if necessary.

The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The seam where two spreads join, shall be neat appearing and uniform.

7. STOCKPILING AND STORAGE.

7.1 Aggregate Storage.

If the mineral aggregates are stored or stockpiled, they shall be handled in such a manner as to prevent segregation, mixing of the various materials or sizes, and contamination with foreign materials. The grading of aggregates proposed for use and as supplied to the mixing plant shall be uniform. Suitable equipment of acceptable size shall be furnished by the Contractor to work the stockpiles and prevent segregation of the aggregates. The mineral aggregate shall be screened and weighed at the contractor stockpile prior to job site delivery. The Engineer shall approve screens and scales.

7.2 Storage and Heating of Asphaltic Materials.

The asphaltic material storage shall be ample to meet the requirements of the plant. Asphalt shall not be heated to a temperature in excess of that specified
in the Item "Asphalt's, Oils and Emulsions" Texas Highway Department 1982 Standard Specifications. All equipment used in the storage and handling of asphaltic material shall be kept in a clean condition at all times and shall be operated in such manner that there will be no contamination with foreign matter.

8. CONSTRUCTION METHODS

8.1 General

It shall be the responsibility of the Contractor to produce, transport, and place the specified paving mixture in accordance with these specifications and as approved by the Engineer.

8.2 Street Preparation

Prior to starting the micro-surfacing operation, streets designated to be surfaced shall be prepared in accordance with item 2-C-1 "Preparation of Asphaltic Concrete Surface for Overlay or Seal".

8.3 Weather Limitations.

The material shall be spread only when the atmospheric temperature is at least fifty (50 degrees) F and rising and the weather is not foggy or rainy. No material will be placed when the surface on which it is to be placed is below 50^{o} F.

8.4 Final Surface Preparation

Immediately before placing the micro-surface, the area to be sealed shall be thoroughly cleaned of all vegetation, loose aggregate and soil, and moistened. Water for prewetting the surface shall be applied immediately ahead of the spreader box by use of a pressure spray bar equipped with nozzles that produce a fine mist. The rate of application of water shall be sufficient to dampen the entire surface without any free flowing water ahead of the spreader box. The rate of the mist spray shall be adjusted from time to time during the placing operation to accommodate changes in temperature, surface texture, humidity and dryness of the pavement surface.

8.5 Placing the Mix

(1). The mixture shall be spread to fill cracks and minor surface irregularities and leave a uniform skid resistant application of aggregate and asphalt on the surface. The finished surface shall be neat in appearance without drag marks, excessive buildup or other detracting irregularities.

(2). The speed of operation of the surfacing equipment shall be controlled by the mixer operator at forward speeds between 85 and 225 feet per minute depending on conditions and appearance of the newly placed surface.

If transverse rippling occurs the speed of the equipment shall be reduced until the ripples disappear.

(3). The Engineer shall designate either rubber seal/screed or the steel strike off screed according to the Project requirements.

(4). The depth of mixture in the spreader box shall be carefully controlled to prevent transverse ridging and premature setup of material in the corners of the box and ahead of the screed. In general the depth of mixture in the box should be approximately to the mid point of the auger-agitator.

(5). Auxiliary equipment shall be kept in good working order and free of leaks. Any truck or transport used to bring materials on to the street being surfaced that develops leaks either of the material being transported or fuel and/or oil leaks will be removed from the job site and not allowed to return until it has been thoroughly repaired.

Scales and screens used at the contractors stockpile and storage site shall be kept in good working order.

(6). Spills of surfacing materials or fuel, oil or other detrimental substances on the street ahead of the surfacing operation shall be thoroughly removed before the surface is placed. This may required the operation to be shut down until the street has been cleaned.

(7). No excessive streaks shall be left in the finished surface. When such excessive streaking occurs, the operation shall be immediately stopped and corrective action is taken before resuming the operation.

8.6 Joints

(1). Longitudinal joints shall be placed on lane lines. On residential streets an eight-foot parking lane will be assumed with the centerline being the other lane line.

(2). All longitudinal and transverse joints shall be straight and neat in appearance without excessive build up or bare spots. Any irregularity shall be corrected immediately before the material has started to set up.

(3). The overlap at longitudinal joints shall not exceed 4 inches. When the overlapped pass is only partially set care shall be exercised to avoid skid marks. Any skid marks that occur shall be immediately corrected by removing any partially set material that has been displaced and placing fresh mix in the mark and shaping by use of Lutes, squeegees, hand drags, etc.

Overlapping of longitudinal joints shall not leave a visible build up. Any buildup shall be immediately removed by use of lutes, squeegees, hand drags, shovels or other approved means.

8.7 Mix Stability

The modified mixture shall posses sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading; it shall be free of excess water or emulsion and free of segregation of the emulsion and aggregate fines from the coarser aggregate.

8.8 Hand Work

Areas that cannot be reached with the mixing machine shall be surfaced using hand squeegees to provide complete and uniform coverage. The area to be hand-worked shall be lightly dampened prior to mix placement. Care shall be exercised to leave no unsightly appearance from handwork. The same type finish as applied by the spreader box shall be required. Handwork shall be completed during the machine applying process.

8.9 Lines

Care shall be taken to insure straight lines along curbs and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a good appearance.

8.10 Work Force

The contractor shall maintain a work force of adequate size to accomplish the work as specified herein, including the loading and transporting of materials to the job site, the placing of the micro surface, the monitoring of joints and surface and the correction of any deficiencies that occur.

If, at any time, the Engineer or his representative determines that the work force is not adequate to perform all the tasks required for the proper completion of the micro surfacing, work on the project will be halted until adequate personnel are provided and/or modifications in procedure are implemented that will assure proper placement of the surfacing material.

8.11 Scratch or Level up course

A scratch or level up course will be required on certain streets as shown on the plans and/or as directed by the Engineer. This course shall be the same material as the polymer modified surface course and will be placed in the same manner except the spreader shall be equipped with a steel strike off screed. This screed shall be set to run as close to the pavement surface as practical.

The appearance of this course is not as critical as the final surface so long as any marks or blemishes that occur are not of such magnitude that they will affect the appearance of the final course.

8.12 Correction of Deficiencies and Blemishes

After the laydown work is completed and before final acceptance by the

Engineer, spot application of micro- surfacing material may be required to correct any deficiencies such as streaks, scuff marks, tire tracks, gaps, etc. to improve the ride quality and overall appearance. The spot application shall be performed with a full width spreader box when required.

9. QUALITY CONTROL

9.1 Materials

The contractor will permit the Engineer and/or the Independent laboratory to take samples of the aggregate and asphalt emulsion used in the project at the Engineers discretion. Gradation and sand equivalent tests may be run on the aggregate and residual asphalt content tests on the emulsion. Test results will be compared to specifications. Tests will be run at the expense of the owner. The owner must notify the contractor immediately if any test fails to meet the specifications.

9.2 Polymer Modified Micro-Surfacing

Samples of the material may be taken directly from the mixing unit(s). Consistency and residual asphalt content tests may be made on the samples and compared to the specifications. Tests will be run at the expense of the owner. The owner must notify the contractor immediately if any test fails to meet specifications.
The Engineer may use the recorders and measuring facilities of the unit to determine application rates, asphalt emulsion content, mineral filler and additive.

9.3 Non-Compliance

If any two successive tests fail on the stockpile material, the job shall be stopped. It is the responsibility of the contractor, at his own expense, to prove to the Engineer that the conditions have been corrected. If any two successive tests on the mix from the same machine fail, the use of the machine shall be suspended. It will be the responsibility of the contractor, at his own expense, to prove to the Engineer that the problems have been corrected and that the
machine is working properly.

10. CLEAN UP

10.1 Protecting and Cleaning Manholes and Valves

Prior to beginning the sealing operation the contractor shall locate all manhole covers and valve boxes in the area to be sealed. Placing one or

more layers of heavy craft paper or other suitable material over them shall protect manhole covers and valve boxes. The protective covering shall be secured in place so that it does not move or tear during the sealing operation. The contractor shall remove the protective covering and any seal material placed over manhole covers and valve boxes as soon as the seal has set sufficiently to prevent damage to the adjoining seal in the process. The edges around manhole covers and valve boxes shall be neat and smooth and shall conform to the shape and size of the manhole cover or valve box.

10.2 Streets

Clean up along streets shall be accomplished as the work progresses and any excess material that is raked onto or otherwise placed on adjoining concrete curb and gutter, valley gutters or fillet areas or on adjacent asphalt or concrete paving shall be removed before it breaks or sets up.

Before a section of street is opened to traffic all clean up work shall be completed on that section.

11. MEASUREMENT AND PAYMENT

11.1 General

Payment will be made for these items listed in the bid proposal only. All work, materials, labor and appurtenance required to complete the project as shown on the plans or called for in the specifications but not listed in the bid proposal shall be considered as incidental and no separate payment will be made. The cost of these incidentals must be included in the price bid for the various items listed in the bid proposal.

11.2 Measurements

(1). Measurement will be made of the actual number of tons of each type or grade of the Composite Polymer Modified Slurry Seal (Micro-Surface) complete in place. For this specification a ton is considered 2000 lbs. and the composite slurry seal mixture is defined as the asphalt,
aggregate and additives.

All materials shall be weighed on certified public scales or the contractor shall place a set of standard truck scales at a site approved by the Engineer. Scales shall conform to the requirements of the item "Weighing and measuring equipment" Texas Highway Department 1982 Standard Specifications.

(2). Aggregate - The quantity of aggregate used in the accepted portions of the work shall be measured by net ticket weight of each individual load of
aggregate shipped to the project from the approved job site scale.

The weight of mineral additive used shall be calculated and included in the total aggregate weight.

(3). Polymer Modified Asphalt Emulsion. The quantity of polymer modified asphalt emulsion in the accepted portion of the work shall be measured by tons of material based on the accepted load tickets issued from the manufacturer. At the completion of the project any unused emulsion shall be weighed back and that quantity deducted from the accepted asphalt emulsion quantity delivered.

11.3 Payment

Payment will be made for the number of tons of micro surface measured at the applicable unit price bid per ton of micro surface in the bid proposal. This payment shall be full and complete compensation for the complete in place micro surface.

08/07

P.V.C. PIPE CASINGS

1. SCOPE

   This item consists of furnishing and installing PVC pipe for casing for future water and electric lines at locations shown on the plans or as directed by the Engineer.

2. MATERIAL

   Pipe shall be ASTM D 1785 schedule 40 PVC pipe or ASTM D 2241 PVC SDR 32.5 pressure pipe. The ASTM designation and schedule or SDR shall be clearly marked on the outside of the pipe.

3. CONSTRUCTION

   Pipe shall be laid in straight alignment and grade in trenches as narrow as the diameter of the pipe can be laid. Pipe shall be placed after the sub grade is prepared but before base material is placed. Bedding under the pipe shall be a minimum of 2 inches in thickness and shall be carefully graded and leveled before pipe is placed. Joints shall be water tight. They may be solvent cement welded using approved materials, or may be made using a gasketed collars or push on gasketed bell and spigot. When collars are used care shall be exercised to assure that the collar is centered over the joint. All joints shall be made in accord with the manufacturer's recommendations. After pipe has been joined and inspected the pipe shall be encased in bedding/encasement material to a thickness of 3 inches above the pipe. Care shall be exercised to be sure the encasement material is worked in under the haunches of the pipe and compacted along the side of the pipe to assure adequate lateral support. The balance of the trench shall be back filled using cement stabilized backfill consisting of 2 sacks of Portland cement to 1 cubic yard of blow sand or crushed caliche mixed with sufficient water to form a stiff place able mixture that can be consolidated in the trench by rodding or vibrating. The back fill shall be "struck off" at the finished sub grade level using square point shovels or suitable screeds. The ends of the pipe shall be tightly plugged to prevent the entrance of water debris or other foreign material. These plugs shall be PVC or rubber stoppers designed to endure until the water lines and/ or electric lines are places.

4. MEASUREMENT AND PAYMENT

   Casing pipe shall be measured by the linear foot along the center of the pipe and shall be paid for at the unit price in the bid proposal.

WATER LINE SPECIFICATIONS

1. SCOPE OF WORK

The work covered by this section consists of all water pipe lines and piping, including valves, valve boxes, tapping sleeves, fire hydrants and other accessories, required to complete the project. The contractor shall furnish all materials, labor, superintendence, tools, equipment and incidentals necessary for the complete construction of this work in accordance with the drawings and these specifications.

2. PIPE AND MATERIAL

2.1 General

Pipe shall be polyvinyl chloride (PVC) AWWA C900, ductile iron AWWA C-151 or steel cylinder concrete pipe AWWA C-303.

2.2 Polyvinyl Chloride (PVC) Pipe

A. PVC pipe furnished for use on this project shall conform to the requirements of AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for water distribution pressure class 150, DR18. and shall be NSF approved for potable water supply.

B. The pipe furnished shall have an integral bell designed for joint assembly using elastomeric seals.

C. Markings for the pipe shall include all the requirements of AWWA C900 and the MSF approval stamp.

D. Elastomeric seals shall be furnished by the pipe manufacturer. Seals shall be manufactured to conform with the requirements of ASTM F4 77 and shall be specifically designed for use with the pipe furnished.

E. Lubricants intended for use with PVC pipe and seals (gaskets) shall be compatible with both PVC and the seal material. Lubricant shall not support growth of bacteria and shall not adversely affect the potable quality of the water that is to be transported.

F. Pipe laying lengths shall be 20'.

G. Service taps on PVC water lines shall be made using hinged type or double strap type saddles. Tapping saddles shall support the full circumference of the pipe and shall have a bearing area of sufficient width along the axis of the pipe to prevent distortion of the pipe when saddle is tightened.

No direct taps into the wall of PVC pipe will be permitted.

Seals for tapping saddles shall be recessed into the body of the saddle and shall be

a rubber - compound conforming to the requirements of ASTM F477.

Tapping saddles shall be SMITH-BLAIR Taper Seal Style 313 or DMD Dresser style 194 or approved equal.

H. Tapped connections for water mains and fire lines made on PVC water mains shall be accomplished using full bodied ductile iron tapping sleeves of a pressure rating equal to or greater than the pressure rating of the pipe specified.

I. Bedding for AWWA C900 PVC water pipe shall extend from a minimum depth of 4 inches below the outside of the water line to a minimum cover of 6 inches over the top outside of the water line.

J. AWWA C900 PVC water pipe shall be installed in accord with the applicable requirements for installing ductile iron pipe.

Care shall be taken to install each joint of PVC water pipe to, but not beyond the factory insertion mark on the pipe.

When a joint of PVC water pipe must be cut, the end of the pipe shall be carefully beveled to match the factory bevel on the uncut pipe. An insertion mark matching the factory insertion mark on the uncut pipe must be made before the pipe is inserted into the bell.

When PVC water pipe is to be inserted into a ductile iron fitting or valve, the factory bevel must be removed to form a square plain end pipe.

2.2 (a) Metallic Marking Tape (For PVC Water Pipe)

2.2(a).1 General

When non-metallic pipelines are to be installed, then the Contractor shall furnish and lay, above the pipeline, a continuous strip of metallic identification tape.

2.2 (a).2 Tape Material

The metallic identification tape shall be at least two inches (2”) in width and shall be of corrosive resistant metal of sufficient thickness to be stable and reflect electronic signals to electronic pipeline detector when buried to a dept of twenty-four (24”) below normal ground level.

The metallic tape shall be painted blue on one side and shall have 1-inch high letters painted continuously on the same side of the tape which read, “CAUTION: BURIED WATER LINE BELOW” or other words to this effect.

The marking tape shall be “Detectable Warning Tape”, as manufactured by the Omega Marking Company, or equal approved by the Engineer.

2.2(a).3 Construction Methods

The Contractor shall backfill over non-metallic pipelines to a depth which is less than twenty-four (24”) and not more than twelve inches (12) from the top of the cut of the ditch section in which the pipeline is laid. Contractor shall stop the backfilling material to a generally uniform level. All machine tamping, jetting and other compaction activities shall be accomplished up to this point of height in the backfilling the marking tape is placed in the trench.

The Contractor shall then lay the marking tape in the pipe trench and shall be held in position by the spot placement of backfill materials over it to keep it from sliding t the sides and/or from being blown about in the ditch by the wind. The tape shall be lid with the painted side, which shall also be the side with the identification lettering on it, in the “up” position. The tape shall be laid in the flat position and kept there until backfill is accomplished.

The Contractor shall then complete the backfilling operation in such a manner that the marking tape is not cut, crimped, ruptured or separated by the backfilling work.

2.2(a).4 Measurement and Payment

No separate pay item will be provided for furnish and placing the marking tape. This item shall be considered subsidiary to the non-metallic pipe being placed.

2.3 Ductile Iron Pipe

A. All ductile iron pipe used in the construction of water works improvements shall be Cement Lined and shall be manufactured in accordance with and shall meet the requirements of AWWA Specification C-l5l.

B. Pipe shall be cast in lengths of not less than l2 feet and shall be designed for a working pressure of l50 pounds per square inch. Thickness of ductile iron pipe shall be as shown on the plans and bid proposal or shall be computed in accordance with AWWA Specification C-l50, based on l50 pounds per square inch working pressure for 10 feet of cover and laying condition 2.

C. All ductile iron pipe shall have an exterior, bituminous coating and an inside cement-mortar lining in accordance with the requirements of AWWA Specification C-l04.

2.4 Polyethylene Plastic Tubing

Service lines shall be constructed with polyethylene plastic tubing as specified in ASTM D 2737 with a rating of l60 psi.

2.5 Ductile Iron Pipe Fittings

All fittings for ductile iron pipe and PVC pipe shall be ductile iron and shall be mechanical joint all connections except tees for fire hydrant leads unless shown otherwise on the plans. Tees for connecting fire hydrant leads shall be MJ- with a flange outlet.

All ductile iron fittings shall conform to AWWA Specification C-110, designed for a working pressure of 250 psi. All ductile iron fittings shall have an external coating and shall be cement lined in accordance with the specifications for coating and lining the pipe.

2.6 Pretensioned Concrete Cylinder Pipe

A. The contractor shall furnish and install all concrete cylinder pipe and fittings, including connections and appurtenances complete as shown on the plans and specified herein.

B. The contractor shall submit six (6) sets of full and complete shop drawings on the concrete cylinder pipe and fittings. All of the drawings and data shall be complete and shall include a complete description of the pipe offered, including cuts, tabulated layout and all pertinent engineering data required for a complete evaluation of the submittal. Submittal data shall be in such form and so presented that the Engineer may readily review the data.

C. Prior to delivery of the pipe to the project site, the manufacturer shall furnish an affidavit certifying that all pipe, fittings, and specials, and other products and materials furnished, comply with the applicable provisions of this specification.

D. The pipe manufacturer shall furnish a factory trained, job experienced field representative who shall visit the project periodically during the course of installation. He shall also be subject to call by the contractor and/or engineer to advise and assist with the solution of field problems.

During visits, the representative shall observe all phases of the project including location and condition of pipe strung ahead of the contractor, trench width, if applicable, bedding and backfill, assembly of pipe joints and protection of steel. If, in the opinion of the representative any phase of the installation is unsatisfactory, he shall so advise the contractor's superintendent and also advise the owner or engineer's representative on the job site.

E. All closure sections shall be the jack on type and "field welding" will not be permitted without the written permission of the engineer.

F. Pipe manufacturer will install all necessary taps for the contractor to disinfect and field hydrostatic test the pipe.

G. Pretensioned concrete cylinder pipe, fittings and specials shall be designed, fabricated and tested in accordance with the latest requirements of AWWA C-303, "Reinforced Concrete Pressure Pipe Steel Cylinder Type, Pretensioned, for Water and Other Liquids" with additional requirements or modifications as described herein.

H. Pretensioned concrete cylinder pressure pipe shall be designed for l50 psi, working pressure and manufactured in 32 foot nominal lengths in accordance with the provisions of AWWA Standard C-303.

I. Inspection and Testing

(1) The owner reserves the option to have an independent testing laboratory, at the owner's expense, inspect pipe and fittings at the pipe manufacturer's plant to ensure compliance with the applicable specifications. The owner's testing laboratory and Engineer shall have free access to those parts of the manufacturer's plant that are necessary to ensure compliance with the governing standard. The pipe manufacturer shall notify the owner, in writing, at least two weeks ahead of pipe fabrication as to start of fabrication and fabricating schedule so that the owner can advise the manufacturer as to owners' decision regarding tests to be performed by an independent testing laboratory. In event the owner elects to retain an independent testing laboratory to make material tests and weld test, it is the intent that the tests be limited to one spot testing of each category unless the tests do not show compliance with the standard. If these tests do not show compliance, the owner reserves the right to have the laboratory make additional tests and observations to ensure compliance of the finished product with the standard.

(2) In any event, the manufacturer shall perform the tests described in AWWA C 303, and furnish the owner with a copy of the test reports, if requested, at the expense of the pipe manufacturer. The pipe manufacturer shall furnish the owner with affidavit of compliance as outlined in the standard.

(3) All welds for water tightness in special pipe and fittings that have not been hydrostatically tested may be examined by use of visible dye penetrant system meeting requirement of ASTM El65; however, collar reinforcement and all other lap welds shall be tested by introducing air under l0 psi pressure between the collar and cylinder and checking for leaks around and through the welds with soap solution.

The area to receive the dye penetrant shall be cleaned free from contaminants that might interfere with the penetrant process. The temperature of the steel in the weld area shall be between 60 and l25 degrees F. when the penetrant is applied. Dwell time of six hours shall be allowed after application of the penetrant and developer before interpreting the results.

Defects that are found shall be repaired and the test repeated until all defects

are eliminated. Colored penetrant shall be removed before fittings are lined.

2.7 Casing Pipe

Casing pipe to be installed in bore or open cut may be limited service pipe, corrugated galvanized steel pipe or new straight seam or spiral welded steel pipe. Casing pipe shall be furnished in thickness or gage as shown on the plans.

Limited service pipe proposed for use on this project must be approved a minimum of four (4) working days prior to the time of opening bids and shall be in good condition and shall meet the same service requirements as the corrugated galvanized steel or welded steel pipe.

Welded steel casing pipe shall be coated inside and out using a coal tar epoxy or shall be bituminous coated in side and out by the hot dip method.

2.8 Bedding Materials

A. All water pipelines placed on this project shall be bedded with crushed stone bedding materials to the minimum as shown on the plans and in the Detail Drawings.

B. Granular material furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified, shall consist of any natural or synthetic mineral aggregate such as, crushed gravel, crushed rock, crushed stone, or slag, and shall conform to the following specifications and/or gradation.

Note, all materials used for these purposes shall be crushed and shall have at least two broken faces. Pea gravel will NOT be allowed.

	Foundation	Bedding	Encasement	Backfill
ASTM c33 Grade #57	X			
ASTM C33 Grade #67	X			
ASTM C33 Grade #8		X	X	
THD 1982 ITEM 302 Type "D" Grade #4		X	X	
THD 1982 Item 302 Type "D" Grade #5			X	
Crusher Fines**			*X	X

* 100 percent of crusher fines that are to be used within 12 inches of the top of pipe must pass the 3/4" sieve.

** Approximate Gradation for Crusher Fines

Sieve Size	% Passing
2 inch	100
#4	35 - 100
#10	20 - 100
#40	5 - 35
#200	4 - 10

Crushed stone material proposed as an alternate for use on this project and not meeting the above specifications must be approved in writing at least 48 hours prior to the time scheduled for opening bids.

C. Granular materials provided for Foundation, Bedding, Encasement, or backfill use as required by the contract, either as part of the pipe item work unit or as a separate contract item, shall be classified as to use in accordance with the following:

MATERIAL USE DESIGNATION	ZONE DESIGNATION
Granular Foundation	Placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support.
Granular Bedding	Placed below the midpoint of the pipe prior to pipe installation, to facilitate proper shaping and achieve uniform pipe support. Also for Class B Bedding where specified.
Granular Encasement	Placed below an elevation one half (6") foot above the top of pipe, after pipe installation, for protection of the pipe and to assure proper filling of voids and thorough consolidation of backfill.
Granular Backfill	Placed below the surface base course, if any, as the second stage of backfill, to minimize trench settlement and provide support for surface improvements.

In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

3. **VALVES AND VALVE BOXES**

3.1 General

A. Valves 4" through l2" shall be resilient seated gate valves with non-rising stems and shall open by turning to the left (counter clock wise).

B. Valves l4" and larger shall be resilient seated butterfly valves and have operators suitable for direct burial and shall open by turning to the left (counter clock wise).

All valves except valves for use in fire hydrant leads shall have mechanical joint ends unless shown otherwise on the plans. Valves for use in fire hydrant leads shall be flange by mechanical joint.

C. All valves and fire hydrants shall be spray coated with a two component thermal setting epoxy to cover all interior wetted ferrous surfaces. Finished coating shall have a minimum thickness of 4 mils. The coating shall conform to the coating section of these specifications.

D. All valves for buried service shall be equipped with 2" square AWWA operating nuts.

3.2 Gate Valves

A. Gate valves shall be iron body, resilient **wedge gate** and shall be in compliance with AWWA Standard C-509-80 or latest revision thereof and shall have the following design features:

B. All valves shall have a working pressure of 200 psi and shall be bottle tight tested at this pressure from both directions. The gate body shall also be hydrostatically tested at 400 psi. Zero leakage will be required in all tests. The body, bonnet, and stuffing box shall be flange together with ASTM A-307 Grade B bolts and nuts to insure repairability.

C. Stems shall be machined from modified manganese bronze rod with an integral forged thrust collar machined to size.

D. Stem seals shall be dual "O" ring type.

E. Valve discs shall be rubber encapsulated or have disc seat rings molded of natural rubber, internally steel reinforced retained to the disc by self-locking type 304 stainless steel screws. Valve gates shall seat against a machined epoxy coated mating surface in the body of the valve.

F. All internal ferrous metal surfaces (machined or cast) shall be factory spray coated with a two component thermosetting epoxy to a nominal thickness of 4 mils and the exterior shall be coated with asphalt varnish as specified for coating of the pipe. (See Sec. 3.4 of these specifications for epoxy coating).

G. Valves shall be Mueller A-**2360** or Dresser-M&H **4067** or approved equal. Any alternate (approved equal) to these specifications **shall have completely interchangeable parts with either of the specified valves.**

3.3 Butterfly Valves

A. General - All butterfly valves shall be of the rubber seated tight-closing type. They shall meet or exceed AWWA Standard C-504, Class l50B. Both valve ends shall be mechanical-joint per AWWA Standard C-lll. Accessories (bolts, glands, and gaskets) shall be supplied by the valve manufacturer.

B. All valves must use full AWWA C-504 Class l50 B valve shaft diameter, and full Class l50 B underground service operator torque rating throughout entire travel, to provide capability for operation in emergency service.

C. Valve body shall be high strength cast iron ASTM A 126 Class B with l8-8 type 304 stainless steel body seat. Valve vane shall be high strength cast iron ASTM A 48 Class 40 or ASTM A 536, Grade 65-45-l2 ductile iron having rubber seat mechanically secured with an integral l8-8 stainless steel clamp ring and l8-8 stainless steel self locking screws.

D. Rubber seat shall be a full circle 360^{o} seat not penetrated by the valve shaft. Valve shall have permanently set two way thrust bearing. Packing shall be designed for permanent duty in underground service.

E. Valve operator shall be of the traveling nut type, sealed, gasketed and lubricated for underground service. It shall be capable of withstanding an overload input torque of 450 ft. lbs. at full open or closed position without damage to the valve or valve operator. It shall be designed to resist submergence in water to 25 ft. head pressure. Number of turns to operate valve shall be as listed below in order to closely resemble conventional distribution valve practices and to minimize water hammer:

Pipe and Valve Size	Turns to close	Pipe and Valve Size	Turns to Close
4" - 6"	16-1/2	14" - 16"	48"
8"	24	18" - 20"	72
10" - 12"	36	24"	90

F. Valves shall be capable of easy closure by one man using standard valve key, even under emergency line-break conditions as severe as those that would - cause a valve maximum opening torque requirement of as much as two times AWWA Class l50 B.

G. All valves shall be tested bottle-tight at rated working pressure by the manufacturer as follows:

l4" up. . . . . l50 psi

In addition a hydrostatic test with vane partially open shall be given to the assembled valve as follow:

l4" up. . . . . 300 psi

H. Valve shafts shall be l8-8 type 304 stainless steel. Shaft bearings shall be of the self lubricating sleeve type.

I. Valve discs or vanes for valves 30" and larger shall be the flow through (bridge or truss) type.

J. Butterfly valves shall be Dresser-M&H Model "450", "4500" or "l450" or Mueller line seal III or approved equal. Alternates (approved equal) to these specifications must be approved in writing 48 hours prior to time bids are received.

3.4 Coating

A. The coating shall be a two part thermosetting epoxy protective coating and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings.

B. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the FOOD AND DRUG ADMINISTRATION DOCUMENT TITLE 2l of the FEDERAL REGULATIONS ON FOOD ADDITIVES SECTION l2l.25l4 entitled, RESINS AND POLYMERIC COATINGS.

C. The coating shall have a satin finish and shall be suitable for field over coating and touchup with same coating material without sanding or special surface preparation, or application of heat in excess of room temperature.

D. The coating shall have a successful record of performance in valves, pipe or other allied equipment for a minimum of two years.

E. The coating adhesion to the substrate shall exceed cohesion of the coating film as demonstrated by the following test:

(1) Prepare test panel and apply coating per manufacturer's recommendation.

(2) After sample has properly cured per manufacturer's recommendation, scribe an "X" using a sharp knife or scalpel through the coating to the metal substrate.

(3) Then with the point of the knife at the juncture of two scribes, attempt to lift off coating. Coating should not lift off substrate or between coats readily, but should break up leaving coating material on the substrate of this damaged area.

(4) No disbandment of the film shall be noted as tested above after immersion in tap water for l500 hours at l00`F.

F. A falling sand abrasion test using ASTM D968 shall produce an abrasion coefficient of 25-30 liters/mil. As an alternative, a Taber Abrader Test should find 3.5 - 3.7 milligrams coating loss per l00 cycles when using a CSF l0 Wheel (l000 gram weight).

3.5 Valve Boxes

All valves to be used in buried service shall be enclosed in cast iron valve boxes. Care shall be taken to place and maintain the 2" square operating nut in the center of the valve box. The valve box shall be two piece cast iron suitable for use with PVC pipe box risers. The 6 inch diameter cover shall be marked " Water". The PVC riser pipe shall be furnished in lengths as required (minimum pipe cover 42") PVC pipe for valve box riser may be ASTM C-900, ASTM D1785 schedule 40, ASTM D2241 pressure class 125 or ASTM D3034 DR 35. Valve boxes shall have a concrete ring 8" thick and having a radius equal to the radius of the valve box plus one foot (1') cast around them. Valve boxes placed in unpaved areas shall be set level with or slightly higher than the finished ground elevation. Valve boxes set in paved areas shall match the finished pavement surface.

3.6 Fire Hydrants

A. Fire hydrants shall conform to the requirements of AWWA C 502 dry barrel type. The fire hydrants shall be designed for a depth of bury of 4.5 feet, however the depth of bury may vary according to field conditions and extensions or shorter bury depth may be required.

B. The hydrants shall have a 5-l/4 inch valve opening, two 2-l/2 inch hose nozzles and one 4-l/2 inch pumper nozzle.

C. Hose threads shall be National Standard threads.

D. The hydrants shall be sized for 6-inch mains and shall have an inlet connection compatible with the type pipe used. All gaskets, nuts, bolts and other jointing materials shall be considered part of the fire hydrant installation.

E. Operating nut shall be standard l-l/2 inch pentagon opening counter-clockwise. The hydrant shall close with the pressure.

F. Hydrants shall be painted Federal Safety Yellow.

G. Fire hydrants shall have all interior wetted ferrous surfaces epoxy coated as required in the general and coating section of this item.

H. The hydrants shall have a minimum of two (2) drain holes located on opposite sides of the hydrant. The entire drainage channel must be made of non-corrosive material and sealed by acceptable resilient material (metal and/or leather seals are not acceptable).

I. The hydrants shall have a breakable safety flange and breakable stem coupling which breaks cleanly upon impact.

J. The hydrants shall be AWWA improved type hydrants and shall have self-oiling reservoirs.

K. Fire hydrants shall be the Mueller Centurion, the Dresser -M & H 929 Reliant, or The American Darling.

4. EXCAVATION, TRENCHING BEDDING AND BACKFILLING

4.l Trenching

A. The trench shall be excavated to the lines and grades as established by the engineer and as shown on the plans. The depth of cover for all main lines on which the grades and elevations are not shown on the plans, shall in general be Forty-two (42) inches. The amount of cover may vary over or under 42 inches as directed by the engineer but in no case will the amount of cover be less than thirty-six (36) inches. Depth of cover for service lines shall be as shown on the detail drawings.

B. Water lines constructed in proposed streets and service drives shall have the depth of cover measured from the finished grade. The contractor is hereby cautioned that proposed street finished grades are sometimes cut below the existing ground elevation.

C. The minimum width of the trench shall be the outside diameter of the pipe plus twelve (l2) inches for pipe diameter through l8", the outside diameter of the pipe plus eighteen (l8) inches for pipe diameters over l8". The trenching equipment shall be maintained on a sufficiently level road bed to provide substantially vertical trench walls. The maximum horizontal offset of the trench wall from bottom of trench to the top of the trench (under-cutting) shall be four (4) inches.

D. The trench shall be over excavated to an even grade to the depth of required bedding so that the bottom of the pipe will rest on a uniform thickness of bedding material on the bottom of trench throughout the entire length of the pipe. In order to obtain a true even grade, the bedding material shall be fine graded by hand. On lines that are to be laid to established grades batter boards shall be set at fifty foot intervals and the trench graded to the established grade.

E. Any part of the trench excavated below grade shall be corrected by filling with bedding material. The bedding material shall be thoroughly compacted.

E. If large rock, rock fragments or other unyielding materials are encountered in the bottom of the trench they shall be removed to a depth of six inches below grade, and the void filled with thoroughly compacted approved bedding material.

G. Bell holes of ample dimensions shall be dug at each joint to permit the jointing of pipe to be made properly and of sufficient depth to prevent the bell of the pipe from resting on undisturbed materials.

H. Wherever necessary to prevent caving, the trench shall be adequately braced and sheeted. Trench safety shall be in accordance with item l4 "Shoring and Sheeting of this specification.

I. Trench digging machinery may be used to make the trench excavations except in places where operation of same would cause damages to trees, buildings or other existing structures either above or below ground. In such instances hand trenching methods shall be employed.

J. All excavated material shall be stockpiled in a manner that will not endanger the work or existing structures and that will cause the least amount of obstructions to walks and driveways.

K. There will be no classification of the excavated materials and the term excavation shall include all materials encountered in excavating the trenches or structural excavations.

L. The contractor shall take all necessary precautions for protecting paved areas from being damaged by the trenching and backfilling equipment. Any damage done to any paved area, outside of the area set forth in the plans, as a result of the construction work shall be repaired by the contractor at his own expense.

M. Where the lines are located behind curbs, the contractor shall take special precautions to protect trees and shrubs. Care shall be exercised to cause as little damage to lawns as possible.

Where lines cross under curbs, gutters or curbs and gutters, tunneling will be required.

N. Blasting for excavation of solid rock will be permitted only after securing the

approval of the Director of Engineering and Transportation and the engineer and only when proper precautions are taken for protection of persons and property. The hours of blasting will be fixed by the engineer. Any damage caused by blasting shall be paid for by the contractor. The method or procedure relative to blasting shall conform to all state laws and local ordinances.

O. The contractor will be required to locate all known utility lines, including consumer service lines, far enough in advance of the trenching to make proper provisions for protecting the lines and to allow for any deviations that may be required from the established lines and grades.

P. The contractor shall not be allowed to disrupt the service on any utility lines except consumers service lines, which may be taken out of service for short periods of time, if the contractor obtains permission from the engineer and from the owner of the premises being served by the utility.

Q. The contractor shall immediately notify the proper utility company of any damage to utility lines, in order that service may be reestablished with the least possible delay. Repair of any damage to existing lines and the repair of consumer lines which are authorized to be cut or temporarily taken out of service shall be made by the contractor at his own expense, and as directed by an official representative of the utility company involved.

R. All utility lines shall be properly supported to prevent settlement or damage to the line both during and after construction.

S. Any permanent relocations of existing utility lines shall be done by the proper utility company without expense to the contractor.

4.2 Backfill General

A. All pipeline excavations shall be backfilled in a manner that will restore pre-existing conditions as the minimum requirement and fulfill all supplementary requirements indicated in the Plans and Specifications. The backfilling operations shall be started as soon as conditions will permit on each section of pipeline to provide continuity in subsequent operations and restore normal public service as soon as practicable on a section-by- section basis. All operations shall be pursued diligently, with proper and adequate equipment, to assure acceptable results.

B. Depositing of the backfill shall be done so the shock of falling material will not injure the structure. Grading over and around all parts of the work shall be done as directed by the Engineer.

C. Whenever soil types which are determined by the Inspector to be undesirable for backfill are excavated from the trench, such material shall be hauled away and deposited where directed by the Inspector at no additional compensation.

D. In the absence of special work item requirements the backfilling shall be accomplished with the use of suitable materials selected from the excavated

materials to the extent available and practical. Should the materials available from the trench section be unsuitable or insufficient, the required additional materials shall be furnished from outside sources at the Owners expense.

E. Suitable material shall be defined as a mineral soil reasonable free of foreign materials (rubbish, debris, etc.) frozen clumps, oversize stone, rock, concrete or bituminous chunks and other unsuitable materials, that may damage the pipe installation, prevent thorough compaction, or increase the risks of after settlement unnecessarily. Material selection shall be such as to make the best and fullest utilization of what is available, taking into consideration particular needs of different backfill zones. Material containing stone, rock, or chunks of any sort shall only be utilized where and to the extent there will be no detrimental effects.

F. Backfill materials shall be carefully placed in relatively uniform depth layers spread over the full width and length of the trench section in a manner and/or sequence that will provide simultaneous support on both sides of the pipeline. Each layer shall be compacted effectively, by approved mechanical of hand methods, until there is no further visual evidence of increased consolidation. Compaction of the in place layer shall be completed acceptably before placing material for a succeeding layer thereon. The manner of placement, layer thickness, compaction equipment, and procedure effectiveness shall be subject to approval of the Engineer. Water jetting or flooding shall NOT be used to compact trench backfill.

G. Within the pipe bedding and encasement zones described as that portion of the trench which is below an elevation one foot above the top of the pipe, the materials placed shall be limited in particular size to 3/4 inch maximum. For larger pipe in access of 18 inches in diameter the Engineer may allow particle sizes up to 2 inches maximum if it can be shown that the backfill can be satisfactorily compacted without leaving voids or damaging pipe or joints. Above these zones, the placement of material containing stones, boulders, chunks, etc. shall be governed by the layer thickness and compaction equipment capabilities.

H. Compaction of materials placed within the pipe bedding and encasement zones shall be accomplished with portable or hand equipment methods to achieve thorough consolidation under and around the pipe and avoid damage to the pipe. Above the pipe zone material, the use of heavy roller type compaction equipment shall be limited to safe pipe loading.

I. The maximum loose thickness of each backfill layer shall be l2 inches, except that l6 inches will be permitted for Granular Materials placed above an elevation one foot above the top of pipe, and with the provision that, by authority of the Engineer in consideration of the demonstrated capability of special type vibratory compactors, these maximums may be increased at his discretion. "Hydro tamps" or "vibra tamp: or other heavy vibrating equipment shall not be used until the backfill has reached a depth of four (4) feet above the top of the pipe.

J. All surplus or waste materials remaining after completion of the backfilling operations shall be disposed of in an acceptable manner within 24 hours after

completing the backfill work on each particular pipeline section. Disposal at any location within the project limits shall be as specified, or as approved by the Engineer; otherwise, disposal shall be accomplished outside the project limits at the Contractor's discretion. The backfilling and surplus or waste disposal operations shall be a part of the work required under the pipeline installation items, not as work that may be delayed until final cleanup.

K. Until final acceptance of the project, the Contractor shall assume full Responsibility and expense for all backfill settlement and shall refill and restore the work as directed to maintain an acceptable surface condition. All additional materials required shall be furnished without additional cost to the Owner.

4.3 Backfill Procedure above Pipe Zone, in Public Rights-of-way and other areas where settlement is important.

A. Backfill above the pipe zone shall be made using Portland cement stabilized backfill or crushed stone screening (crusher fines).

B. Backfill around structures such as manholes, junction boxes, transformer boxes and valve boxes shall be made using portland cement stabilized backfill material or crushed stone screening (crusher fines).

C. The minimum depth of stabilized backfill or crusher fines shall be twelve (12") inches.

When utilities are being constructed under existing paving, the stabilized backfill or crusher fines shall extend from top of the pipe zone to the top of the base course.

When utilities are being constructed under existing unpaved streets that are not scheduled for immediate pavement construction, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the existing roadway surface.

When utilities are being constructed in new streets that are scheduled for immediate paving or in streets in a new subdivision for which a paving contract with the property developer has been approved the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the bottom edge of the eight (8") inches of subgrade, or, if the paving contractor has constructed a portion of the roadway prior to the construction of the utilities stabilized backfill shall extend to the top of the course the contractor has finished. In no case shall the backfill extend above the top of the base course.

If the final course of asphaltic concrete has been placed, the street or alley surface shall **NOT** be cut for utility installation.

In new streets where stabilized backfill is required only to the bottom of the subgrade course, the minimum depth of stabilized backfill may be reduced to six (6") inches in which case the maximum depth of the "pipe zone" shall be limited to six (6") inches above the top of the utility line or conduit.

D. Backfill Materials

(1) Portland cement stabilized backfill shall consist of caliche base material, blow sand or native soil stabilized by the addition of Portland cement. Crushed stone or concrete aggregate shall **NOT** be used.

The Contractor shall submit a mix design prepared by an approved Commercial Laboratory that will produce a minimum 7 day compressive strength of 150 psi. In no case shall the minimum cement content of the mix be less than 1 sack per cubic yard.

(2) Cement used in Portland cement stabilized backfill shall be Type I or Type II conforming to the requirements of ASTM Designation C150.

(3) Caliche used for Portland cement stabilized backfill shall be crushed material con-forming to Texas State Department of Highways and Transportation 1982Standard Specifications for Construction of Highways, Streets and Bridges Item 248 Type F, Grade 2.

(4) Blow sand used for Portland cement stabilized backfill shall be clean, free from organic matter, clay lumps, rock and other deleterious matter.

(5) Native soil used for Portland cement stabilized backfill shall be clean, free from clods and organic matter, and rock in excess of 2".

(6) Crushed stone screening (crusher fines) used for back fill shall be sharp grained particles of crushed stone conforming to the following gradation

Sieve Size	% Passing
2"	100
#4	35-100
#10	20-100
#40	5-35
#200	4-10

and may be the by product of crushing stone for other purposes or may be stone specifically crushed for use in backfill. Crusher fines not meeting these specifications may be approved for backfill upon demonstration that the desired results will be obtained.

E. Backfill Construction

(1) Portland cement stabilized caliche backfill or Portland cement stabilized native soil backfill may be constructed using either the "dry" method or the "wet" method.

(a) The dry method of stabilized backfill construction consists of dry mixing of the cement and caliche, sand or soil to produce a homogenous mixture then adding and mixing sufficient water for proper compaction and hydration of the cement. The water content of the mixture will be approximately one to two percent above the optimum moisture for soil compaction. The mixing may be accomplished by using batch mixers or on the job site by "blade Mixing" or other suitable method to produce the desired backfill material. The mixed material shall be placed in lifts of up to a maximum of 12 inches and compacted to ninety five (95%) modified proctor density by use of suitable compacting equipment.

(b) In the "wet" method of cement stabilized backfill construction, the materials shall be mixed in an approved concrete batching plant or mixer to the consistency of concrete and placed as concrete would be placed. The slump of the backfill material shall be such that all voids will be filled, approximately four (4") to six (6") inches. The backfill shall be consolidated by rodding or by the use of mechanical vibrators.

(c) The mix design used must be for the method of placement chosen.

(2) Portland cement stabilized blow sand backfill shall be mixed and placed by the "wet" method as described above.

(3) Crushed stone screening (crusher fines) shall be wetted uniformly throughout with sufficient moisture to assure proper compaction before being placed in the trench.

The moistened crushed stone screening (crusher fines) shall be placed in maximum lifts of twelve (12") inches and consolidated using vibratory type compaction equipment except when it has been demonstrated that the compaction equipment employed will adequately compact deeper lifts in which case the maximum depth of a lift shall be limited by the capabilities of the equipment used.

Tests to determine the compacted density of the backfill shall be ordered by the Engineer if in his opinion the compaction is not adequate. Test showing a minimum compacted density of 90% modified proctor will be deemed adequate compaction.

5. INSTALLATION OF DUCTILE IRON PIPE

5.1 Pipe Laying - General

A. All pipe and accessories shall be unloaded, handled, laid, jointed, tested for defects and for leakage and chlorinated in the manner herein specified.

B. The pipe, fittings, valves, and accessories shall be inspected upon delivery and during the progress of the work and any material found to be defective will be rejected by the engineer and the contractor shall remove such defective material from the site of the work.

C. The contractor shall be responsible for all material furnished by him and he shall replace at his own expense all such material that is found to be defective in manufacturer or has become damaged in handling after delivery.

D. All pipe, fittings, valves, and other accessories shall, unless otherwise directed, be unloaded at the point of delivery, hauled to and distributed at the site of the work by the contractor. Loading and unloading, of pipe and fittings shall be by hoisting or by sliding, or rolling on skidways in such a manner as to avoid shock or damage to the material. Under no circumstances shall pipe or fittings be dropped. Pipe handled on skidways must not be skidded or rolled against pipe already on the ground.

The pipe, fittings and accessories shall be placed along the site in such a manner as to be kept as free as possible from dirt, sand, mud, and other foreign matter.

E. All pipe shall be laid and maintained to the lines and grades shown on the plans
or as established on the ground by the engineer.

F. Wherever it is necessary to deflect pipe from a straight line either in a vertical or horizontal plane to avoid obstructions, to plumb valves and hydrants, or where vertical or horizontal curves are shown or permitted, the degree of deflection at each joint shall not exceed the maximum deflection recommended by the manufacturer of the particular kind of pipe being laid and the degree of deflection shall be approved by the engineer.

G. After the trench grade has been completed and all bell holes dug and the grade inspected, the pipes and accessories my be placed in the trench. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of derricks, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to the material in any way. Under no circumstances shall pipe or accessories be dropped or dumped in the trench.

H. Before lowering into trench the pipe shall be again inspected for defects and the pipe while suspended shall be lightly hammered to detect cracks. Any defective, damaged or unsound pipe and materials shall be rejected.

I. All foreign matter or dirt shall be removed from the inside of the pipe and from all bells, spigots or parts of the pipe used in forming the joint, before the pipe is lowered into the trench, and it shall be kept clean by approved means during and after laying.

5.2 Laying and Jointing Ductile Iron Pipe

A. Unless otherwise directed, pipe shall be laid with bells facing in direction of laying; and for lines on appreciable slopes, bells shall, at the discretion of the engineer, face up grade. Cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or the cement lining.

B. The jointing shall be completed for all pipe laid each day. No open joints will be left in the trench overnight. At times when pipe laying is not in progress, the open ends of pipe shall be closed by approved means. No trench water shall be permitted to enter the pipe.

C. No pipe shall be laid in water, or when the trench conditions or weather is unsuitable for such work, except by written permission of the engineer.

D. Rubber Gasket joints for cast iron or ductile iron pressure pipe and fittings shall conform to AWWA Standard C-lll.

E. Before laying the pipes, all lumps, blisters and excess coal tar coating shall be removed from the bell and spigot ends of each pipe; the outside of the spigot and the inside of the bell shall be wire brushed and wiped clean and dry. Pipe ends shall be kept clean until joints are made.

F. The pipe and fittings shall be properly aligned and free to move in any direction while bolting, and the bolts shall be gradually tightened at a uniform rate around the entire flange.

G. Flange joints where used shall be bolted with flange bolts of best quality mild steel and of the size and length required by AWWA C-ll5: Bolts and nuts shall be provided with standard hexagonal heads. Gasket rings shall be used and shall be made of best quality rubber composition sheet packing one-eighth (l/8) inch thick, of a brand and quality approved by the engineer.

H. Standard plugs shall be inserted into the bells of all dead end pipes, tees, or crosses and spigot ends shall be capped. Plugs or caps shall be jointed to the pipe or fittings in the same manner used in joining the pipe.

6. SPECIFICATIONS FOR INSTALLING PRETENSIONED CONCRETE CYLINDER PIPE

6.l General

The applicable portions of the specifications for installing ductile iron pipe shall apply except as amended or supplemented herein.

6.2 Pipe Laying

A. Pipe and fittings shall be handled with care at all times to avoid damage. They shall be lifted by hoists or slide or rolled on skid-ways in such manner as to avoid shock. Under no circumstances shall they be dropped. Pipe must not be skidded or rolled against other pipe or object.

B. Just before making the joint, the bell and spigot rings shall be thoroughly cleaned by wire-brushing until clean and dry. The gasket and the inside surface of the bell shall be lubricated with a light film or soft vegetable soap compound (flax soap) to facilitate telescoping the joint. The rubber gasket shall be stretched uniformly as it is placed in the spigot groove to insure a uniform volume of rubber around the circumference of the groove.

C. The joint shall be telescoped by pulling directly along the centerline of the pipe so that the spigot enters squarely into the bell. After the spigot has been telescoped into the bell, the bell end of the pipe being laid shall be moved in accordance with the plans to secure proper grade and alignment. After the joint is in place, a thin metal feeler gauge shall be used to check the position of the rubber gasket around the circumference of the joint.

D. The inside joint recess shall be filled immediately prior to placing the pipe together by buttering the bell end with mortar. After the joint is engaged, the joint mortar of pipe l8" in diameter and larger shall be finished off smooth by hand. The mortar in pipe smaller than l8" in diameter shall be smoothed and cleaned with a swab.

E. After the spigot has been telescoped into the bell, the joint checked and found satisfactory, a canvas wrapper shall be placed around the pipe, covering the joint. The canvas type wrapper shall be of the quality manufactured by the Mar-Mac Manufacturing Company or approved equal burlap type, and shall be hemmed at each edge to allow threading with a steel strap to securely fasten the wrapper around the pipe by means of a stretcher and sealer.

The wrapper shall have a minimum width of 7" and sufficient length to encircle the pipe leaving enough space between the ends at the top to allow the cement mortar to be poured. The entire joint shall be poured with cement mortar and rodded or agitated to eliminate voids and settlement. Prior to pouring the cement mortar the joint shall be thoroughly cleaned and saturated with clean water. Any joint showing shrinkage or excessive cracking shall be cleaned and remade. In hot weather,

additional measures may be required to obtain the best quality of joint, such as additional wet burlap, curing membrane, or immediate careful and well controlled backfilling of the joint with damp earth.

F. The mortar used at the exterior joint shall consist of one part Portland cement to 2-l/2 parts fine, sharp, clean sand and mixed with water to the consistency of thick cream. Mortar required at the joint shall not be placed in freezing weather unless adequately protected from freezing.

G. The joints for pipe to be installed in casing shall be made as for pipe laid in trench except that the outside portion of the joint shall be wrapped in a special polyurethane wrap impregnated with unhydrated cement manufactured for this purpose, prior to being jacked into the casing pipe. The wrap shall be "Flex-Protex" as manufactured by Mar-Mag Mfg. Corporation or approved equal. The interior of the joints shall be mortared after the pipe to be installed in casing has been jacked into place. The pipe shall not be moved after interior mortaring is completed. After the water line has been installed in the casing the ends of the casing shall be sealed using concrete or cement mortar.

H. Steel cylinder reinforced concrete pipe shall not be pressure tested until it has been in place a minimum of l4 days.

I. The contractor shall fill the steel cylinder reinforced concrete pipe under slight pressure and allow approximately 24 hours for water absorption by concrete lining before performing pressure test.

7. SETTING VALVES, VALVE BOXES, FIRE HYDRANTS AND FITTINGS

7.1 General

Valves and fittings shall be set at the locations shown on the plans or at locations as established by the engineer, and shall be set and jointed to the pipe in the manner heretofore specified for pipe installation. All valves buried in the ground shall have a cast iron valve box set over the valve and set to grade. All valves shall be set vertical, unless otherwise specified, and shall be thoroughly inspected and checked for operation before installation.

7.2 Valve Boxes

Cast Iron valve boxes shall be firmly supported and maintained centered and plumb over the wrench nut of the valve, with box cover flush with the surface of the ground or street paving.

Valve boxes shall be supported by a ring of concrete as shown on the plans and Detail Drawings. This ring shall be Class "A" concrete having a minimum thickness of six (6") inches and shall extend a minimum of twelve (12") inches in all directions from the outside diameter of the valve box and shall be supported on thoroughly compacted backfill.

7.3 Setting Fire Hydrants

A. Fire hydrants shall be located at points shown on the plans, the exact location of the hydrant to be established by the engineer. All hydrants shall be set plumb, to the grade as established by the engineer, and shall have their nozzles parallel with and/or at right angles to the curb, with the pumper nozzle facing the curb. The hydrants shall be supported in such a manner as not to cause a strain on the fire hydrant lead or branch.

The bowl of the hydrant shall be well braced against unexcavated earth at the end of the trench with concrete blocking. The concrete blocking shall be placed so as not to interfere with the hydrant drains and so that the joints or flanges are accessible.

B. Each hydrant shall be connected to the main with a six (6) inch ductile iron branch controlled by an independent six (6) inch gate valve. Each hydrant shall be set upon a stone or concrete slab not less than four (4) inches thick and not less than one square foot of surface area. Where solid rock exists in the bottom of the trench and same is excavated to the proper depth to form a foundation for the hydrant, the slab of stone or concrete may be omitted.

C. There shall be placed around the base of the hydrant not less than seven (7) cubic feet of sound broken stone or clean gravel, or other suitable material to provide reservoir capacity so that the hydrant will completely drain when closed. The gravel or broken stone shall reach from the bottom of the trench to at least six (6) inches above the waste opening in the hydrant. Each hydrant shall be operated by the contractor to prove to the inspector that the drain hole has not been plugged with concrete or other material.

8. **ANCHORAGE OF BENDS, TEES AND PLUGS, ETC.**

Reaction or thrust blocking shall be applied to all pipe lines at all tees, plugs, caps, valves, fire hydrants, and at bends deflecting ll-1/4 degrees or more. Concrete shall be used for blocking the pipe and fittings. Concrete for thrust block shall have a minimum compressive strength of 3,000 psi and shall conform to Texas Highway Department Class "A" concrete. Before thrust blocking is placed the element to be blocked shall be carefully wrapped in polyethylene sheeting having a minimum thickness of 3 mils. The blocking shall be placed between solid ground and the fitting to be anchored; the area of bearing on pipe and on the ground in each instance shall be that required by the engineer. The blocking shall be so placed that the pipe and fitting joints will be accessible for repair.

9. DISINFECTION OF PIPE LINES

The contractor shall furnish all labor, equipment, and materials necessary to the disinfecting of the new pipe lines which shall be disinfected before being placed in service. The lines shall be disinfected by the application of a chlorinating agent. The chlorinating agent may be a liquid chlorine, liquid chlorine gas water mixture, or a calcium hypochlorite solution, which shall be fed into the lines through a suitable solution feed device, or other methods approved by the engineer. The chlorinating agent shall be readily dissolvable and of a type that will rapidly mix with the water as it is loaded into the water line. Tablets or other solid form shall not be used unless they are dissolved before being placed into the line. The chlorinating agent shall be applied at or near the point from which the line is being filled, and through a corporation stop or other approved connection inserted in the horizontal axis of the newly laid pipe. The water being used to fill the line shall be controlled to flow into the section to be disinfected very slowly, and the rate of application of the chlorinating agent shall be in such proportion to the rate of water entering the pipe that the chlorine dose applied to the water entering the line shall be at least 50 parts per million. The treated water shall be retained in the pipe lines for a period of not less than twenty four (24) hours. At the end of the retention period all treated water shall be thoroughly flushed from the lines until the replacement water in the lines shall have a chlorine residual of not more than 0.2 parts per million. Where it is necessary to place the new lines in service in less than 24 hours, the concentration of chlorine may be increased to 300 ppm and the lines flushed and placed in service in 3 hours. Disinfecting procedures shall conform to AWWA C 60l.

l0. HYDROSTATIC TESTS

All pipe lines constructed under this contract before being accepted, shall be tested at l20% design pressure as described in the following paragraphs. This test shall apply to all newly laid pipe or any valved sections thereof.

The required test pressure (l80 pounds per square inch) shall be maintained over a continuous period of not less than eight (8) hours.

Each valved section of pipe shall be slowly filled with water, being certain that all air is expelled from the pipe by using hydrants, blow-offs or taps at points of highest elevation in the line. The specified pressure shall be applied by means of a pump and flow meter (gpm and amount) connected to the pipe in a manner satisfactory to the engineer. The contractor shall furnish all necessary equipment, materials and labor to satisfactorily make the hydrostatic tests.

After the line section to be tested has been brought to pressure, a visual inspection shall be made of all joints, fittings, valves, and appurtenance. Any leaks thus located shall be corrected before continuing with the test.

If the test indicates a leakage in excess of a rate equal to twenty-five (25) gallons per inch of nominal diameter of pipe line per mile per day (maximum 600 gallon per mile per day total leakage) the cause of such leaks shall be determined and corrected and the line retested until satisfactory results are obtained.

11. **REMOVING AND REPLACING PAVEMENT**

A. When it is necessary to cut existing paving to install utilities the paving shall be repaired as soon after the backfill is consolidated or the cement stabilized backfill has reached sufficient strength as practical. The repair shall be made using Texas Highway Department Type "D" Hot Mix Asphaltic Concrete and shall have a minimum thickness equal to the thickness of the existing surface.

B. Edges along the trenches and around pits shall be saw cut to remove damaged edges and/or surface. Saw cuts shall be straight and parallel to or at right angles to the street or alley center line in so far as practical. Meandering, zig-zag or notched saw lines will not be permitted. The saw cuts shall be such that a minimum of 6" of surface is removed beyond the edges of the trench.

C. The edges of the saw cut and surface of the backfill material shall be tack coated prior to the placing of hot mix asphaltic concrete. The tack coat shall be either RC-250 cut back asphalt or RS2h emulsified asphalt or approved equal. When emulsified asphalt is used for tack coat the asphaltic concrete shall not be placed until the break of the emulsion is complete and all free water has evaporated or has been removed.

D. After the tack coat is cured the hot mix asphaltic concrete shall be placed uniformly throughout the repair area. The edges of the repair shall be squared up and the hot mix asphaltic concrete thoroughly compacted. Any large aggregate that is separated from the mix during the leveling process shall be removed from the surface and disposed of off the project. Care shall be taken that none of the mix over laps the old paving. Any mix that has "scabbed" onto the paving shall be removed before the section is reopened to traffic.

Sufficient mix shall be placed so that the finished repair is from one eight (1/8") inch to one quarter (1/4") inch above the old paving surface to allow for further consolidation by traffic.

12. **TUNNELING UNDER UTILITY LINES, ETC**.

Where pipes, conduits or concrete curbs, gutters or other obstructions are encountered in the construction, the cost of tunneling under such obstructions shall be included as a part of the cost of the pipe line, or other pay items, complete in place.

13. **HIGHWAY CROSSING**

A. The City of Midland will obtain any required permits from the State Highway Department for installation of the water line along and across the highway right-of-way. It shall be the contractor's duty and responsibility to coordinate the time of making the crossing and the manner of handling traffic.

B. Installations of the casing pipe shall be accomplished by boring or open cut trench as indicated on the drawings and in accordance with the Texas Department of Transportation permit and requirements. Equipment used shall be of such size and capacity as to allow the placement of the casing to proceed in a safe and expeditions manner. Installation of the casing and the excavation and removal of the materials

within the casing shall proceed simultaneously.

The boring shall proceed from a pit provided for the boring equipment and workmen. Excavation and location of the pit shall be approved by the Engineer. Boring without the concurrent installation of the casing pipe will not be permitted. The use of water or other fluids in connection with the boring operation will be permitted only to the extent of lubricating cuttings. Jetting will not be permitted. Overcutting in excess of one inch shall be remedied by concrete pressure grouting the entire length of the installation. All joints for casing pipe installed in bore shall be welded. Care shall be taken to keep the casing pipe on the proper line and grade.

C. After the casing pipe has been installed and is accepted by the Engineer, the pipe shall be shoved through the casing. The pipe shall be pushed or pulled through the casing by exerting pressure on the barrel of the pipe and not on the bell, and shall be done in such a manner that the joint is always in compression during the shoving operation. Hardwood, or other suitable material skids shall be banded with stainless steel bands to each joint of pipe In accordance with the pipe manufacturers recommendation. The hardwood skids shall be of sufficient dimensions to allow the bell of the pipe to clear the casing pipe by at least one-half inch. The length of the skid shall be in accordance with the pipe manufacturers recommendations. A minimum of three bands shall be used to secure the skids to the pipe. The skids shall be such that the carrier pipe will be centered in the casing pipe. The design of skids and bonding techniques shall be submitted to the Engineer for approval prior to use.

In general waterline installation in the casing pipe shall conform to AWWA C 600-Section 6 requirements.

After completion of pipe installation in casing, the ends of the casing shall be sealed off by use of concrete grout. The minimum compressive strength of the grout shall be 2,000 psi in 28 days.

14. **SHORING & SHEETING**

14.1 Description

This item shall govern for the Trench Safety Systems required for the construction of all trench excavation to be utilized in the project and including all additional excavation and backfill necessitated by the safety system. A trench shall be defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. The depth is five feet or more.

Trench Safety Systems include but are not limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, dewatering or diversion of water to provide adequate drainage.

l4.2 Construction Methods

Trench safety systems shall be accomplished in accordance with the detailed specifications set out in the provisions of Excavation, Trench, and Shoring, Federal Occupational Safety and Health Administration (OSHA) Standards, 29CFR, Part 1926, Subpart P, as amended, including Proposed Rules published in the Federal Register (Vol. 52, No. 72) on Tuesday, October 31, l989. The sections that are incorporated into these specifications by reference include Sections 1926-650 through 1926-652. Legislation that has been enacted by the Texas Legislature, being Tex. Rev. Civ. Stat. Ann. arts. 1015q, 2368a.6 (Vernon Supp. 1988) with regard to Trench Safety Systems, is hereby incorporated, by reference into these specifications.

A reproduction of the OSHA Publication 2226 is attached for the convenience of the Contractor. The City assumes no responsibility for the accuracy of the reproduction or that it reflects current law. The Contractor is responsible for obtaining a copy of this section of the Federal Register for his use.

If the contractor elects to use a trench protective system that, in the Proposed Rules, requires "Design by a qualified person or a qualified engineer," [For example see 1926.652(b) (3) and 1926.652(c) (4)], "a qualified person or qualified engineer" shall be a Professional Engineer registered in the State of Texas. The Contractor is responsible for obtaining boring and soil analysis as required for the planned design. The trench excavation is to be designed in conformance with OSHA standards and regulations.

14.3 Safety Program

The Contractor shall submit a safety program specifically for the construction of trench excavation. The trench safety program shall be in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

14.4 Inspection

The Contractor shall make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. Daily inspection is to be made by a "competent person" provided by the Contractor. If evidence of possible cave-ins, or slides, is apparent, all work in the trench shall cease until the necessary precautions have been taken by the Contractor to safeguard personnel entering the trench. It is the sole duty, responsibility and prerogative of the Contractor, not the owner or the Engineer, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project. The Contractor shall maintain a permanent record of daily inspections.

14.5. Safety Restrictions - work near high voltage lines

The following procedures will be followed regarding the subject item on this contract:

A. Warning signs painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

B. All equipment except back hoes or dippers that may be operated within ten feet of high voltage lines shall have an insulating cage-type of guard about the boom or arm and insulator links on the lift hook connections.

C. When necessary to work within six feet of high voltage electric lines, notification shall be given the power company who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

D. The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

l5. MEASUREMENT AND PAYMENT

l5.l General

The unit price or lump sum price bid on each item, as stated in the proposal, shall include furnishing all labor, superintendence, machinery, equipment, and materials necessary to complete the various items of work in accordance with the plans and specifications. Cost of work or materials shown on the plans and called for in the specifications and on which no separate payment is made shall be included in the bid price on the various pay items.

l5.2 Water Lines

A. Measurement

The length of pipe lines for the various sizes, classes and types to be paid for will be determined by measurement along the center lines of the pipe installed, measurement being made from the center of fitting to center of fitting or end of pipe, without any deduction for the length of intermediate fittings or valves including pipe installed in casing.

B. Payment

Furnishing and installing approved type pipe of the various sizes and classes shown on the plans or as required will be paid for at the unit price bid per linear foot for furnishing and installing the various sizes and classes of approved pipe complete in place. The unit price bid shall be complete compensation for furnishing and installing the pipe complete in place including all excavation, backfilling, testing and disinfection of lines and shall include any and all incidental work not otherwise included in the bid items or otherwise provided for in the specifications.

l5.3 Solid Rock Excavation

All excavation for pipe trenches shall be unclassified and no extra compensation will be made for solid rock excavation. The contractor is expected to make boring of his own and satisfy himself to the character of material which will be encountered.

l5.4 Gate Valves or Butterfly Valves

A. Measurement

Gate valves or butterfly valves will be counted in the field after installation by the size and type specified and actually installed.

B. Payment

The unit price bid for each type and size valve shall be complete compensation for furnishing and installing the valves, complete in place, including the furnishing and installation of cast iron valve boxes on all valves to the finished grade of the adjacent surface. All valves in paved areas shall be set to finish pavement grades

l5.5 Fire Hydrants

A. Measurement

Fire hydrants will be counted in the field after installation in accordance with the plans and specifications.

B. Payment

The unit price bid shall be complete compensation for furnishing and installing the fire hydrants, complete in place, each, including lead pipe the gravel drain, concrete blocking, extension or additional bury depth as required for a complete installation.

I5.6 Service Connections

A. Measurement

The number of service connections of the type and size specified to be paid for will be counted in the field after complete installation.

B. Payment

The unit price bid shall be complete compensation for furnishing and installing the service connections, complete in place, including the meter box and lid, service line, corporation stop, meter stop and incidentals required for a complete installation.

I5.7 Ductile Iron Fittings

A. Measurement

The weight of the various ductile iron fittings and specials were estimated by using the standard weights for cast iron fittings as established by the American Water Works Association or American Standard Association. Measurement of ductile iron fittings will be made by counting the actual number of fittings installed and multiplying the number of fittings by the catalog weights for those types of fittings actually installed. Allowance will be made for glands and bolts.

B. Payment

The ductile iron fittings or specials required in the construction of the various size pipe lines as shown on the plans or as required will be paid for at the unit price bid per ton for furnishing and installing the ductile iron fittings complete in place. The unit price shall also include all materials, excavation, backfilling, concrete blocking and other incidental work required for the complete installation.

I5.8 Steel Cylinder Concrete Pipe Fittings

A. Measurement

No separate measurement or count of fittings and specials for steel cylinder concrete pipe will be made.

B. Payment

No separate payment will be made for fittings or specials for steel cylinder concrete pipe used on this project, but the cost of same shall be included in the price bid per linear foot for the various classes and sizes of pipe in the bid proposal.

l5.9 Casing Pipe In Bored Hole Or Open Cut

A. Measurement

Measurement of the casing pipe, of the type and size specified, shall be made by the linear foot of casing installed complete in bored hole or installed complete in open cut.

B. Payment

The unit price bid per linear foot for casing in bored hole or for casing in open cut shall be complete compensation for furnishing and installing the casing, complete in place, including all pits, boring equipment, materials and labor required for a complete installation. Payment for carrier pipe installed in the casing will be made as stated under Waterlines above.

l5.l0 Paving Cut and Repair

A. Measurement

Measurement of paving cut and repair will be made by the square yard for replacing pavement of the type specified. The area of the pavement replaced shall be determined by actual measurements on the ground; however, measurement will be limited to areas within widths of cuts as shown on the plans unless additional widths are authorized by the engineer. Any pavement removed or damaged outside of the aforementioned limits shall be replaced as prescribed with these specifications, but will not be measured for payment.

B. Payment

The unit price bid, per square yard, shall be complete compensation for cutting and removing the pavement, and constructing the concrete base and surfacing of the type specified, all as specified herein and as shown on the plans.

15.ll Trench Safety Systems, Sheeting and Shoring

A. Measurement

Trench Safety Systems shall be measured by the linear foot along the centerline of trench including manholes and other line structures.

B. Payment

Payment for Trench Safety Systems, measured as prescribed above, shall be made at the unit price bid per linear foot of "Trench Safety Systems: Payment of all work prescribed under this item shall be full compensation for the Trench Safety Systems including all Engineering cost and any additional excavation and backfill required, for furnishing, placing, maintaining and removing all shoring, sheeting, or bracing; for dewatering or diversion of water; for all jacking and jack removal; and for all other labor, materials, tools, equipment and incidentals necessary to complete the work.

Revised 08/07

GRAVITY FLOW PIPE SEWERS AND FITTINGS
FOR WASTE WATER AND STORM WATER

PART I – GENERAL

1.01 SCOPE

A. The work covered by this specification shall include the furnishing of all material, labor and equipment to construct, complete in place, all Gravity sewers including jointing, gaskets, fittings, castings, mortar, concrete, the placing of sewer pipe, and the construction of manholes and other appurtenance, all in accordance with the details shown on the plans and these specifications for the drainage of sanitary and/or storm sewage.

B. Sanitary and storm sewer lines constructed under these specifications shall be straight in grade and alignment between manholes. Manholes shall be constructed at any change in grade and at any change in alignment. In general manholes are to be constructed at 300 feet intervals or less with the maximum distance between manholes being 350 feet when approved by the Engineer.

1.02 QUALITY ASSURANCE

A. The Contractor, at the Engineer's request, shall furnish a certificate from the manufacturer of the pipe and fittings that the manufacturer is fully competent and capable of manufacturing sewer pipe, fittings, and accessories of the type, size and grade proposed for use in this project that are of uniform texture and strength that will fully comply with these specifications and have so manufactured this class of pipe in sufficient quantities to be certain that it will meet all normal field conditions of usage. The manufacturer must have adequate equipment and quality control facilities to be sure that each extrusion casting or run of pipe is uniform in texture, dimensions, and strength.

B. All PVC, HDPE, or plastic resin based pipe and fittings shall be covered during storage to protect them from excessive heat and direct sunlight.

C. All pipe and accessories shall be stored above ground and fully supported so that they will not bend or deflect excessively under their own weight.

D. Pipe in any way damaged or deformed during storage shall not be incorporated into this project, but at the direction of the Engineer, shall be permanently removed from the job site and project area.

1.03 TYPE OF PIPE

A. Pipe for sanitary sewers 15 inches in diameter and less shall be PVC. Pipe for storm drains 15 inches in diameter and less may be corrugated steel pipe when called for on the plans and in the bid proposal. Pipe 18 inches in diameter and larger shall be of the type shown on the plans and bid proposal.

B. The contractor may be allowed to bid a choice of two or more of the pipe materials when pipe 18 inches in diameter and larger are proposed for use on a project. When such choice is allowed the permissible choices will be clearly stated on the plans and/or bid proposal and a blank space will be provided for the contractor to write in the type of pipe proposed for use on the project. When such blank spaces are provided, the contractor must choose one of the permitted pipe materials as specified in part 2 “Materials” of these specifications and write in the type of pipe bid. Failure to write in the type of pipe bid may be reason to disqualify the bid. One or more types of pipe 18 inches in diameter and larger may be excluded from consideration on any given project by notes on the plans and/or the bid proposal.

PART 2 – MATERIALS

2.01 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS FOR SANITARY AND STORM SEWERS

A. GRAVITY SEWERS

(1) Pipe and fittings in nominal diameters from 4-inch through 15-inch shall be manufactured in accordance with ASTM D3034, “Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings” and pipe and fittings in diameter 18” through 36” shall be manufactured in accordance with ASTM F-679 or ASTM F-794, closed profile, subject to the modifications and limitations below.

B. MODIFICATIONS AND LIMITATIONS

(1) The concrete slab manhole tops shall be reinforced with number 4 steel reinforcing bars spaced at 12 inches on center each way. Additional diagonal bars shall be placed on 4 sides around the manway opening. The diagonal bars shall be number 4 rebar with a minimum length equal to the diameter of the manway opening plus 4 inches. The steel reinforcing mat shall be placed in the bottom of the slab with 1-1/2 inches protective covering.

(2) The term Dimension Ratio (DR) or standard dimension ratio (SDR) is the ratio of the average outside pipe diameter to the minimum wall thickness rounded to the nearest 0.5. The maximum DR for PVC sewer pipe shall be 35. PVC pipe sewers that will have less than 4 feet of cover shall be DR26.

(3) PVC pipe manufactured under ASTM F679 or F794 shall have a wall thickness that will meet or exceed the D.R. and stiffness specified herein. The minimum pipe stiffness for pipe having a DR of 26 shall be 115 psi. The minimum pipe stiffness for DR 35 pipe shall be 46 psi.

(4) Where DR 26 pipe is specified, all necessary fittings shall be the same as for SDR 35 PVC pipe.

(5) Minimum wall thickness for ASTM D-3034 PVC pipe shall be as follows:

Nominal Size (in.)	Min. Wall Thickness (in.)	
	DR 26	DR 35
4	0.162	0.120
6	0.241	0.180
8	0.323	0.240
10	0.404	0.300
12	0.481	0.360
15	0.588	0.437

The minimum wall thickness for PVC pipe meeting ASTM F-679 or F-794 requirements shall be the thickness as set forth in said ASTM specification that will meet or exceed the pipe stiffness and DR required.

(5) The identification markings as shown in Section 12 of ASTM 3034 shall note the specified DR of 26 where applicable.

(6) All pipe and fittings shall have the dimensions for inside diameter, outside diameter, etc. as shown in ASTM D3034 and/or ASTM F-679 except that the inside diameter DR 26 may be reduced by the added wall thickness.

(7) The pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density, and other physical properties.

(8) The Contractor shall provide wyes, tees, bends, adapters, and any other fittings called for in the specifications and/or shown on the plans or directed by the Engineer.

(9) The standard length of ASTM, D-3034 SDR 35 or SDR 26 PVC pipe under this specification shall be 20 feet with a minimum of 10 feet, except that all pipe used in service lines shall not exceed 10 feet in length unless otherwise approved by the Engineer. The standard laying length for ASTM F-679 PVC pipe shall be 13 feet. The Engineer must approve other laying lengths.

C. SEWER LATERALS AND CONNECTIONS

Pipe and fittings for service lines shall be the same material and thickness class as required for the main sewer. Schedule 40 PVC pipe may be used for 4" service lines when PVC pipe meeting requirements of ASTM 3034, SDR 35 is required.

D. JOINING SYSTEMS

(1) PIPE JOINTS

The pipe shall be joined with an integral bell, bell and spigot type rubber gasket joint. Each integral bell joint shall consist of a formed bell complete with a single rubber o-ring gasket. Gaskets shall be manufactured in accordance with ASTM F477 and shall be installed in accordance with the pipe manufacturer's instructions using all the necessary materials, lubricants and equipment recommended by the manufacturer.

For pipe 18" through 36" gaskets shall be factory installed and chemically bonded to the bell end of the pipe.

Lubricant shall be water soluble, non-toxic and have no deteriorating effects on gasket or pipe materials and shall not support the growth of bacteria. Lubricant shall be suitable for use at temperatures from 5^{o} to 120^{o} F (-15^{o} to 50^{o} C). Containers shall be labeled with the manufacturer's name and identified as PVC pipe joint lubricant. Each lubricant container shall have printed instructions for usage and joint assembly.

Field welded joints will not be allowed.

(2) FITTING JOINTS

All fittings shall utilize rubber gasket joints of the same type design and specifications as pipe joints.

(3) PIPE SPIGOT

The pipe spigot shall have a bevel and an insertion stop mark. The assembled joint shall be designed so the gasket shall be radially compressed to assure a positive water-tight seal for all installation conditions recommended by the manufacturer and under all combinations of production tolerances for the joint components. Each size joint shall be qualified to no leakage under various test conditions in conformance with ASTM Specification D-3212, "Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals."

E. INSPECTION AND TESTING

(1) INSPECTION REQUIREMENTS

Certification: as the basis of the acceptance of the material, the manufacturer will furnish a certificate of conformance to these specifications. The manufacturer will furnish other conformance certification in the form of affidavit of conformances, test results, and copies of test reports.

(2) PHYSICAL TEST REQUIREMENTS

For each 4,000 linear feet of pipe manufactured of each class and size of pipe, the following certified test data shall be required:

1. The basic dimensions shall be measured.
2. The allowable crush load (lbs/ft ^{2}) shall be calculated.
3. Impact resistance, fusion quality and ductility shall be tested.

F. MARKING AND DELIVERY

Each pipe shall be identified with the name of manufacturer, nominal size, cell classification, ASTM designation F794, Uni-Bell Plastic Pipe Association designation Uni-B-9, the pipe stiffness designation “PS-46 psi” and manufacturer’s date code.

1. MANHOLE CONNECTIONS

The Contractor shall provide smooth pieces of pipe for connecting sewer line into manholes. The Contractor shall be required to assist the manhole gasket supplier with the nominal outside diameter of these smooth pieces of pipe, as manufactured. There shall be only one plain end thickness for each diameter of pipe specified for the project.

2. DELIVERY

All pipe couplings and fittings shall be prepared for standard commercial shipment.

The pipe shall be inspected upon delivery to the job site for final acceptance. The contractor shall be responsible for all material furnished by him and he shall replace, at his own expense, all such material that is found to be defective in manufacture or which has become damaged in handling until final acceptance has been made. Pipe, which exhibits excessive ovalty or curvature, shall be rejected.

PVC pipe and fittings shall be covered during storage to protect them from excessive heat and direct sunlight.

All pipe and accessories shall be stored above ground and fully supported so as not to bend or deflect excessively under its own weight.

2.01(a) Metallic Marking Tape (For PVC Sewer Pipe)

2.01 (a).1 General

When non-metallic pipelines are to be installed, then the Contractor shall furnish and lay, above the pipeline, a continuous strip of metallic identification tape.

2.01 (a).2 Tape Material

The metallic identification tape shall be at least two inches (2”) in width and shall be of corrosive resistant metal of sufficient thickness to be stable and reflect electronic signals to electronic pipeline detector when buried to a dept of twenty-four (24”) below normal ground level.

The metallic tape shall be painted green on one side and shall have 1-inch high letters painted continuously on the same side of the tape which read, “CAUTION: BURIED SEWER LINE BELOW” or other words to this effect.

The marking tape shall be “Detectable Marking Tape”, as manufactured by the Omega Marking Company, or equal approved by the Engineer.

2.01(a).3 Construction Methods

The Contractor shall backfill over non-metallic pipelines to a depth which is less than twenty-four (24”) and not more than twelve inches (12) from the top of the cut of the ditch section in which the pipeline is laid. Contractor shall stop the backfilling material to a generally uniform level. All machine tamping, jetting and other compaction activities shall be accomplished up to this point of height in the backfilling the marking tape is placed in the trench.

The Contractor shall then lay the marking tape in the pipe trench and shall be held in position by the spot placement of backfill materials over it to keep it from sliding t the sides and/or from being blown about in the ditch by the wind. The tape shall be lid with the painted side, which shall also be the side with the identification lettering on it, in the “up” position. The tape shall be laid in the flat position and kept there until backfill is accomplished.

The Contractor shall then complete the backfilling operation in such a manner that the marking tape is not cut, crimped, ruptured or separated by the backfilling work.

2.01(a).4 Measurement and Payment

No separate pay item will be provided for furnish and placing the marking tape. This item shall be considered subsidiary to the non-metallic pipe being placed.

2.02 CORRUGATED STEEL PIPE (CSP) FOR STORM SEWERS AND CULVERTS ONLY

1. PIPE

A. STEEL SHEET STOCK

(1) Corrugated steel pipe shall be manufactured using galvanized steel sheet AASHTO M 218 or aluminized steel sheet AASHTO M 274.

(2) The lining for smooth lined corrugated steel pipe shall be polymer coated on both sides. The minimum thickness of the polymer coating shall be 10 mils.

B. PIPE DESIGNATION

(1) Pipe furnished shall be manufactured in accordance with AASHTO Specification M 36.

(2) Corrugated steel pipe shall be one or more of the following type as designated in AASHTO M 36.

Type I - Full circular cross section having helical corrugations.

Type IA - Full circular smooth lined pipe constructed of an outer shell having helical corrugations with a smooth sheet lining attached to the outer shell at helical lock seams.

Type IR - Full circular cross section with helical rib protruding outward.

Type II - Type I pipe formed into a pipe arch.

Type IIA - Type IA pipe formed into a pipe arch.

The type of pipe furnished on this project will be as shown on the plans and in the bid proposal.

When no type of pipe is called for on the plans or in the bid proposal helically corrugated circular single wall pipe (Type I or Type IR) shall be furnished.

C. MANUFACTURERS CERTIFICATION

(1) The pipe manufacturer will be required to certify the adequacy of the pipe furnished for the application and design life of the project.

(2) The design life for storm sewers constructed under this specification is 50 years.

(3) The pipe manufacturer will be required to run soil pH, soil resistivity and such other test as they deem necessary to design pipe thickness and protective coatings required to assure the adequacy of the pipe supplied.

D. CORRUGATION AND MINIMUM THICKNESS

(1) Thickness used in this specification refers to the bare steel thickness before coating is applied. The minimum thickness for any single wall corrugated steel pipe furnished under this specification is 16 gage.

(2) All corrugated steel pipe furnished under these specifications shall have helical corrugations.

(3) Circular corrugated steel pipe 48” in diameter and smaller shall have 2-2/3” x ½” corrugation and shall be a minimum of 16 gage in thickness.

Circular corrugated steel pipe larger than 48” in diameter may have either 2-2/3 x ½” or 3” x 1” corrugations. The minimum thickness for corrugated steel pipe larger than 48” in diameter and having 2-2/3 x ½” corrugation shall be as follows:

54” Diameter - 12 gage
60” Diameter - 10 gage
66” through 90” Diameter - 8 gage

The minimum thickness for circular corrugated steel pipe having 3” x 1” corrugation and diameters of 54” through 90” shall be 14 gage.

(4) For smooth lined corrugated steel pipe the minimum thickness for the lining shall be 20 gage and the minimum thickness for the outer shell shall be 18 gage.

The corrugations for the outer shell shall be 2-2/3” x ½” for pipe 48” diameter and smaller. Larger diameter pipe may use 3” x 1” corrugations in the outer shell. The sum of the thickness for the outer shell and the liner shall be a minimum of one thickness unit greater than the thickness that would be required for single wall pipe of the same diameter or span.

(5) Spiral rib steel pipe (Type IR) shall have outward projecting spiral corrugations of ¾” x 1” at 11-1/2” on center in accord with AASHTO specification M 36 or ¾” x ¾” at 7-1/2” on center as described in AASHTO specification M 196.

The minimum thickness for spiral rib pipe 48” in diameter and smaller shall be 16 gage.

The minimum thickness for spiral rib pipe 54” and 60” in diameter shall be 14 gage.

The minimum thickness for spiral rib pipe 66” and 72” in diameter shall be 12 gage.

The minimum thickness for spiral rib pipe larger than 72” in diameter shall be as shown on the plans.

(6) The corrugations and minimum thickness of corrugated steel pipe arch shall be in accord with the following table:

EQUIV. Dia. (in.)	2-2/3" x ½" Corrugations Span (in.)	Rise (in.)	Gage	3" x 1" Nominal Size Span (in.)	Rise (in.)	Gage
15"	17	13	14			
18"	21	15	14			
24"	28	20	14			
30"	35	24	14			
36"	42	29	14	40	31	16
42"	49	33	12	40	36	14
48"	57	38	10	53	41	12
54"	64	43	10	60	46	12
60"	71	47	8	66	51	12
66"	77	52	8	73	55	12
72"	83	57	8	81	59	12
78"				87	63	12
84"				95	67	12
90"				103	71	12

When 2-2/3" x ½" corrugations are called for on the plans and/or on the bid schedule the substitution of 3" x 1" corrugations will be allowed only upon the demonstration by the contractor that there is sufficient head room to accommodate the higher rise for arch pipe of this cross section.

E. END TREATMENT AND JOINING

(1) The ends of all corrugated steel pipe furnished for this project shall be rolled to provide circumferential corrugations for coupling. The end corrugations for all pipe 48" in diameter and less shall be 2-2/3 x ½". The end corrugations for single wall helically corrugated steel pipe or for smooth lined corrugated steel pipe 54" in diameter and larger shall be the same pitch as the pipe furnished and may be either 2-2/3" x ½" or 3" x 1". The end corrugations for spiral rib (Type IR) corrugated steel pipe shall be 2-2/3" x ½" or 3" x 1" for pipe 54" and larger in diameter.

(2) Coupling bands shall be made of the same material as the pipe and shall be not more than 3 nominal sheet thicknesses lighter than the pipe joined and in no case less than .052 inch.

Jointing devices for joining corrugated steel pipe shall have a gasket and shall produce a joint meeting the infiltration/exfiltration requirements of these specifications.

If it should be necessary to cut a joint of Helically corrugated pipe and join the unreformed end to another section of pipe or fitting extra width bands will be required and special care must be taken to insure a water tight connection.

Locking bands shall be corrugated and shall securely fit into at least one full annular corrugation. The corrugations on the locking band must match the corrugations on the pipe being joined.
The minimum width for locking bands is as follows:

for 2-2/3 x ½ inch corrugations	10-1/2 inches
3 x 1 inch corrugation	12 inches

For helical corrugations that have not been reformed the coupling bands must be at least 2 inches wider than the widths listed above.

Unless shown otherwise on the plans all bolts for coupling or locking bands shall be ½ inch in diameter. Bands 12 inches wide or less shall have a minimum of 2 bolts. Bands wider than 12 inches shall have a minimum of 3 bolts.

Bolts must be galvanized in accordance with AASHTO Designation M232 or ASTM A164 Type RS.

(3) Gaskets for corrugated steel pipe shall be closed cell expanded rubber and shall be formed into a continuous band. Gaskets may be either “O” ring or flat band as recommended by the pipe manufacturer. Flat band gaskets shall be a minimum of 7” wide and 3/8” thick. “O” ring gaskets shall be 13/16” diameter minimum for pipe 36” in diameter or less and 7/8” for pipe larger than 36” diameter and having ½” deep corrugations. “O” ring gaskets shall be a minimum of 1-3/8” diameter for pipe having 1” deep corrugations. When “O” ring gaskets are furnished, an additional flat gasket shall be furnished and placed between the overlapping ends of the coupling band. This flat gasket shall completely fill the gap between the “O” rings. All gasket materials shall be capable of producing a water tight joint that will meet the leakage requirements of these specifications.

2. CORRUGATED STEEL MANHOLE FITTINGS, AND CLEAN OUTS

A. FABRICATION

(1) Corrugated steel manholes and fittings shall be constructed of the same material and type of pipe furnished for the storm sewer line with the exception that manhole risers shall be helical corrugated single wall circular pipe when used with pipe arch sewers or smooth lined corrugated steel pipe. The thickness of the manhole riser shall be the same as would be required for the same type and diameter pipe if it were used for the storm sewer.

(2) Cleanouts for use on shallow storm sewer and inlet leads shall be manufactured from pipe meeting the requirements of these specifications. Cleanouts shall be constructed to the dimensions and in accord with the details shown on the plans.

B. CONNECTION TO MANHOLES AND CLEANOUTS

(1) Stub outs from manholes and cleanouts for connection to storm sewers and inlet leads shall have annular corrugations and shall be compatible with the type and size of pipe being connected. Stub outs provided for connection to PVC pipe storm sewers and inlet leads shall be sized so that the PVC pipe can be inserted into the stub leaving the least amount of annular space between the PVC pipe and the CSP practical. The PVC pipe shall be connected using an approved molded rubber or PVC sleeve connector clamped to both pipes with stainless steel straps.

The connector shall be a flexible coupling as manufactured by Fernco, 300 S. Dayton St., Davison, MI., or approved equal.

.

C. LEAKAGE

Manholes, fittings and cleanouts shall meet the leakage requirements of these specifications.

D. SHOP DRAWINGS

The contractor shall submit shop drawings of all manholes, fittings and cleanouts for approval prior to their fabrication. A minimum of 5 sets of drawings for each manhole, each fitting and each cleanout shall be submitted.

E. CONCRETE SLAB TOPS

A reinforced concrete slab top shall be constructed for each manhole and cleanout. The slab shall extend to one foot (1') outside the riser section on all sides and shall have an eccentric 2' diameter opening for the manway located at the outside edge of the riser section. For manholes and cleanouts designated for standard manhole rings and covers the concrete top shall be 8 inches thick and shall be finished smooth to receive the manhole ring.

For manholes designated to receive pressure type manhole rings and covers the concrete slab top shall be a minimum of 12 inches thick and shall have L bolts imbedded in the concrete to fit the requirements of the manhole ring furnished. The slab shall be finished smooth to receive the manhole ring. The manhole ring shall be securely bolted to the slab and sealed using "Ram Nek" or an approved equal bitumastic sealer between the manhole ring and the concrete slab.

The concrete slab manhole tops shall be reinforced with number 4 steel reinforcing bars spaced at 12 inches on center each way. Additional diagonal bars shall be placed on 4 sides around the manway opening. The diagonal bars shall be number 4 rebar with a minimum length equal to the diameter of the manway opening plus 4 inches. The steel reinforcing mat shall be placed in the bottom of the slab with 1-1/2 inches protective covering.

F. PRESSURE MANHOLE RING AND COVER

(1) Pressure type manhole rings and covers shall be Western Iron Works No. 380-24P or approved equal. The manhole cover shall be sealed with an "O" ring gasket in a ring groove and shall be secured to the ring by six (6) 5/8-inch stainless steel bolts.

(2) The ring shall have six (6) 1-1/4 inch bolt holes in the flange for securing the ring to the concrete slab top on the manhole.

3. CORRUGATED STEEL PIPE SLOTTED DRAIN

(1) Corrugated steel pipe slotted drains shall be fabricated from full circle corrugated steel pipe conforming to these specifications.

(2) C.S.P. Slotted drains shall be of a type as manufactured by "Contech Construction Products, Inc.", "Texas Corrugators", "Caldwell Culvert Company" or approved equal.

(3) The upstream end of CSP slotted drains shall be equipped with a bend and a ring and cover of the some size as the pipe from which the slotted drain was fabricated to allow cleaning equipment to be inserted into the slotted drain. The ring and cover shall be Nenah Foundry Co. R-5901 open grate or R-5900 solid lid or approved equal. Unless shown otherwise on the plans the open grate shall be furnished.

(4) When slotted drain is to be connected to PVC leads, molded rubber or PVC flexible connector as specified for connections to manholes and cleanouts shall be furnished.

4. DAMAGED COATING

A. PROTECTION OF PIPE

(1) Pipe fittings and specials shall be handled and stored in a manner that will minimize damage to the coating.

(2) The fabrication process shall be designed to minimize the burning of coatings during welding.

(3) Pipe and/or fittings showing excessive abuse or damage will be rejected.

B. REPAIRING DAMAGE

(1) Pipe on which the metallic coating has been burned by welding or has been otherwise damaged in fabricating or handling, shall be repaired. The repair shall be done so that the completed pipe shall show careful finished workmanship in all particulars.

(2) The damaged area shall be cleaned to bright metal by blast cleaning, power disk sanding, or wire brushing. The cleaned area shall extend at least ½ inch into the undamaged section of the coating. The cleaned area shall be coated within 24 hours and before any rusting or soiling.

(3) Zinc-rich paint shall be applied to a dry film thickness of at least 0.005 inches over the damaged section and surrounding cleaned area. Zinc-rich paint shall be used for repair of damage to all types of metallic coating -zinc, aluminum, and aluminum-zinc alloy.

2.03 CAST-IN-PLACE CONCRETE SEWER PIPE (NON-REINFORCED) FOR STORM SEWERS ONLY

1. DESCRIPTION

This item shall cover machine cast-in-place monolithic non-reinforced concrete pipe, which shall consist of Portland cement concrete placed in a prepared trench at such locations and grades shown on the plans and intended to be used for the conveyance of storm water. Items and item numbers referred to in this specification are the items as given in the "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges."

2. MATERIALS

The cast-in-place pipe shall be constructed of Class "C" concrete. The concrete shall meet the requirements of Item 421, "Concrete for Structures," and Special Provision thereto, except as otherwise noted herein or on the plans. Type III Portland Cement shall be used.

The minimum compressive strength for concrete used in this item is 4000 psi. Backfilling operations may proceed when the concrete has reached 2000 psi compressive strength.

The coarse aggregate grading for pipe diameters 48 inches or less shall conform to that of Aggregate Grade No. 3, one inch (1") maximum size aggregate under Item 421. For pipe diameters over 48 inches, Coarse Aggregate No. 2, one and one third inch (1-1/3") maximum size aggregate shall be used.

No concrete having a slump in excess of 2" will be permitted for use in pipes with diameters of 48 inches and over. For pipes with diameters less than 48 inches, no concrete having a slump in excess of 3" will be permitted for use. At the option of the Contractor, sections of precast reinforced concrete pipe (D-load) may be substituted for cast-in-place concrete pipe. Pipe and installation shall conform to the requirements of Item 465, "Pipe Sewers." Backfill shall be in accordance with the requirements for other storm sewers in these specifications using crusher fines (chat).

3. PIPE MAKING EQUIPMENT

The pipe shall be constructed with equipment specially designed for constructing cast-in-place monolithic concrete pipe. The equipment shall be acceptable to the Engineer and the Contractor may be required to furnish evidence of successful operation in other work of the equipment he proposes to use. Equipment not suitable to produce the quality of work required for the pipeline will not be permitted to operate on the project.

4. DIMENSIONS AND TOLERANCES

The design shell thickness shall be as specified in Table 1.

TABLE I

Internal Diameter inches	Min. Shell Thickness inches
18	2
24	2-1/2
30	3
36	3-1/2
42	4
48	5
54	5-1/2
60	6
66	6-1/2
72	7
84	8
96	9
108	10
120	11

Variation in the internal diameter shall not exceed plus or minus 3 percent. The maximum allowable deviation form the true grade of the design invert of the pipe shall not exceed ½ inch either side of true grade. Where deviation from true grade occurs, true grade shall be re-established at a maximum departure of one-eighth inch per foot.

5. EXCAVATION AND BACKFILL

Excavation shall be in accordance with the requirement for other types of storm drains, except as modified herein. The trench shall be excavated in the lines and grades shown on the plans or as directed by the Engineer. The width of the trench shall be sufficient to accommodate travel of the pipe machine only. The bottom of the trench shall be shaped to the nominal outside circumference of the pipe. Excavation shall be performed from the outlet to the inlet. If the trench is over-excavated for the bottom 210 degrees of the pipe the excess area shall be filled with concrete. If rock is encountered, it will be removed at least 6 inches below the bottom of the pipe and the trench refilled with material sufficiently compacted to

allow operation of the machine and provide a smooth firm surface. The sidewall of the pipe shall be placed against undisturbed material.

Backfill material will be a crusher fine (chat) as described elsewhere in these Specifications. No backfill other than permitted for curing purposes shall be placed until the line has been inspected and approved by the Engineer. The trench may be completely backfilled after the pipe has been in place at least 24 hours and concrete strength requirements have been reached. Light traffic, axle load less than 6,000 pounds, may be routed over the pipe after backfill has been completed for twenty-four (24) hours. Unrestricted traffic may be permitted over the pipe after the backfill has been in place for forty-eight (48) hours.

All backfill material shall be mechanically compacted to 95% modified proctor or as directed by the Engineer.

6. CONSTRUCTION

All surfaces against which concrete are to be placed shall be free from standing water, mud, and debris. Absorptive surfaces against which concrete are to be placed shall be moistened thoroughly so that moisture will not be drawn from the freshly placed concrete.

The concrete shall be placed in one operation around the full circumference of the pipe by means of a traveling form. The forms shall be of sufficient strength to withstand vibrating or tamping the concrete and to permit workmen to walk on the forms without causing springing or bulging at any point.

As the traveling form moves forward, forms shall be placed inside the newly formed pipe to support a minimum of 230 degrees of the upper portion of the pipe.

The concrete shall be vibrated, rammed, tamped or worked with suitable appliances until the concrete has been consolidated to the maximum practicable density, free of rock pockets, and closes snugly against all surfaces or forms and provides a bond between the pipe shell and supporting earth.

When placing operations cease for any reason, the end of the pipe shall be left rough with a slope of approximately 45 degrees. The ends of the pipeline shall be covered with canvas or other suitable cover material to prevent excessive loss of moisture from the interior of the pipe already placed.

When starting pipe laying operation from a previously laid cast-in-place pipe or section of pre-cast pipe, a construction joint shall be made by excavating a “bell” completely around the end of the existing pipe and constructing a concrete collar to extend at least one foot either side of the joint with a minimum thickness equal to that of the wall of the pipe. The end of the existing pipe shall be clean and damp before continuing pipe making operations. Cleaning of the construction joint shall consist of removing all latency, loose or defective concrete, coatings, and any other deleterious materials.

All forms shall be clean and shall be placed at the trench side at the location of their proposed use for inspection by the Engineer. Forms, which are defective in any way, will not be used, and upon condemnation they shall be removed from the site of the work. The forms shall not vary more than ½ inch from the lower edge of a straightedge laid parallel to the centerline of the form, and shall be free of any holes larger than 5/8 inch in greatest dimension. The pipe machine shall be thoroughly clean and serviced prior to the placing of the concrete. Particular attention will be given to all parts of the machine with which concrete comes into contact.

Concrete chutes or trunks shall be provided to reach within 1 foot of the pipe machine hopper. The end of the chute or trunk shall discharge the concrete at the center of the hopper. Provisions shall be maintained to minimize segregation of the concrete mix in all phases of the operation.

Delays in placing shall be handled as follows or as otherwise directed. The concrete hopper on the pipe laying machine shall be kept ½ full at all times, provided, however, that when placing operations cease or are delayed for any reason for more than 20 minutes, the pipe machine shall be pulled forward until all the concrete is exhausted and until the top troweling skirt is clear of the concrete. If the pipe laying operation proceeds within one hour of the time of the last placement, no further steps need to be taken. However, if longer than one hour has elapsed, then a construction joint must be made as previously described. The end of the pipe shall be left rough and at the natural slope when the machine is moved forward.

All junctions of pipe shall be provided for at the time the cast-in-place pipe is placed.

Inside forms shall be removed from the pipe not sooner than 4 hours nor longer than 24 hours after placement of the concrete. Care shall be taken when removing forms to prevent damage to the pipe. The inside of the pipe shall be carefully inspected for imperfections in placement, and any required repairs or smoothing shall be made immediately to provide a uniform interior surface. No wash, mortar or concrete shall be applied to a surface not properly moistened or cleaned. Visible cracks shall be brushed with cement paste or chipped out and pointed up with cement mortar. Any cracks that appear to go through the shell shall be grooved and filled with mortar. All construction operations and methods for providing a watertight pipeline shall be the responsibility of the Contractor. Mortar shall consist of one part cement; two parts well graded sand passing 1/8-inch sieve. Wash shall consist of four parts cement, one part fire clay. The finished surface of the concrete pipe shall be substantially free of fractures, cracks and surface roughness.

7. CURING CONCRETE

Immediately after the concrete is placed the exposed surface of the concrete shall be cured by covering the top with a sheet of polyethylene film sealed with dirt along the edges. During the curing period following the placement of the concrete, the ends of the pipeline and all other openings into the pipeline shall be covered with canvas or other suitable material, except at locations where work is actually in progress. The inside surface of the pipeline shall not be cured.

8. MANHOLES AND BENDS

Manhole bases shall be hand formed on top of the pipe as soon as the pipe-placing machine has passed. Where required, the extra width for manholes shall be excavated ahead of the pipe placing operation. The base for the manhole shall be formed to receive a standard precast concrete barrel section and shall be shaped and smoothed so that the joint can be sealed water tight by use of “Ram Nek” or other approved joint sealing material.

Bends may be formed and cast in place or fabricated using precast reinforced concrete pipe (load D). Design and shop drawings shall be submitted to and approved by the Engineer before the bends are fabricated or cast.

9. MEASUREMENT

Measurement of manholes shall be as specified elsewhere in these specifications. Measurement of bends shall be as for other storm sewer pipe. The method of pipe measurement shall conform to that for other types of storm drainpipe in the section or storm drains in these specifications.

10. PAYMENT

Payment for cast-in-place non-reinforced pipe sewers, measured as prescribed above, will be made at the unit price bid per linear foot for the various sizes of “Pipe Sewers (Cast-in-Place)” complete in place. Payment for manholes shall be as specified elsewhere in these specifications.

Such payment shall be full compensation for furnishing all concrete materials, precast reinforced concrete pipe used in place of cast-in-place pipe, and for all other materials, tools, labor, equipment, and incidentals required to perform the applicable work prescribed herein.

When precast reinforced concrete pipe at the Contractor’s option is used in a line of cast-in-place pipe the additional excavation for the pipe will be subsidiary.

2.04 CENTRIFUGALLY CAST FIBERGLASS REINFORCED RESIN PIPE SEWERS

A. DIRECT BURY PIPES

1. GENERAL

All pipes, joints and fittings shall be manufactured in accordance with the requirements of the applicable standard given below except as noted herein:

Service	Standard
Non pressure Sanitary Sewer	ASTM D3262
Sewer Force Main and Effluent Lines	ASTM D3754

Pipes shall be centrifugally cast, fiberglass-reinforced polyester resin as manufactured by Hobas USA, Inc. or approved equal.

Minimum pipe stiffness when tested in accordance with ASTM D2412 shall be 46 psi.

2. MATERIALS

The manufacturer shall use only approved polyester resin systems for which he can provide a proven history of performance in these particular applications. The historical data shall have been acquired from a composite material of similar construction and composition as the proposed product.

The reinforcing glass fibers used to manufacture the components shall be of highest quality commercial grade of E-glass filaments with binder and sizing compatible with impregnating resins. Sand shall be minimum 98% silica with a maximum moisture content of 0.2%

3. DIMENSIONS

Pipe outside diameters shall be in accordance with AWWA Standard C151 and C950. For diameters larger than covered in those documents, OD's shall be as shown in Table 1.

TABLE I

*WP/s		0/46		50/46		100/46		150/46		200/46	
Nomin Pipe Sz. (in.)	Pipe OD (in.)	Min. wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt (lb/ ft.)
18	19.50	.42	20	.41	20	.40	19	.38	18	.37	18
20	21.60	.46	25	.45	24	.43	23	.42	22	.40	21
24	25.80	.54	35	.53	34	.51	33	.49	31	.47	30
30	32.00	.66	54	.65	53	.62	51	.60	49	.57	47
36	38.30	.78	77	.77	76	.74	73	.71	70	.68	67
42	44.50	.90	104	.88	101	.85	98	.82	94	.78	89
48	50.80	1.02	134	1.00	131	.96	126	.93	122	.88	115
54	57.10	1.14	169	1.12	166	1.08	160	1.04	155	.99	147
60	62.90	1.26	209	1.23	204	1.19	197	1.14	188	1.09	180
66	69.20	1.38	249	1.35	243	1.30	234	1.25	228		
72	75.40	1.50	298	1.47	292	1.41	280	1.36	270		
78	81.60	1.62	352	1.58	343	1.52	331	1.47	320		
84	88.00	1.74	409	1.70	399	1.64	385				
90	94.30	1.86	468	1.82	458	1.75	440				
96	100.6	1.98	531	1.94	520	1.87	501				

- **Maximum nominal working pressure in psi/pipe stiffness in psi**

Pipe shall be supplied in nominal lengths of 20 feet. Actual laying length shall be the nominal plus or minus 2 inches. At least 90% of the total footage of each size and class of pipe, excluding special order lengths, shall be furnished in nominal length sections.

4. **PRESSURE CLASS & TESTING FOR SEWER FORCE MAINS AND EFFLUENT LINES**

The pipe nominal pressure class (PN) shall be equal to or greater than the maximum sustained operating pressure of the line. The minimum pressure rating for non-pressure pipe shall be 15 psi.

The maximum transient (operating plus surge) pressure of the line shall not exceed the pipe nominal pressure class by more than 40%.

Pipe hoop tensile strength for pressure pipe shall be verified as specified in the applicable standard (D3754 or C950) or by random burst testing at the same sampling frequency. All pipes shall be capable of withstanding a test pressure of 2 times the maximum sustained operating pressure of the line without leaking or cracking. This performance shall be periodically verified at the factory for pressure pipe at least once per lot as defined in D3754, section 7.1.

A. JOINTS

Unless otherwise specified, the pipe shall be field connected with fiberglass sleeve couplings that utilize elastomeric sealing gaskets made of EPDM rubber compound as the sole means to maintain joint water tightness. The joints must meet the performance requirements of ASTM D4161.

B. FITTINGS

Flanges, elbows, reducers, tees, wyes, laterals and other fittings shall, when installed, be capable of withstanding all operating conditions. Acceptable configurations include contact molded or metered fiberglass or properly protected standard ductile iron.

Unbalanced thrust forces shall be restrained with thrust blocks or other approved suitable methods. Fiberglass tees, wyes, laterals, or other similar fittings shall be fully encased in reinforced concrete designed to withstand the pressure forces.

2.05 POLYETHYLENE SEWER PIPE

A. SCOPE

(1) This specification covers Polyethylene (PE) pipe with a corrugated outer wall and a smooth interior wall, for use with non-pressure sanitary sewer systems. The PVC fittings and joints are included in the specification.

B. MATERIAL AND MANUFACTURING

1. PIPE MATERIALS

The pipe shall be made from clean virgin Polyethylene compounds having a cell classification of 324420C as defined by ASTM D-3350.

2. FITTING MATERIALS

The fittings shall be made from clean virgin polyvinyl chloride (PVC) compounds having a cell classification of 12454B, 1245C or 13343C as defined by ASTM D-1784.

Pipe shall be manufactured by simultaneous extrusion of the corrugated and smooth walls with the smooth inner wall fused to the outer corrugated wall.

Fittings shall be molded or fabricated.

3. JOINING MATERIALS

a. Gaskets
b. Elastomeric gaskets shall meet the requirements of ASTM F-477.
c. Lubricants

The lubricants used for assembly shall have no detrimental effect on the gasket or the pipe, and shall be per published recommendations of the pipe manufacture.

4. MATERIAL CERTIFICATION

A manufacture's or an independent laboratory certification shall be furnished to the purchaser/engineer that the products were manufactured, sampled, tested, and inspected at the time of manufacture in accordance with this specification.

C. PIPE DIMENSIONS

Pipe dimensions shall meet the following requirements when tested in accordance with ASTM D-2122.

Nominal Size	Avg. O.D.	Avg. I.D.
4	4.790 (121.7)	4.00 (101.6)
6	6.930 (176.0)	6.00 (152.4)
8	9.145 (232.2)	8.00 (203.2)
10	11.405 (289.7)	10.00 (254.0)
12	14.450 (367.0)	12.00 (304.8)
15	17.530 (445.3)	15.00 (381.0)
18	21/150 (537.2)	18.00 (457.2)

D. INSTALLATION

1. Joint Tightness

Minimum joint performance shall show no leakage when tested in accordance with ASTM D-3212.

2. Supplier Assistance

A manufacturers representative of the above referenced pipe material shall be present at the beginning of the installation as required by the Design Engineer or Contractor and shall remain on site until released by the Design Engineer or Field Inspector/Engineer.

2.06 INLETS FOR STORM SEWERS

A. CURB TYPE INLETS

(1) Curb inlets shall be constructed at the locations and to the lines and grades or shown on the plans or as directed by the Engineer.

(2) Curb inlets shall be constructed of reinforced class “C” concrete in accordance with Section 1-B “Concrete Structures” and the plans and detail drawings.

(3) The curb section and the curb inlet shall conform to the curb and gutter section in which it is placed in so far as it is possible.

B. GRATE TYPE INLETS

(1) Grate inlets shall be constructed at the locations and the lines and grades as shown on the plans or as directed by the Engineer.

(2) Concrete boxes for grate inlets shall be constructed of reinforced Class “C” concrete in accordance with Section 1-B “concrete Structures” and the plans and detail drawings.

(3) Grates shall be constructed of ASTM A-48 gray iron having minimum tensile strength of 35,000 psi or ductile iron having a minimum tensile strength of 60,000 psi and a yield strength of 40,000 psi.

The size, style, shape, type, weight and class shall be as shown on the plans.

Grate frames shall be as manufactured for the grate by the grate fabricator. If more than one type or style or frame is available, the type and/or style shall be as indicated on the plans.

C. COMBINATION INLETS

(1) Combination curb and grate inlets shall be constructed at the locations and to the lines and grades as shown on the plans or as directed by the Engineer.

(2) Combination inlets shall be constructed in accordance with the applicable requirements for “Curb type inlets” and “Grate type inlets” above.

D. INLET LEADS

(1) Inlet leads may be PVC pipe or CSP as shown on the plans and called for in the bid proposal.

(2) Inlet leads shall be constructed in accordance with the specifications for type of material used and the plans and detail drawings.

(3) Where two or more leads are joined together to form a single lead to the storm sewer they shall be joined at a cleanout unless shown otherwise on the plans.

(4) Inlet leads shall be connected to the storm sewer at a manhole. The leads shall enter the manhole at a point that will match the .8 points of the two pipes as near as practical.

E. CLEANOUT FOR STORM SEWER INLET LEADS

Cleanouts at the juncture of inlet leads shall be constructed in accordance with the dimensions and requirements shown on the plans and detail drawings.

F. CORRUGATED STEEL SLOTTED DRAINS

(1) Corrugated steel slotted drains shall be as specified in section 2.02-3 of these specifications and shall be furnished in the lengths and diameters as shown on the drawings and in the bid proposal.

(2) Corrugated steel slotted drains are approved for nuisance water inlets only and are sized to allow for considerable clogging before they will cease to function in this capacity.

2.07 MANHOLES

1. GENERAL

A. **CONCRETE MANHOLES ARE NOT TO BE USED FOR SANITARY SEWERS AFTER DECEMBER 31, 2002. FIBERGLASS MANHOLES ARE TO BE USED FOR ALL SANITARY SEWERS**. Concrete manholes can be used for storm water sewers.

All manholes furnished for this project shall be precast unless noted otherwise on the plans and or bid proposal.

Precast manholes shall conform to the requirements of ASTM Specification C-478 with the modifications given in this article.

Concrete used for precast manholes shall have a minimum 28-day compressive strength of 4,000 psi and shall have a minimum cement content of 7 sacks per cubic yards.

All manhole sections shall be furnished with tongue and groove type joints suitable for sealing water tight with rubber or bituminous joint sealer or gaskets.

B. When cast in place components for manholes are called for on the plans the concrete used shall have a minimum 28 day compressive strength of 4,000 psi and a minimum cement content of 7 sacks per cubic yard and shall conform to the requirements of ASTM Specification C-478 with wall thickness as shown on the plans and detail drawings.

Aggregate for the concrete shall meet the sodium sulfate and magnesium sulfate test as required in ASTM Specification C-33.

C. Mortar for filling and shaping the inverts in precast manhole bases and for mortaring precast grade rings and cast iron rings and covers shall consist of one part Portland cement ASTM C150 Type 1 to 3 parts washed sand mixed with just enough water to make a workable mix.

D. Manholes for corrugated steel pipe may be precast concrete or corrugated steel as described in Article 2.02. The type and material shall be as shown on the plans and called for on the bid proposal.

2. PRECAST MANHOLES

A. Manhole base sections shall be cast with an integral floor and shall be constructed in accordance with the details shown on the plans.

B. Manhole riser sections shall be constructed in accordance with the plans and details and these specifications. When pipe openings are required in manhole riser sections they shall be of the same type and meet the same requirements as the pipe openings in the precast bases.

Manhole riser sections for each manhole shall be furnished in the proper combination of lengths to construct the manhole in conjunction with the other components to the finished grade shown on the plans.

C Eccentric cone sections shall be constructed in the same manner as other components except the top of the cone will have a flat surface to accommodate the manhole ring and cover or grade adjusting rings instead of a tongue or groove.

Generally openings will not be required in the wall of the cone section of the manhole.

D. Manhole grade rings shall comply with all the requirements for manhole riser sections except they shall be cast smooth both sides without tongues and/or grooves.

Manhole grade rings shall be sized to fit the smooth small end of the cone section and shall be cast in heights of 2", 4" or 6".

E. Joint seals for precast concrete manholes shall be a bitumastic sealer such as Ram-Nek or approved equal, a soft rubber sealer such as Butyl-Lok or approved equal or an approved "O" ring gasket or a combination of the above if required to achieve a water tight joint.

F. All water tight Storm Sewer Manholes constructed on this project shall have Neenah R-1755-C watertight manhole rings and covers or approved equal.

No separate payment will be made for the protective plastic manhole linings or for the water tight manhole rings and covers but the cost of these items shall be included in the price bid for water tight Storm Sewer Manholes.

In addition to the markings required by ASTM Specification C-478, all components of each manhole shall be, marked with location identifying information such as manhole number or line number and station value where manhole is to be installed. If the manhole has openings for installation of branch lines above the base section, each manhole section shall be clearly marked with the sequence of installation to assure the branch opening will be at the correct elevation.

3. FIBERGLASS MANHOLES

A. SCOPE

Fiberglass reinforced polyester manholes shall be manufactured from commercial grade polyester resin or other suitable polyester or vinyl resins, with fiberglass reinforcements and in accordance with the latest edition of ASTM D 3 753 (Standard Specification for Glass-Fiber Reinforced Polyester Manholes). Fiberglass manholes shall be used with fiberglass or plastic sewer pipe.

B. MATERIALS

1. **Resin:** The resins used shall be a commercial grade unsaturated polyester resin.

2. **Reinforcing Materials**: The reinforcing materials shall be commercial Grade "E" type glass in the form of mat, continuous roving, chopped roving, roving fabric, or a combination of the above, having a coupling agent that will provide a suitable bond with the resin and leave a resin rich surface.

3. **Surfacing Materials**: If reinforcing materials are used on the surface exposed to the contained substance, they shall be a commercial grade chemical-resistant glass organic surfacing mat having a coupling agent that will provide a suitable bond with the resin and leave a resin rich surface.

4. **Fillers and Additives**: Fillers, when used, shall be inert to the environment and wet well construction. Additives, such as thixotropic agents, catalysts, promoters, etc., may be added as required by the specific manufacturing process to be used. The resulting reinforced plastic material must meet the requirement of this specification.

C. FABRICATION

1. **Exterior Surface**: The exterior surface shall be relatively smooth with no sharp projections. Handwork finish is acceptable if enough resin is present to eliminate fiber show. The exterior surface shall be free of blisters larger than ½ inch in diameter, de-lamination and fiber show.

2. **Interior Surface**: The interior surface shall be resin rich with no exposed fibers. The surface shall be free of crazing, de-lamination, blisters larger than ½ inch in diameter, and wrinkles of 1/8 inch or greater in depth. Surface pits shall be permitted up to 6 per square foot if they are less than ¾ inch in diameter and less than 1/16 inch deep.

3. **Defects not permitted**:

Exposed fibers: glass fibers not wet out with resin.
Resin runs: runs of resin and sand on the surface
Dry areas: areas with glass not wet out with resin.
De-lamination: separation in the laminate.
Blisters: light colored areas larger than ½ inch in diameter.
Crazing: cracks caused by sharp objects
Pits or Voids: air pockets.
Wrinkles: smooth irregularities in the surface.
Sharp projection: fiber or resin projection necessitation gloves for handling.

D. PHYSICAL REQUIREMENTS

1. **Load Rating**: The complete manholes shall have a minimum dynamic-load rating of 16,000 ft-lbs. when tested in accordance with this standard. In order to establish this rating, the complete manhole shall not leak, crack, or suffer other damage when load

tested to 40,000 ft-lbs. and shall not deflect vertically downward more than ¼ inch at the point of load application when loaded to 24,000 lbs.

2. **Stiffness**: The manhole cylinder shall have a minimum pipe stiffness value as shown below when tested in accordance with A.S.T.M. 3753 8.5 (note 1)

Depth Ft.	F/dy.psi
3 – 6.5	0.75
7 – 12.5	1.26
13 – 20.5	2.01
21 – 25.5	3.02
26 – 35	5.24

3. **Soundness:** In order to determine soundness, apply an air or water pressure test to the manhole test sample. Test pressure shall not be less than 3 psig or greater than 5 psig. While holding at the established pressure, inspect the entire manhole for leaks. Any leakage through the laminate is cause for failure of the test. Refer to A.S.T.M. 3753 8.6.

4. **Chemical Resistance**: The fiberglass manhole and all related components shall be fabricated from corrosion proof material suitable for atmospheres containing hydrogen sulfide and dilute sulfuric acid as well as other gases associated with the wastewater collection.

5. **Physical Properties**:

	Hoop Direction	Axial Direction
a. Tensile Strength (pi)	18,000	5,000
b. Tensile Modulus (pi)	0.6×10^6	0.7×10^6
c. Flexural Strength (psi)	26,000	4,500
d. Flexural Modulus (psi)	1.4×10^6	0.7×10^6
e. Compressive (psi)	18,000	10,000

6. **Minimum Wall Thickness**: Shall be 0.48” nominal at all depths of the manholes.

E. TEST METHODS: All tests shall be performed as specified in A.S.T.M 3753 latest edition, section 8. Test method D-790 (see note 5) and test method D-695.

F. QUALITY CONTROL: Each completed manhole shall be examined for dimensional requirements, hardness, and workmanship. All required A.S.T.M 3753 testing shall be completed and records of all testing shall be kept and copies of test records shall be presented to customer upon formal written request within a reasonable time period.

G. CERTIFICATIONS: As a basis of acceptance the manufacturer shall provide a independent certification which consist of a copy of the manufacturer’s test report and accompanied by a copy of the test results that the manhole has been sampled, tested,

and inspected in accordance with the provisions of this specification and meets all requirements.

H. SHIPPING AND HANDLING: Do not drop or impact the fiberglass manhole. Fiberglass manhole may be lifted by inserting a 4" x 4" x 30" timber into the top of manhole with cable attached or by a sling or "choker" connection around center of manhole, lift as required. Use of chains or cables in contact with the manhole surface is prohibited.

I. CONCRETE:

1. **Fiberglass Bottom**: Manholes may have fiberglass bottoms that are a minimum of 6" below the OD of the pipe invert when concrete is used to form the invert. Manufactured fiberglass inverts and bench areas are allowed, or concrete may be used to form bench area and invert. Concrete is to be used on top of anti-flotation ring and around the reducer section as required for buoyancy.

2. **Concrete Bottom**: Lower manhole into wet concrete until it rests at the proper elevation, with a minimum of 4 inches of fiberglass manhole inserted into the wet concrete below flow line, then move manhole to plumb. The concrete shall extend a minimum of one foot from the outside wall of the manhole and a minimum of 6 inches above incoming lines. On the inside concrete shall form the bench and invert area and rise a minimum of 4 inches above incoming lines. If required by Engineer concrete may be used around reducer section for buoyancy control.

BACKFILL:

1. **Backfill Material**: Unless shown otherwise on drawings and approved by the Engineer, sand, crushed stone, or crushed gravel shall be used for backfill around the manhole for a minimum distance of one foot from the outside surface and extending from the bottom of the excavation to the top of the reducer section. Suitable material chosen from the excavation may be used for the remainder of the backfill. The material chosen shall be free of large lumps or clods, which will not readily break down under compaction. This material will be subject to approval by Engineer.

2. **Backfill Procedure**: Backfill shall be placed in layers of not more than 12 loose measure inches and mechanically tamped to 95% Modified Proctor Density, unless otherwise approved by Engineer. Backfill shall be placed in such a manner as to prevent any wedging action against the fiberglass manhole structure.

K. MARKING and IDENTIFICATION: Each manhole shall be marked on the inside and outside with the following information:

Manufacturer's name or trademark
Manufacturer's factory location
Manufacturer's serial number
Total length

4. MANHOLE RINGS AND COVERS

A. Manhole rings and covers furnished for this project shall be pattern No. 300-24 as produced by Western Iron Works, Inc., 21 E. 6th St., San Angelo, Texas 76903-5493 or Bass and Hays Foundry, Inc., 238 South Bagdad Rd., Grand Prairie, Texas 75050, or approved equal.

B. WATER TIGHT MANHOLE COVERS

(1) Water tight manhole rings and covers furnished for this project shall be number R-1755-C as manufactured by Neenah Foundry Company, P.O. Box 729, Neenah, Wisconsin 54957, or approved equal.

(2) When watertight replacement sanitary sewer manhole rings and covers are called for on the plans and in the bid proposal they shall be Neenah Foundry Co. No. R-1755-C or approved equal.

No separate payment will be made for adjusting to grade of the replacement watertight manhole rings and covers. The contractor shall schedule this work to coincide with other manhole and water valve adjustments and any costs that might be involved shall be included in the price bid for replacement water tight manhole rings and covers.

(3) Manhole vents shall be used in conjunction with watertight rings and covers spaced every third manhole or as indicated on the plans. Vents shall be constructed as indicated on City design and construction standards.

C. Pressure type manhole rings and covers may be required for certain storm sewer applications. When pressure type manhole rings and covers are called for on the plans and/or bid schedule they shall be Western Iron Works Pattern #380-24P or approved equal. The manhole cover shall be sealed with an “O” ring gasket in a ring groove and shall be secured to the ring by six (6) five-eighths inch (5/8”) stainless steel bolts. The ring shall have six (6) one and one quarter inch (1-1/4”) bolt holes in the flanges for securing the ring to the concrete slab top on the manhole.

D. All manhole covers except grate type shall have two blind pick holes or pick bar cast into them. The blind pick holes or pick bars shall be placed on opposite sides of the cover.

E. All manhole covers except grate type shall have cast into their tops in letters 2 inches high minimum one of the following:

CITY OF MIDLAND
SANITARY SEWER
OR
CITY OF MIDLAND
STORM DRAIN

which ever is applicable.

2.08 GRANULAR MATERIALS

A. GRANULAR MATERIAL GRADATION CLASSIFICATIONS:

Granular materials furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified, shall consist of any natural or synthetic mineral aggregate such as sharp grained sand, crushed gravel, crushed rock, crushed stone, or slag, and shall conform to the following specifications and/or gradation.

Note all materials used for these purposes shall be crushed and shall have at least two broken faces. Pea gravel will NOT be allowed.

	Foundation	Bedding	Encasement	Backfill
ASTM C33 Grade #57	x			
ASTM C33 Grade #67	x			
ASTM C33 Grade #8		x	x	
THD 1982 Item 302 Type D Grade 4		x	x	
THD 1982 Item 302 Type D Grade 5			x	
Crusher fines**			*x	x

*100 percent of crusher fines that are to be used within 12 inches of the top of pipe must pass the ¾" sieve.

** Approximate Gradation for Crusher Fines.

Sieve Size	% Passing
2 inch	100
# 4	35 - 100
# 10	20 - 100
# 40	5 - 35
#200	4 - 10

Crushed stone material proposed as an alternate for use on this project and not meeting the above specifications must be approved in writing at least 48 hours prior to the time scheduled for opening bids.

B. GRANULAR MATERIAL USE DESIGNATIONS:

Granular materials provided for Foundation, Bedding, Encasement, or Backfill use as required by the contract, either as part of the pipe item work unit or as a separate contract item, shall be classified as to use in accordance with the following:

MATERIAL USE DESIGNATION	ZONE DESIGNATION
Granular Foundation	Placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support.
Granular Bedding	Placed below the midpoint of the pipe prior to pipe installation, to facilitate proper shaping and achieve uniform pipe support. Also for Class B bedding where specified.
Granular Encasement	Placed below an elevation one half foot (6") above the top of pipe, after pipe installation, for protection of the pipe and to assure proper filling of voids and thorough consolidation of backfill.

In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

PART 3 – EXECUTION

3.01 LOCATION OF WORK

A. The work will be located as shown on the plans.

B. It may be necessary for the Engineer to shift lines as reasonable amount to avoid an obstruction to the construction or to reduce right of way difficulties. The Contractor will not be allowed any additional compensation due to shift of lines. Additional compensation will be allowed only for lengthening of lines.

3.02 PROTECTION OF SURFACE STRUCTURES

A. All surface structures and features located outside the permissible excavation limits for underground installations, together with those within the construction areas which are indicated in the Plans as being saved, shall be properly protected against damage and shall not be disturbed or removed without approval by the Engineer.

B. Obstructions such as street signs, guard posts, mail boxes and other items of prefabricated construction may be temporarily removed during construction provided that essential service is maintained in a relocated setting as

approved by the Engineer and that non-essential items are properly stored for the duration of construction. Upon completion of the underground work, all such items shall be replaced in their proper setting. This removal, relocation and replacement shall be at the sole expense of the Contractor.

In the event of damage to any surface structures or improvements, either privately or publicly owned, in the absence of construction necessity, the Contractor will be required to replace or repair the damaged property to the satisfaction of the Engineer and without cost to the Owner.

3.03 INTERFERENCE OF UNDERGROUND STRUCTURES

A. When any underground structure interferes with the planned placement of the pipeline or appurtenances to such an extent that alterations in the work are necessary to eliminate the conflict or avoid endangering effects on either the existing or proposed facilities, the Contractor shall immediately notify the Engineer and the Owner of the affected structure. When any existing facilities are endangered by the Contractor's operations, he shall cease his operations at the site and take such precautions as may be necessary to protect the in place structures until a decision is made as to how the conflict will be resolved.

B. Without specific authorization from the Engineer, no essential utility service shall be disrupted, nor shall any change be made in either the existing structures or the planned installations to overcome the interference. Alterations in existing facilities will be allowed only to the extent that service will not be curtailed unavoidably and then only when the encroachment or relocation will satisfy all applicable regulations and conditions.

C. Wherever alterations are required as a result of unforeseen underground interference not due to any fault or negligence of the Contractor, the Engineer will issue a written order covering any additional or extra work involved and specifying the revised basis of payment, if any. Any alterations made strictly for the convenience of the Contractor shall be subject to prior approval and shall be at the Contractor's expense.

D. No extra compensation will be allowed for delays caused by the interference of underground structures.

3.04 SEPARATION BETWEEN SANITARY SEWERS AND WATER MAINS

A. Sanitary sewers and service lines shall be installed so that the separation between the sewer and water mains is not less than 9 feet in all directions. The 9 feet shall be measured between the nearest outside edges of the pipe.

B. When the required 9 foot minimum separation cannot be maintained and a sanitary sewer must be constructed parallel to a water main, the sanitary sewer shall be constructed of ductile iron or PVC pipe meeting AWWA specification or having NSF approval for potable water pipe, with a pressure rating of 100 psi for both the pipe and the joint. The sanitary sewer line shall

be installed in a separate trench and may be placed no closer than 2 feet vertically and 4 feet horizontally from the water main, with the separation being measured from the nearest outside walls of the pipes. The sanitary sewer shall be constructed lower than the water main.

C. When a sanitary sewer must cross a water main and the 9 feet required separation cannot be maintained, the sanitary sewer may be constructed with a minimum clear separation between the outside diameters of the two pipes of 6 inches if that part of the sanitary sewer within 9 feet of the water main is constructed of ductile iron pipe or PVC pipe meeting AWWA specifications, having a 150 psi pressure rating and equipped with pressure type joints. One length of the sewer pipe must be centered on the water main and where possible, the sanitary sewer should pass under the water line.

D. When the 9 foot required separation cannot be maintained and a sanitary sewer force main must be constructed parallel to a water main, the sanitary sewer force main shall be constructed of ductile iron or PVC pipe meeting AWWA specifications and having a pressure rating of 150 psi and equipped with pressure type joints. The force main must be constructed with a minimum vertical separation of 2 feet and a minimum horizontal separation of 4 feet measured between the outside diameters of the pipes. The force main must be constructed lower than water main.

Table I showing separation of water and sewer lines and construction materials allowed:

TABLE 1
SEPARATION OF WATER AND SEWER LINES

Condition	Location	Material		Separation (Min.)		Comments
		Water	Sewer	Vert.	Horiz.	
NEW WATER AND NEW SEWER SYSTEM						
New Water & New Sewer Gravity Sanitary Sewer Parallel to Water Main	Water above Sewer	Std.	CI DI PVC 150 PSI	2’	4’	Separate Trenches
Gravity Sanitary Sewer Crossing Water Main	Water above Sewer or Sewer above Water	Std	CI DI PVC. 150 PSI	6”	NA	Center one joint of sewer pipe on water main
Gravity Sewer Crossing Water Main	Water above Sewer	Std	ABS, Clay Conc. composite	2’	NA	Cement stabilize sand initial backfill zone each side of crossing. Center of sewer for 9 ft one joint of sewer pipe on water Main
NEW WATER AND EXISTING SANITARY SEWER						
New Water Parallel Existing Sewer	Water above Sewer	Std.	Clay, Conc. ABS CI DI PVC	2’	4’	If sewer shows no sign of leakage, then leave sewer alone. If Sewer shows signs of leakage, then repair or replace.
New Water Crossing Existing Sewer	Water above Sewer	Std	Clay, ABS Conc. composite	2”	NA	If sewer shows no sign of leakage, then leave sewer alone if sewer shows signs of leakage then repair or replace.
New Water Crossing Existing Sewer	Sewer above Water	Std	Clay, ABS Conc. composite	2’	NA	Replace existing sewer with one joint CI,DI,PVC-150 Centering over waterline
New Water Parallel to Existing Sewer	Sewer above Water	Std	Clay, ABS Conc. composite	2’	4’	Replace existing sewer with CI, DI, PVC – 150 PSI or Cement Stabilized sand back- fill initial Backfill none of sewer where parallel closer than 9 ft., or Encase the water in 150 PSI Pipe two nominal sizes larger.

EXISTING WATER AND NEW SANITARY SEWER						
New Sewer parallel Existing Water	Water above Sewer Or Sewer above Water	Std	CI DI PVC 150 PSI	2'	4'	Separate trenches
New Sewer crossing Existing Water	Water above Sewer or Sewer above water	Std	CI DI PVC 150 PSI	6"	NA	Center one joint of sewer pipe on water main.
New Sewer crossing Existing Water	Water Above Sewer	Std	Clay, ABS Conc. composite	2'	NA	Cement Stabilize sand initial backfill zone of sewer for 9 ft each side of crossing. Center one joint of sewer pipe on water main.

3.05 EXCAVATION

A. Excavation of every description and of whatever materials encountered shall be made to the alignment and depth shown on the plans or as directed by the Engineer. Excavation shall be made by open cut. Sides of trenches shall be kept as nearly vertical as possible and the trench shall be so braced, sheeted and drained that workmen may work safely and efficiently therein. The trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench.

B. The trench width may vary with and depend upon the depth of trench, the diameter of pipe to be laid and the nature of the material to be excavated; but in any case shall be of ample width to permit the pipe to be laid and jointed properly and the backfill to be placed and compacted properly. The minimum width of unsheeted trench shall be 18 inches. The maximum clear width of trench at the top of the pipe shall be not more than two (2) feet greater than the outside diameter of the pipe for pipes up to 33" diameter except by consent of the Engineer. Whenever, for any reason, the maximum trench width is exceeded, the Contractor shall provide, at his own expense, pipe of higher class and/or bedding adequate to sustain the increased soil load as calculated by the Engineer.

C. Trenches shall be undercut to provide for the class bedding specified and/or shown on the plans. Bell holes shall be excavated to insure the pipe resting for its entire length upon the bedding material. Where trenches are under-cut beyond the depth required for bedding the trench shall be brought to grade by using crushed aggregate as specified for foundation herein. The use of loose native soil will NOT be permitted for this purpose.

D. No pipe shall be laid in water. Where the ground water table is at or above trench bottom, the Contractor shall de-water the trench to permit the pipe to be laid on a solid foundation.

   Costs for de-watering by whatever method selected shall be considered incidental to the price bid per foot of pipe.

   The Contractor shall discharge pumps to the natural drainage channels, or if permitted, to other sewer or drains.

Where sewer pipelines are located in or across streambeds or drainage ditches, the Contractor shall divert the stream flow and de-water each section as the work progresses.

E. Temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstructions encountered in the progress of the work shall be furnished by the Contractor at his own expense under the direction of the Engineer.

F. Whenever wet, soft or unstable soil, incapable of properly supporting the pipe, manholes or other structure is encountered in the trench, a further depth and/or width shall be excavated and refilled to trench bottom grade with gravel or other approved suitable material thoroughly compacted to assure a firm foundation for the pipe.

G. Rock, boulders and large stones shall be removed to provide a clearance of at least six (6) inches below the outside barrel of the pipes, valves, or fittings and to a clear width of six (6) inches on each side of all pipe and appurtenances for pipe 15 inches in diameter or less, and a clear width of nine (9) inches on each side of all pipe and appurtenances for pipe larger than 15 inches in diameter. Adequate clearance for properly joining pipe laid in rock trenches shall be provided at bell holes. The space between the rock at the bottom of the trench and the bottom of the pipe barrel shall be filled with compacted bedding material.

H. The Engineer shall be notified of any need for blasting to remove materials which cannot be broken up mechanically, and there shall be no blasting operations conducted until the Engineer's approval has been secured. Blasting operations will be allowed only when proper precautions are taken to protect life and property, and then shall be restricted as the Engineer directs. The Contractor shall assume full responsibility for any damage caused by blasting, regardless of the requirements for notification and approval. The Contractor shall secure any required permits for blasting and shall conduct blasting operations in conformance with all applicable State and local laws, regulations and ordinances.

I. In the event the Contractor desires to employ tunneling in locations other than as shown on the Plans in order to avoid replacement of sidewalks, etc., he shall do so only upon receipt of specific permission from the Engineer. Tunneling of this nature shall be considered incidental.

J. Excavated materials will be classified for reuse as being either suitable or unsuitable for backfill or other specified use.

3.06 SPECIAL SAFETY PROVISIONS

1. TRENCH SAFETY SYSTEMS

A. DESCRIPTION

This item shall govern for the Trench Safety Systems required for the construction of all trench excavation to be utilized in the project and including all additional excavation and backfill necessitated by the safety system. A trench shall be defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. The depth is five feet or more. Trench Safety Systems include but are not limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, de-watering or diversion of water to provide adequate drainage.

B. CONSTRUCTION METHODS

Trench safety systems shall be accomplished in accordance with the detailed specifications set out in the provisions of Excavation, Trench, and Shoring, Federal Occupational Safety and Health Administration (OSHA) Standards, 29CFR, Part 1926, Subpart P, as amended, including Proposed Rules published in the Federal Register (Vol. 52, No. 72) on Tuesday, October 31, 1989. The sections that are incorporated into these specifications by reference include Sections 1926-650 through 1926-652. Legislation that has been enacted by the Texas Legislature, being Tex. Rev. Civ. Stat. Ann. Arts. 1015q, 2368a.6 (Vernon Supp. 1988) with regard to Trench Safety Systems, is hereby incorporated, by reference into these specifications.

A reproduction of the OSHA Publication 2226 is attached for the convenience of the Contractor. The City assumes no responsibility for the accuracy of the reproduction or that it reflects current law. The Contractor is responsible for obtaining a copy of this section of the Federal Register for his use.

If the contractor elects to use a trench protective system that, in the Proposed Rules, requires “Design by a qualified person or a qualified engineer,” [For example see 1926.652 (b) (3) and 1926.652 (c) (4)], a “qualified person or qualified engineer” shall be a Professional Engineer registered in the State of Texas. The Contractor is responsible for obtaining boring and soil analysis as required for the planned design. The trench excavation is to be designed in conformance with OSHA standards and regulations.

C. TRENCH SAFETY PROGRAM

The Contractor shall submit a safety program specifically for the construction of trench excavation. The trench safety program shall be in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

D. INSPECTION

The Contractor shall make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. Daily inspection is to be made by a "competent person" provided by the Contractor. If evidence of possible cave-ins, or slides, is apparent, all work in the trench shall cease until the necessary precautions have been taken by the Contractor to safeguard personnel entering the trench. It is the sole duty, responsibility and prerogative of the Contractor, not the owner or the Engineer, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project. The Contractor shall maintain a permanent record of daily inspections.

2. SAFETY RESTRICTIONS - work near high voltage lines

The following procedures will be followed regarding the subject item on this contract:

A. Warning signs painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

B. All equipment except back hoes or dippers that may be operated within ten feet of high voltage lines shall have an insulating cage-type of guard about the boom or arm and insulator links on the lift hook connections.

C. When necessary to work within six feet of high voltage electric lines, notification shall be given the power company who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

D. The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

3.07 PIPE LAYING

A. All gravity pipe shall be laid using approved grade boards, furnished and set by the Contractor at no additional cost to the Owner, according to the grade stakes established by the Engineer. The maximum spacing of grade boards shall be fifty (50) feet. No sewer shall be laid unless there is a minimum of three grade boards set to check the proper grade and alignment ahead. The Contractor shall provide and use a suitable grade rod to insure the proper grade of the pipe.

B. The Contractor may use the laser beam method of setting a line and grade for the sewer by using the laser beam coaxially through the center of the sewer being laid. The laser beam projector is to be rigidly mounted to its support platforms, with a two-point suspension, or equivalent, assuring that all ground and equipment vibrations are kept to an absolute minimum. The Contractor shall furnish all equipment including equipment necessary to control atmospheric conditions in the pipe to keep line and grade to acceptable standards of accuracy. Competent experienced people who have been properly trained to operate the equipment used must operate the laser beam system.

C. The Contractor shall stake check pegs at all manholes throughout the job. Check pegs midway between manholes and any other checkpoints deemed necessary to assure accuracy of the equipment shall be provided by the contractor.

D. Each piece of pipe and special fitting shall be carefully inspected before it is placed and no defective pipe shall be laid in the trench. Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells uphill. No pipe shall be laid except in the presence of an inspector representing the Engineer. Any pipe laid except in the presence of an inspector representing the Engineer shall be subject, at the contractor's expense, to a television camera inspection and survey by the city. Trench bottoms found to be unsuitable for foundations after pipe laying operations have started shall be corrected and brought to exact line and grade with approved compacted granular material as specified for foundation in Item 2.07 A. of these specifications.

E. Pipe laying shall proceed up-grade with spigot or tongue ends pointing in the direction of flow. The spigot shall be centered in the bell, and pipe shoved into position, and brought into true alignment. It shall be secured there with bedding material carefully tamped under and on each side of it, excepting at bell holes. Care shall be taken to prevent dirt from entering the joint space.

F. Any defective or damaged pipe discovered after the line is laid or any gravity pipe, which has had its grade or joint, disturbed after laying shall be removed and replaced or relayed. The section of line in which such damaged or displaced section is discovered shall be retested after corrections are made.

G. Where excavation for buildings or other portions of the work have been carried below the line and grades of the pipe, thorough tamping of approved crushed stone backfill and the use of adequate bracing and blocking under the pipe will be required to insure against settling and shearing of the pipe. In areas where noted on plans, Portland cement stabilized material or concrete shall be used for backfill to provide adequate bracing for pipe and protection of structures.

H. All manhole connections for PVC or other Polymer based pipe shall be made using "A Lok Gaskets" or "Kor-N-Seal" boots or other approved water stop devices. Only Portland cement grout that expands upon curing or approved non-shrink grout will be incorporated into any manhole connection.

I. Connections to manholes for other types of pipe shall be in accord with the pipe manufacturers specifications and other applicable requirements of these specifications. The resulting joint shall meet the leakage test requirements of these specifications.

J. The exposed end of all pipes shall be fully protected with a stopper or bulkhead at the end of each day's work to prevent earth, debris, small animals, or other substances from entering the pipe. The interior of the sewer shall be carefully freed from all dirt, jointing compound, or superfluous material of every description as the work progresses.

3.08 CONNECTION AND ASSEMBLY OF JOINTS

1. JOINING PVC OR OTHER POLYMER BASED PIPE

A. The type of joint and the material to be used shall be as shown on the plans or specified herein. Factory cast compression joints shall be free of dirt and lubricated before inserting the barrel into the bell. After the spigot is centered in the bell, the pipe shall be shoved home solidly by using a wood block and bar. The Contractor shall keep the ends of the pipe closed to prevent dirt and other material from entering the pipe during placement. All joints must be water tight, and any leaks or defects discovered must be repaired immediately. Any pipe, which has been disturbed after being laid, must be taken up, the joint cleaned and properly relayed as directed by the Engineer.

Lubricant used shall be as recommended by the pipe manufacturer.

B. Field-cut pipe must be beveled for insertion into the gasketed bell or coupling. Bevels can be made with a hand or power tool. Bevels shall be made to pipe manufacturer's specifications. If pipe manufacturers specifications are not available the bevel may be made at 15 degrees to the longitudinal axis of the pipe through one half (l/2) the wall thickness.

C. After pipe has been cut and beveled, a new full insertion mark located as recommended by the pipe manufacture shall be made using a felt tip pen. The contractor may determine the location of the insertion mark by measuring the mark location on a factory marked joint of pipe if manufacturer's specifications are not available.

2. JOINTING CORRUGATED STEEL PIPE

A. Gaskets for corrugated steel pipe shall be "O" Ring or sleeve types. Sleeve gasket shall be carefully placed on one joint of pipe. When the pipe is aligned and brought end to end the gasket shall be carefully centered over the joint between the ends of the pipe. "O" ring gasket shall be installed in accordance with the manufacturer's recommendation.

B. When "O" ring gaskets are furnished a flat gasket shall be furnished and placed between the overlapping portions of the band. The gasket shall extend the full width of the band and shall be of sufficient depth to assure a watertight joint.

C. The coupling band shall be carefully centered over the joints and tightened to the pipe manufacturer specifications. Care shall be taken during the tightening process to assure a snug uniform fit for the entire circumference of the pipe.

3. PROTECTING AND COVERING JOINTS

A. The contractor shall keep the ends of the pipe closed during the time of construction to prevent the entry of dirt, debris, small animals and other foreign objects.

B. Joints shall not be covered until approved by Engineer or his representative. Connections, which are for future use, shall be properly capped.

3.09 CONNECTIONS TO EXISTING STRUCTURES

A. Where shown on the plans, the contractor shall connect the new sewer to existing manholes. If no stub out is present in the existing manhole for such connection, the contractor shall construct such connection by making a hole in the side of the existing manhole using a coring machine or other approved method and installing a “KOR N Seal” boot as manufactured by N.P.C. Systems, Inc. or other approved water tight manhole connector.

The contractor shall use caution in constructing the connection to the existing manhole. Damage to the manhole that, in the opinion of the Engineer, would impair the use and/or function of the manhole shall be just cause to require the contractor to reconstruct the manhole at contractor’s expense. Such damage shall include but not be limited to cracking of the manhole riser section, spalling around the connection significantly reducing manhole wall thickness or excessive oversize in the opening for the new connection requiring any filler other than the manhole connector and/or non-shrink grout specified.

The contractor shall make such changes in the invert of the manhole as may be necessary to provide a smooth flow of the water through the manhole. Any connection to existing structures required in the Plans shall be accomplished by the Contractor and shall be incidental item with no direct compensation being made unless listed as a pay item in the bid proposal.

B. If the work consists of the construction of a sewer that is to replace an existing sewer, all of the existing service lines shall be kept in operation and connected to the new line.

C. Connections shall be made to all existing sewer lines in the vicinity of the work by removing a section of the sewer for the existing line and inserting in the space a tee branch of proper size, or by the construction of a manhole, regulator chamber of other structure as shown on the Drawings.

D. Connections to building services shall be made in a neat and workman like manner. Clean out plugs shall be installed wherever feasible, by making the connections with a standard wye or tee-wye. When clean out plugs are installed they should be located as near the right of way line as practical.

3.10 BACKFILL OPERATIONS

1. GENERAL

A. All pipeline excavations shall be backfilled in a manner that will restore pre-existing conditions as the minimum requirement and fulfill all supplementary requirements indicated in the Plans and Specifications. The backfilling operations shall be started as soon as conditions will permit on each section of pipeline, so as to provide continuity in subsequent operations and restore normal public service as soon as practicable on a section-by-section basis. All operations shall be pursued diligently, with proper and adequate equipment, to assure acceptable results.

B. For this specification backfill is defined as any material placed in the trench above the bedding zone other than the pipe or conduit and appurtenance.

For flexible pipe the backfill between the bedding material and the crown of the pipe shall be crushed stone suitable for encasement as specified in article 2.07 of the specifications. When Portland cement stabilized backfill is used above the pipe zone; the crushed stone encasement shall extend to 1' above the crown of the pipe.

C. Depositing of the backfill shall be done so the shock of falling material will not injure the structure. Grading over and around all parts of the work shall be done as directed by the Engineer.

D. Whenever soil types which are determined by the Inspector to be undesirable for backfill are excavated from the trench, such material shall be hauled away and deposited at locations shown on the plans or as directed by the Engineer at no additional compensation.

E. Backfill materials placed in the pipe zone shall be carefully placed in relatively uniform depth layers spread over the full width and length of the trench section in a manner and/or sequence that will provide simultaneous support on both sides of the pipeline. Each layer shall be compacted effectively, by approved mechanical of hand methods, until there is no further visual evidence of increased consolidation. Above the pipe zone the backfill material shall be placed uniformly across and along the trench in depth suitable for the compaction method used and compacted to a minimum of the density specified for the material used and the trench location. Compaction of the in place layer shall be completed acceptably before placing material for a succeeding layer thereon.

The manner of placement, layer thickness, compaction equipment, and procedure effectiveness shall be subject to approval of the Engineer. Water jetting or flooding shall NOT be used to compact trench backfill.

F. Compaction of materials placed within the pipe bedding and encasement zones shall be accomplished with portable or hand equipment methods, so as to achieve thorough consolidation under and around the pipe and avoid damage to the pipe. Above the pipe zone, the use of heavy roller type compaction equipment shall be limited to safe pipe loading.

G. The maximum loose thickness of each backfill layer placed above the pipe zone shall be 12 inches, except that 16 inches will be permitted for Granular Materials placed above an elevation one foot above the top of pipe, and with the provision that, by authority of the Engineer and in consideration of the demonstrated capability of special type vibratory compactors, these maximums may be increased at his discretion. “Hydro tamps”, “vibra tamps” or other heavy compacting equipment shall not be used until the backfill has reached a depth of four (4) feet above the top of the pipe.

H. All surplus or waste materials remaining after completion of the backfilling operations shall be disposed of in an acceptable manner within 24 hours after completing the backfill work on each particular pipeline section. Disposal at any location within the project limits shall be as specified, or as approved by the Engineer; otherwise, disposal shall be accomplished outside the project limits at the Contractor’s discretion. The backfilling and surplus or waste disposal operations shall be a part of the work required under the pipeline installation items, not as work that may be delayed until final cleanup.

I. For the duration of the warranty period of the project, the Contractor shall assume full responsibility and expense for all backfill settlement and shall refill and restore the work as directed to maintain an acceptable surface condition. All additional materials required shall be furnished without additional cost to the Owner.

2. BACKFILL IN PUBLIC RIGHTS-OF-WAY AND OTHER AREAS WHERE SETTLEMENT IS CRITICAL

A. GENERAL REQUIREMENTS

(1). Backfill above the pipe zone in public rights-of-way and under paved parking lots, near structures or other utilities where settlement can cause damage shall be made using Portland cement stabilized backfill or crushed stone screenings (crusher fines).

The pipe zone is defined as that portion of the trench extending from the bottom of the trench to 12” above the crown of the pipe or conduit.

(2) Backfill around structures such as manholes, junction boxes, transformer boxes and valve boxes shall be made using Portland cement stabilized backfill material or crushed stone screening (crusher fines).

(3) The minimum depth of stabilized backfill or crusher fines shall be twelve (12”) inches.

When utilities are being constructed under existing paving, the stabilized backfill or crusher fines shall extend from top of the pipe zone to the top of the base course.
When utilities are being constructed under existing unpaved streets that are not scheduled for immediate pavement construction, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the existing roadway surface.

When utilities are being constructed in streets that are scheduled for immediate paving, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the bottom edge of the eight (8") inches of subgrade, or, if the paving contractor has constructed a portion of the roadway prior to the construction of the utilities the backfill shall extend to the top of the course the contractor has finished, or the top of the base course, which ever is lower.

If the final course of asphaltic concrete has been placed, the street or alley surface shall not be cut for utility installation.

In streets where stabilized backfill is required only to the bottom of the subgrade course, the minimum depth of stabilized backfill may be reduced to six (6") inches in which case the maximum depth of the "pipe zone" shall be limited to six (6") inches above the top of the utility line or conduit.

B. BACKFILL MATERIALS

(1) Portland cement stabilized backfill shall consist of caliche base material, blow sand or native soil stabilized by the addition of Portland cement. Crushed stone or concrete aggregate shall NOT be used.

When Portland cement stabilized backfill is to be used, the contractor shall submit a mix design prepared by an approved commercial laboratory for approval before the trenching operation is begun. When native soil is to be used samples may be taken along the proposed route by boring or other approved means. Samples must be representative of the full trench depth.

The mix design shall be such that the minimum 7-day compressive strength is 150 psi when tested according to test method Tex 418-A.

The minimum cement content for Portland cement stabilized backfill shall be 1 sack per cubic yard.

Cement used in Portland cement stabilized backfill shall be Type I or Type II conforming to the requirements of ASTM Designation C150.

Caliche used for Portland cement stabilized backfill shall be crushed material conforming to Texas State Department of Highways and Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges Item 248 Type F, Grade 2.

Blow sand used for Portland cement stabilized backfill shall be clean, free from organic matter, clay lumps, rock and other deleterious matter.

Native soil used for Portland cement stabilized backfill shall be clean, free of clods and organic matter, and free of rock in excess of 2".

(2) Crushed stone screening (crusher fines) used for back fill shall be sharp grained particles of crushed stone conforming to the requirements of Article 2.07 of these specifications.

(3) Trencher excavated rock material shall be screened so that the largest diameter material is less than 2". The screened rock material used for backfill shall have sufficient moisture added so that the backfill will bind with the fines. The rock material backfill shall be tamped or compacted in two (2) foot lifts. A sheeps foot roller shall not be used unless there is two (2) feet or more compacted backfill above the pipe bedding.

C. BACKFILL CONSTRUCTION

(1) Portland cement stabilized caliche backfill or Portland cement stabilized native soil backfill may be constructed using either the "dry" method or the "wet" method.

(a) The dry method of stabilized backfill construction consists of dry mixing of the cement and caliche or soil to produce a homogenous mixture then adding and mixing sufficient water for proper compaction and hydration of the cement. The water content of the mixture will be approximately one to two percent above the optimum moisture for soil compaction. The mixing may be accomplished by using batch mixers or on the job site by "blade mixing" or other suitable method to produce the desired backfill material. The mixed material shall be placed in lifts of up to a maximum of 12 inches and compacted to ninety-five (95%) modified proctor densities by use of suitable compacting equipment.

(b) In the "wet" method of cement stabilized backfill construction, the materials shall be mixed in an approved concrete batching plant or mixer to the consistency of concrete and placed as concrete would be placed. The slump of the backfill material shall be such that all voids will be filled, approximately four (4") to six (6") inches. The backfill shall be consolidated by rodding or by the use of mechanical vibrators.

Portland cement stabilized blow sand backfill shall be mixed and placed by the "wet" method as described above.

Crushed stone screening (crusher fines) shall be wetted uniformly throughout with sufficient moisture to assure proper compaction before being placed in the trench. The moistened crushed stone screening (crusher fines) shall be placed in maximum lifts of twelve inches and consolidated using vibratory type compaction equipment except when it has been demonstrated that the compaction equipment employed will adequately compact deeper lifts in which case the maximum depth of a lift shall be limited by the capabilities of the equipment used.

Tests to determine the compacted density of the backfill shall be ordered by the Engineer if in his opinion the compaction is not adequate. Test showing a minimum compacted density of 90%-modified proctor will be deemed adequate.

3. BACKFILL OUTSIDE OF PUBLIC RIGHTS-OF-WAY WHERE SETTLEMENT IS NOT CRITICAL

A. In areas outside of public rights-of-way and in the absence of special work item requirements the backfilling shall be accomplished with the use of suitable materials selected from the excavated materials to the extent available and practical. Should the materials available from the trench section be unsuitable or insufficient, the required additional materials shall be furnished from outside sources at the Owners expense.

B. Suitable material shall be defined as a mineral soil reasonably free of foreign materials (rubbish, debris, etc.) frozen clumps, oversize stone, rock, concrete or bituminous chunks and other unsuitable materials, that may damage the pipe installation, prevent thorough compaction, or increase the risks of after settlement unnecessarily. Material selection shall be such as to make the best and fullest utilization of what is available, taking into consideration particular needs of different backfill zones. Material containing stone, rock, or chunks of any sort shall only be utilized where and to the extent there will be no detrimental effects.

C. The backfill material placed in this area shall be compacted by suitable means to a minimum density equal to the density of the undisturbed surrounding soil. City Engineer MUST approve water flooding as a means of compaction.

4. TRENCH BACKFILL BEHIND CURB AND GUTTER

A. When utilities are placed behind the curb in paved streets and other landscaped areas the backfill shall be the same as elsewhere in the right-of-way or other applicable location except that in grassed areas and in flower beds the top six (6") inches of backfill shall be good quality top soil. When utilities are placed behind the curb in grassed or landscaped areas where no sidewalk is to be constructed and the edge of the trench is a minimum of 2 feet from the back of curb or where sidewalk is to be constructed and the minimum distance from both the back of curb and the edge of the sidewalk to the edge of the trench is 2 feet the contractor may elect to use suitable native soil for backfill. The native soil backfill shall be compacted to 95% modified proctor density to within 6" of the top of curb height. The top 6" of backfill shall be good topsoil and shall be compacted to the density of the adjacent soil.

B. Sidewalks shall be repaired by removing and replacing the complete section or sections that have been damaged. Strip patching through sidewalks will not be permitted.

The replacement sidewalk shall be of the same design and section as the walk removed and shall be of equal or better workmanship.

C. When utilities are placed in paved areas behind curbs the pavement shall be repaired as specified for street pavement.

D. Grassed areas and flowerbeds shall be restored as nearly as possible to the original condition. Care shall be taken to avoid damage to sprinkler systems.

Mail boxes and other appurtenance in the construction area. Any damage to said items shall be repaired immediately.

E. All repairs made behind the curb shall be to the satisfaction of the property owner responsible for their maintenance and/or to the satisfaction to the City Engineer.

3.11 INLET STRUCTURES AND LEADS AND CLEANOUTS FOR STORM SEWERS

A. Corrugated Galvanized Steel Slotted Drains for Nuisance water inlets only.

(1) Slotted drains shall be the sizes and lengths as shown on the plans and constructed at the locations as shown on the plans or at locations to be established on the job site.

(2) Slotted drains shall not be installed under asphalt pavement but shall have a section of concrete gutter constructed around it as shown on the detail drawings.

Slotted drains shall be protected from the entrance of debris, concrete or HMAC by closing the slot with one or two layers of heavy duct tape or similar material. In addition, the slot for slotted drain shall have a 2-½ inch or ¾ inch board attached to use as a guide for placing and edging the concrete.

Unless otherwise approved or directed by the Engineer the removal of tape and planking from the slotted drain should be accomplished as part of the final clean up.

B. Curb inlets, grate inlets and combination inlets

(1) General

Curb inlets, grate inlets and combination inlets may be pre-cast or cast-in-place at the contractor's option unless specifically shown otherwise on the plans and bid proposal.

(2) Pre-cast inlet boxes

(a) Construction and finish for pre-cast inlet boxes shall conform to details shown on the plans and all applicable requirements for pre-cast manholes.

(b) Tops for curb inlets and combination inlets may be cast in place or pre-cast. Extra care will be required in setting pre-cast tops to assure curb and gutter match.

(c) Pipe connections, bedding, setting and backfill for pre-cast inlets shall be in accord with the applicable requirements for pre-cast manholes article 3.12 of these specifications.

(3) Cast in place inlets

(a) Cast in place inlets shall be constructed of class "C" reinforced concrete as specified in item 1-B "Concrete for Structure" in these specifications.

(b) Forms for cast in place inlets shall be straight, clean and in good condition. Forms shall be properly cleaned and oiled before concrete is placed.

(c) Construction joints may be placed in cast in place inlets at locations shown on the plans. When construction joints are used, extra care will be required to assure that the joints are watertight.

(d) Cast in place inlets may be cast without outside forms if the soil conditions are such that true vertical walls can be cut and will stand during construction without sloughing or otherwise incorporation foreign materials into the concrete.

(e) When inlets are cast without outside forms, a plastic sheet lining may be required to prevent excessive loss of moisture from the concrete and/or to prevent incorporation of foreign material into the concrete.

A. Inlet Leads

(1) Inlet leads shall be constructed of corrugated steel pipe, PVC pipe or other material as called for on the plans and in the bid proposal.

(2) Construction of inlet leads shall be in accord with the applicable requirements for the type of pipe used.

(3) Junctions where two or more inlet leads are joined shall be made at clean outs or manholes.

B. Cleanouts

(1) Clean outs shall be constructed in accord with the plans and detail drawings.

(2) Construction and connections shall be in accord with the applicable specifications for construction of corrugated steel pipe manholes.

3.12 SANITARY SEWER SERVICES AND PLUGGED STUBS

A. Sanitary Sewer Services:

(1) On new sewer main construction all sewer laterals shall be constructed as part of the initial installation. Sewer wye fittings for sewer laterals in new construction shall be molded or fabricated with all gasketed connections. Four (4") inch laterals shall be installed at all single-family residences and duplex. Laterals installed for apartment complexes, commercial and industrial areas shall be a minimum of six (6") inches. Depth of laterals will be determined by depth of sewer main and applicable building codes. Laterals shall be installed using tee wyes or wyes and bends so that they will be at 90 degrees to the sewer main. Laterals shall extend to 3' minimum beyond the property line of the served lot or tract. The contractor shall install sewer laterals according to the typical sewer lateral detail and the most current revisions of the Plumbing Code.

(2) Taps into existing lines shall use a gasketed fitting in conjunction with a full circle repair sleeve coupling, except that taps into existing ductile iron sewer may be made using the Genco Model DF sewer pipe saddle (The General Engineering Co., Frederic, MD Drawing No. R-3220-D dated 12/29/82) or approved equal.

(3) Cemented mitered connections without socket reinforcement shall not be permitted. The contractor will be permitted to use fittings, which are prefabricated, using pipe sections, molded saddles and PVC solvent cement, provided the solvent cement used in fabrication has cured for at least 24 hours prior to the installation. All solvent cement fittings shall e manufactured in the shop under controlled conditions.

(4) All caps and plugs shall be braced, staked, anchored, wired on or otherwise secured to the pipe to prevent leakage under maximum anticipated thrust from internal abnormal operating conditions or test pressures from water or air.

(5) It shall be the duty of the Contractor to keep a record of sewer service wye locations with respect to the nearest downstream manhole, but the Engineer will record ties on the end of all sewer services at the property line. When installing sewer services the Contractor shall, before backfilling, contact the Engineer or his representatives, and assist him in making ties to the end of the service in the open trench. At least two ties shall be made for each service, and if backfilling proceeds before such ties are made, the Contractor shall dig up the end of all such services, with no additional compensation, for the purpose of making ties. During backfilling the Contractor shall furnish and place a vertical steel post or 2 inch by 2 inch wooden stake set flush with finished ground surface, and extending down to the end of the sewer service, a nail shall be placed in the top of the stake to allow location of the service by metal finder.

(6) The main sewer service connection shall consist of installing an in-line wye section in the main sewer line at designated locations. Saddle wye installations will be permitted only when specifically called for. Orientation of service connection fittings shall be as shown in the standard drawings unless otherwise directed by the Engineer.

(7) Where the depth of cover over the main sewer invert is greater than 8 feet (or such other maximum as may be indicated), the service connection shall be extended outward then upward by use of bends to prevent excess loading on the sewer main in accordance with the details shown in the drawings.

(8) The Contractor shall provide the necessary wyes, tees and bends to bring the service to the proper place at the property line.

(9) Wherever service line connections to the main sewer are permitted or required to be made by the open cutout method in the absence of a built-in tee or wye fitting, the connection shall be made by using an approved type coring machine or by other approved methods producing a uniform, smooth circular cut-out as required for proper fit. The cutout discs shall be retrieved and shall not be allowed to remain within the main sewer pipe. The saddle tee shall be securely fastened to the main sewer pipe by means of epoxy resin or other approved adhesive. The entire connection fitting shall be encased in concrete to a minimum thickness of six inches and as may be shown in the standard drawings.

(10)Wherever service line connections to the main sewer are required to be made by means of built-in branch tee or wye fittings, the Contractor shall, in the absence of such fitting, remove a section of the main sewer pipe and replace it with the required branch tee wye or wye section connected by means of an approved sleeve coupling.

(11)Connections of service lines to the main sewer are required to be made by means of built-in branch tee or wye fittings, the Contractor shall, in the absence of such fitting, remove a section of the main sewer pipe and replace it with the required branch tee wye or wye section connected by means of an approved sleeve coupling.

(12)The end of all service connections shall be plugged with PVC plug and sealed with plastic joint material.

(13)Crushed stone bedding and backfill material, concrete encasement and protection, etc., for service line installation shall be the same as for the sewer lines.

(14)No service connections or laterals shall be covered until they have been inspected and located by the Engineer.

B. INSTALLATION OF PLUGGED STUBS ON SANITARY SEWERS

Plugged pipe stubs for future connections to manholes and sewerage structures shall be installed where shown on the Drawings or directed by the Engineer. The pipe stubs shall be installed in accordance with the specifications and details shown on the Drawings for connecting the type of pipe used to manholes.

3.13 MANHOLES

1. General

The manholes shall be constructed at the locations shown on the plans or as directed by the Engineer and in accordance with the details shown on the plans and as specified herein. After the excavation has been completed, the subgrade for the manhole base shall be graded and leveled. A crushed stone foundation having a minimum thickness of 6 inches shall then be placed on the subgrade. The crushed stone foundation shall be leveled and consolidated before the section of the manhole is placed. Pre-cast base sections shall sit in place level and plumb and to the lines and grade as shown on the plans. Cast in place bases shall be placed around the existing sewer line in accord with the plans and detail sheet. When pre-cast manhole bases are used, riser construction may proceed when the base is set on line and grade. When cast in place manhole bases are used, riser construction may proceed when the base has set sufficiently to support the weight of the riser.

Manholes shall be of the type and material shown on the plans and called for in the bid proposal and shall conform to these specifications.

All lift holes shall be filled with approved non shrink grout and bituminous material before final acceptance. Use of bituminous material or other flowable material alone to plug lift holes will not be permitted. Voids in the invert around the sewer pipe on the

inside wall of the manhole shall be grouted with cement rich grout, to conform to the rest of the wash, in accordance with the standard manhole details.

The backfill around the manhole shall be done in accordance with the details shown on the plans and trench backfill specifications.

The Contractor shall take whatever precautions necessary to protect the manholes that are under construction. At the end of the day or at such time as the Contractor deems necessary, all manholes not completed shall be covered, sealed, plugged, etc. to prevent the inflow of storm water or other objectionable material, and to prevent animals and humans from getting into the manhole.

2. PRE-CAST CONCRETE

A. Pre-cast tub bottom sections of manholes shall be set on a crushed stone foundation or bedding according to the details shown on the plans. Care shall be exercised to assure true alignment and grade for the pipe openings.

The invert of the manhole shall be constructed of cement rich grout and shall be formed to true lines; grades and curvature to assure smooth flow through the manhole. The invert shall have a steel trowel finish.

Joints for pre-cast concrete manhole riser sections shall be made Watertight by use of bitumastic or rubber sealers or “O” ring gaskets. Both sides of the tongue and groove joint shall be painted with a bitumastic primer before assembly.

The bitumastic or rubber sealer shall be clean and pliable and shall deform under the pressure of joint closure to assure a complete water tight seal. Care shall be exercised to assure proper alignment of the joint. The walls of the completed manhole shall be straight and vertical.

B. Pre-cast eccentric cone sections and precast slab manhole tops with eccentrically located manway shall be set with the manway adjacent to the up stream side of the manhole. The joints between the cone or slab top and the manhole riser shall be sealed in the same manner as the joints between the riser section. Care shall be taken in placing the cone and or slab tops to assure the manhole ring and cover can be set to match the finished paving.

C. Pre-cast grade rings will be used, when required, to bring the manhole ring and cover up to the finished grade. Grade rings may be set using cement rich grout or bitumastic seal and such as Ram-Nek or approved equal. When cement rich grout is used, care shall be taken that the space between the cone or slab top and the first grade ring and between the grade rings are completely filled without voids.

When bitumastic sealer is used the joints shall be constructed in the same manner as the joints between the riser sections.

When pre-cast manholes with PVC or other approved polymer lining are called for on the plans and bid proposal and are furnished under this contract they shall be constructed as other pre-cast concrete manholes.

In addition the joints in the lining shall be sealed by hot air welding, use of epoxy coating, or other approved means.

3. CAST IN PLACE MANHOLE BASES

A. Cast in place manhole bases shall be used only where shown on the plans or as directed by the Engineer and shall be constructed in accord with the details shown on the plans.

B. Special care shall be taken in casting the surfaces that will mate with the first risersection to assure a smooth even fit and a watertight joint.

C. The first riser section to be used with cast in place manhole bases shall be castwithout tongue or groove. The joint between the riser section and the cast in place base shall be sealed with a bitumastic or rubber sealant in the same manner as the joints in the pre-cast riser sections.

D. Care shall be taken in forming the invert of the manhole around existing sewers to assure adequate opening for the insertion of a “go – no go” mandrel or other testing equipment and cleaning tools.

4. MANHOLE RING AND COVER

A. The tops of the manhole frame and cover (ring) shall be built to the grade shown on the plans. The cast iron frame shall be firmly embedded in mortar.

B. When pressure type manhole rings and cover are specified on storm sewer manholes they shall be bolted to the concrete slab top using the “L” bolts cast into the slab for this purpose. The joint between the ring and the concrete slab top shall be made watertight using a bitumastic or rubber seal and conforming to the requirements of these specifications.

5. CORRUGATED STEEL MANHOLES

A. Corrugated steel manholes shall be constructed in accord with the details shown on the plans and in accord with the applicable requirements for the construction of corrugated steel pipe sewers.

B. Care shall be taken during the placing of backfill around corrugated steel pipe manholes to maintain the horizontal and vertical alignment of the manhole.

C. Since full contact of the flat top slab with the cement stabilized backfill is critical the backfill shall be finished smooth and to the proper grade. A thin layer of cement rich grout shall be placed on the cement stabilized backfill immediately prior to placing the concrete slab top. The grout shall be sufficient t fill all voids between the backfill and the slab and of a consistency to be forced into the voids under the weight of the slab.

3.14 TESTING GRAVITY SEWER MAINS AND MANHOLES

A. Upon completion of the sewer construction including all wyes and service laterals and before any house drains or services are connected, all sewers shall be cleaned and lamped. All runs of sewer between manholes shall be straight and true. Leakage tests shall be made to determine the amount of ground water infiltration into the sewers. Infiltration tests shall be made when groundwater level is 18 inches or more above the top of the outside of the pipe. Measurement will be taken by means of a weir placed in the lines. The maximum allowable rate of leakage shall be 25 gallons per inch diameter per mile of pipe per 24 hours, for any section of pipe with a maximum total leakage of 200 gallons per mile per 24 hours for sanitary sewers with the exception that the maximum leakage for storm drains shall be 200 gallons per inch of diameter per mile per 24 hours with a total maximum leakage of 6,000 gallons per mile per 24 hours.

When the groundwater is not at sufficient height for infiltration testing the Contractor shall use exfiltration to test the sewer lines.

B. In lieu of the infiltration or exfiltration tests the Contractor may perform air tests on the sewers.

C. If the infiltration, exfiltration, or air tests fail to meet requirements specified herein, the Engineer reserves the right to request television work to be done to locate leaks. The Contractor shall furnish all materials and equipment necessary to accomplish all infiltration, exfiltration, air or television testing.

The Contractor shall receive no additional compensation for this testing or inspection work or for repairs of corrective work required to be done to the sewers. The exfiltration tests shall be used in areas where no ground water is present.

D. Test Procedure Hydrostatic (Exfiltration)

(1) The test section shall be bulk headed and the pipe subject to a hydrostatic pressure produced by a head of water at a depth of three (3) feet above the invert of the sewer at the upper manhole under test. In areas where ground water exists, this head of water shall be three feet above the existing water table.

(2) This head of water shall be maintained for a period of one hour during which it is presumed that full absorption of the concrete manhole body has taken place and thereafter for a further period of one (1) hour for the actual test of leakage. Fiber glass manholes are exempt from the one hour absorption requirement. During this one (1) hour test period, the measured maximum allowable rate of exfiltration for any section of sewer shall be the same as allowed for the infiltration test.

E. TEST PROCEDURE AIR

(1) Where the Contractor elects to air test, he shall perform these tests with equipment similar to Air-Loc equipment manufactured by Cherne Industrial, Inc. Hopkins, Minnesota.

(2) The air test shall be made when the sewer is clean. The line shall be plugged at each manhole with pneumatic balls. Low pressure air shall be introduced into the plugged line until the internal air pressure reaches 4.0 psig greater than the average

back pressure of any ground water pressure that may submerge the pipe. At least two (2) minutes shall be allowed for the air temperature to stabilize before readings are taken and the timing started.

(3) When testing pipes 14 inches and less in diameter between consecutive manholes, the portion being tested shall pass if it does not lose air at a rate to cause the pressure to drop from 4.0 to 3.0 psig (greater than the average back pressure of any groundwater that may submerge the pipe) in less time than listed as calculated from Table 1.

When testing pipes greater than 15 inches in diameter between consecutive manholes the portion being tested shall pass if it does not lose air at a rate to cause the pressure to drop from 3.5 psig 3.0 psig (greater than the average back pressure of any groundwater that may submerge the pipe) in less time than that shown in or calculated from Table II.

TABLE I
Specification Time Required for a 1.0 PSIG Pressure Drop for Size and Length of Pipe indicated for Q = 0.0015

Specification Time for Length (L) Shown (min: sec)											
1	2	3	4 (xL)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.
4	3:46	597	.380	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854	5:40	5:40	5:40	5:40	5:40	5:40	5:42	5:42
8	7:34	298	1.520	7:34	7:34	7:34	7:34:	7:36	8:52	10:08	11:24
10	9:26	239	2.374	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768	51:17	75:55	102.34	128:12	153:50	179:29	205:07	230:46

1. Pipe Diameter (in.)
Minimum Time (min:sec)
Length for Minimum Time (ft.)
Time for Longer Length (sec)

NOTE: When using column 4 multiply the number in column 4 opposite the pipe diameter by the length of pipe of that diameter and sum the times for the various pipe size in the run being tested. Computations shall include lengths for service connection laterals.

Table II
Specification Time Required for 0.5 PSIG Pressure Drop for Size and Length of Pipe Indicated for Q + 0.0015

Specification Time for Length (L) Shown (min: sec)											
1	2	3	4 (xL)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.
4	1:53	597	.190	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187	4:43	4:43	4:43	4:57	5:56	6:55	7;54	8:54
12	5:40	199	1.709	5:40	5:40	5:40	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54

30 33 36	14:10 15:35 17:00	80 72 66	10.683 12.926 15:384	17:48 21:33 25:39	26:43 32:19 38:28	35:37 43:56 51:17	44:31 53:52 64:06	53:25 64:38 75:55	62:19 75:24 89:44	71:13 86:10 102:34	80:07 96:57 115:23

1 Pipe Diameter (in.)
2 Minimum Time (min:sec)
3 Length for Minimum Time (ft.)
4 Time for Longer Length (sec)

NOTE: When using column 4 multiply the number in column 4 opposite the pipe diameter by the length of pipe of that diameter and sum the times for the various pipe size in the run being tested. Computations shall include lengths for service connection laterals. All service plugs shall be secured in place to prevent displacement during testing operation.

F: DEFLECTION TEST

Deflection tests shall be performed on all flexible pipe, the tests shall be conducted after the backfill has been in place at least 30 days. No pipe shall exceed a deflection of 5 percent. The deflection tests shall be run using a Go-No-Go mandrel having a diameter equal to 95 percent of the inside diameter of the pipe. The tests shall be performed without mechanical pulling device, any pipe not meeting the deflection test shall be excavated and re-bedded at no cost to the owner.

The Contractor at no additional cost to the owner shall furnish the Go-No-GO Mandrel.

Upon completion of all tests, the Contractor shall provide personnel to remove each manhole cover in the presence of the Engineer's representative for inspection and depth measurement.

G. TESTING SANITARY SEWER MANHOLES

All sanitary sewer manholes shall be tested for water tightness by one of the following methods.

Manholes, except those in streets scheduled for immediate paving, shall be complete, having all adjusting rings and cover rings in place and shall be backfilled prior to testing.

Manholes in streets scheduled for immediate paving shall be complete as described above except those acceptance tests shall be made at the top of the cone section.

(1.) Vacuum Test

a. General

This item will govern the testing of all sanitary sewer manholes. All connections to manholes including drop connections shall be in place before testing.

b. Equipment

Equipment for vacuum testing manholes shall be:
MANHOLE VACUUM TESTER as manufactured by:

P.A. Glazier, Inc.
P.O. Box 1002
Worcester, MA. 01613

Or

THE CHERNE AIR-LOC MANHOLE TESTER as manufactured by:

Cherne Industries, Inc.
5700 Lincoln Dr.
Minneapolis, MN 55436-1695

Or approved equal.

c. Preparation for Testing

All connections to the manhole; except plugged stubs for future line extensions, shall be plugged using suitable pneumatic plugs. Line plugs shall be placed at a point outside of the manhole wall (approximately 8" to 10" into the sewer pipe). Drop connections shall be plugged at a point up stream from the drop.
All plugs, pipe connections and plugged stub outs shall be adequately braced to prevent them being drawn into the manhole when vacuum is applied.

d. Testing

The contractor shall set the test equipment in place and operate it in accord with the manufacturer instructions. A copy of these instructions shall be kept on the job site and shall be available to the inspector when tests are performed. When equipment is properly set up a vacuum of 10" of mercury (Hg) shall be drawn and the vacuum line valve closed. After the vacuum pump is shut off the hose shall be disconnected before the test is started.

Note: Vacuum must be at 10" Hg when test is started. The contractor may wish to draw up to 10.5" Hg vacuum and then bleed back to 10" Hg before starting the test. The test shall pass when the minimum time for the vacuum to drop from 10" Hg to 9" Hg is greater than the time shown in the following table:

TABLE 1: Minimum test times for various manhole diameters.

	DIAMETER		
Depth Feet	48"	60"	72"
8'	0:20	0:26	0:33
10'	0:25	0:33	0:41
12'	0:30	0:39	0:49
14'	0:35	0:46	0:57
16'	0:40	0:52	1:05
18'	0:45	0:59	1:13
20'	0:50	1:05	1:21
* ADD	0:05	0:06.5	0:08

Any manhole that fails the test shall be repaired and retested until it passes the test.

e. Contractors Optional Test

The contractor, at his option may wish to test manholes before they are backfilled to assure himself that the manhole is sound.
Manholes that fail the test prior to being backfilled may be repaired under vacuum by coating the area of the leak with a liquid quick setting grout allowing the grout to be drawn into the opening until the leak is stopped.

Manholes will not be accepted on the bases of this test.

f. Fiberglass Manholes

Fiberglass manholes may be tested in the same manner as concrete manholes except that all repairs to the fiberglass body of the manhole shall be made using materials furnished by the manufacturer. Repairs shall be made in accord with the manufacturer instructions.

g. No separate payment will be made for vacuum testing of manholes, but the cost shall be considered incidental to furnishing and construction of manholes as bid in the bid proposal.

2. HYDROSTATIC TESTING

a. General

This item shall govern the hydrostatic testing of manholes and may be used as an alternative to vacuum testing by the contractor.

All connections to manholes including drop connections shall be in place prior to testing manholes.

b. Testing

All connections to the manhole, except plugged stubs installed for future line extensions, shall be plugged upstream from the drop.

Plugs in pipe connections must be placed outside the manhole wall (approximately 8” to 10” into the pipe).

The manhole shall then be filled to the top of the cast iron ring (or top of the cone section for manholes in streets scheduled for immediate paving) and allowed to stand for a minimum of one hour to allow for absorption by the components of the manhole. The inspector may extend the absorption period if it appears that the manhole has not reached a stable state.

The manhole shall then be refilled to the top of the ring (or cone) and allowed to stand for up to 24 hours.

The manhole shall be checked at the end of 4 hours and will be deemed to have passed if no perceptible loss has occurred – if loss has occurred the manhole will be checked after the 24 hour period and will be considered to have passed if loss does not exceed the following schedule

Depth Ft.	Loss Inches
0 - 10’	.2
10 – 20’	.4
20 - 30’	.6

c. No separate payment will be made for Hydrostatic Testing of manholes but the cost shall be considered as incidental to furnishing and constructing manholes as bid in the bid proposal.

H. TELEVISING NEW SEWER LINES

It is the city’s intention to televise all new sanitary sewer lines for record purposes.

Immediately after the contractor completes all testing of sanitary sewer lines and manholes he shall leave all manholes accessible for televising and make allowances for the city’s camera crews working on the project site.

The contractor at his own expense before final acceptance must correct any defects discovered during the televising of sanitary sewers.

3.15 RESTORATION

A. Whenever any surface improvements such as pavement, curbing, pedestrian walks, fencing, or turf have been removed, damaged or otherwise disturbed by the Contractor’s operations, they shall be repaired or replaced to the Engineers satisfaction, to restore the improvement in kind and structure to the pre-existing condition. Each item of restoration work shall be done as soon as practicable after completion of installation and backfilling operations on each section of pipeline.

B. In absence of specific payment provisions, as separate Contract Items, the restoration work shall be compensated for as part of the work required under those Contract Items, which necessitated the destruction and replacement or repair, and there will be no separate payment therefor. If separate pay items are provided for restoration work, only that portion of the repair or reconstruction, which was necessitated by the contract, will be measured for payment. Any improvements removed or damaged unnecessarily shall be replaced or repaired at the Contractor’s expense.

C. Turf restoration shall be accomplished by sod replacement except where seeding is specifically allowed or required.

Caliche or gravel surfaced streets and driveway shall be restored to their original condition by salvaging and replacing the pre-existing caliche or gravel. If the Contractor does not salvage sufficient material during excavation operation, he will be required to furnish material to restore the surface to the depth of the original section. This caliche or gravel restoration shall be considered a part of excavation and backfill and no extra compensation will be made.

E. Bituminous and concrete surfaced streets and driveways will be restored to equal or better condition than existed prior to sewer construction. Measurement will be made of the actual quantities required to be replaced by the sewer construction and paid for at the price bid in the appropriate bid items in the proposal.

No measurement or payment will be made for work done outside the lines considered necessary for sewer construction. The Contractor will be required to replace damage outside these lines at his own expense.

F. Reconstruction of caliche base courses and concrete or bituminous surface courses shall be in substantial compliance with all applicable City of Midland Specifications pertaining to the item being restored.

3.16 CLEANUP

After completing each section of the sewer line, the Contractor shall remove all debris, construction materials, and equipment from the site of the work, grade and smooth over the surface on both sides of the line and leave the entire right-of-way in a clean, neat, and serviceable condition. No separate compensation shall be made for clean up.

3.17 PAYMENT

A. General

Payment in accordance with the following items, at the unit price bid for the work, shall constitute full and complete payment for the entire project including all incidental terms necessary for the complete and successful prosecution of the work in accordance with the intent of the plans and specifications.

Materials and work required to complete the project for which there is no bid item in the bid proposal shall be considered as incidental and the cost shall be included in the prices bid for the various items in the bid proposal.

Where payment is to be made on a unit price basis, it shall be made on the actual measured quantities as constructed in the work.

B. Sewer Pipe in Place

Unit prices bid shall cover furnishing and installation of pipe and jointing materials, including tests and all other necessary work and material to install the pipe complete in place at the depth specified. The unit of work shall be the lineal foot of the various types and sizes as shown in the proposal form. The pipe installation shall be measured

along the centerline of the sewer from center to center of manholes with no deduction in footage for manholes, wye branches, riser bases or other structure.

C. Foundation Corrections Materials

Payment for foundation correction materials shall be made at the unit price bid per cubic yard for material furnished and placed to pro vide adequate pipe base in unstable soil. The unit price shall include extra excavation below pipe grade, the material, placing and tamping.

Additional material required to backfill excess depth of excavation caused by neglect or error on the part of the Contractor or wet conditions, shall be furnished and placed at his own expense.

Removal of Street Surfacing

The Contractor shall receive no extra compensation for the removal of street surfacing including cutting of a straight edge.

E. Trench Safety Systems, Sheeting and Shoring

Measurement: Trench Safety Systems shall be measured by the linear foot of "Trench Safety Systems": Payment for work prescribed under this item shall be full compensation for the Trench Safety Systems including any Engineering and/or consulting fees and any additional excavation and backfill required, for furnishing, placing, maintaining and removing all shoring, sheeting, or bracing; for de-watering or diversion of water; for all jacking and jack removal; and for all other labor, materials, tools, equipment and incidentals necessary to complete the work.

F. Manholes

Payment will be made for the various types of manholes at the unit prices bid for the various types of manholes 0 to 6' deep which price shall include excavation, furnishing and installing all materials pumping where necessary, and backfilling and all incidentals for the complete manhole in place. Measurement for manholes over 6 feet in depth shall be made of the depth of manhole in excess of six (6) feet. Manholes will be measured from the invert to the top of the casting as set.

Payment will be made for the manhole depth in excess of 6 feet at the vertical foot price bid in the bid proposal for extra depth of manhole over 6 feet for each type of manhole furnished.

G. Drop Connections to Manholes

Payment shall be made for drop connections to manhole for each drop connection made as counted in the field at the price bid in the proposal.

Said payment shall be complete compensation for furnishing all materials and fittings and making all connections to the manhole including 2' of vertical depth as measured from the invert of the incoming line to the invert of the manhole.

H. Drop Section for Manholes

Drop sections shall be paid for on a vertical footage basis as measured from the invert of the incoming line to the invert of the manhole less 2 feet and shall be paid for at the price bid per vertical foot for the various size drop connections in the bid proposal.

The price bid per vertical foot includes all fittings, granular material, if used and concrete and shall be full compensation for the complete in service drop connection.

I. Service Lines

Service lines will be measured from centerline of the sewer main to the plug end and paid for at the unit price bid per linear foot of each type of pipe as specified and as shown on the typical details.

J. Barricading and Traffic Control

The lump sum price bid in the bid proposal shall be full compensation for furnishing flag persons when required and all barricades, signs and other barricading and traffic control devices and for furnishing barricading plans and erecting and maintaining all such devices and signs as required for the duration of the period.

Updated
08/07

MIDLAND
Engineering Services

ADDENDUM #01

Project Number U19-04

TO ALL BIDDERS ON THE SUBJECT BID: **New York Avenue & Benton Street Water Improvements**

ADDENDUM #01

DATE: November 6, 2020

1. Q/A and Clarification
2. Non-Mandatory Pre-Bid Teleconference Meeting Agenda
3. Non-Mandatory Pre-Bid Teleconference Meeting Attendance

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Boler Equipment Service, Inc	
Company Name	
Bidder Authorized Signature	**11.18.2020**
	Date
Greg Boler	**432.694.0660**
Please Print Above Name	Phone

New York Avenue & Benton Street Water Improvements
Project Number U19-04

Q/A and Clarification

During the Pre-Bid Meeting, the following questions were raised by one or more bidders. Below is a list of the questions along with the answers and clarifications.

Clarification: The deadline to ask or send questions for this project has been moved back to Tuesday, November 10, 2020 at 5:00 PM. A final addendum for this project will be issued Wednesday, November 11, 2020. The final addendum will include official responses to all questions asked prior to the November 10th deadline that are not addressed by this Addendum 01. Questions asked after the November 10th deadline will be directed to the information provided in the original bid documents or included in the addendums.

Clarification: The Bid Opening is Wednesday, November 18, 2020 at 2:00 PM as stated in the Non-Mandatory Pre-Bid Teleconference Meeting Agenda that is attached to this Addendum 01.

Clarification: All addendum acknowledgement forms must be included with the bid for the bid to be considered complete. Bidders have sole responsibility for making sure they have and acknowledge all addendums provided for this project bid.

New York Avenue & Benton Street Water Improvements
Pre-Bid Teleconference Meeting Agenda
Project No. U19-04
November 4, 2020; 3:00 PM

Teleconference Call In Number: (866) 528-2256
Access Code: 4450719

Discussion Items

1. Sign-In Sheet
   - Please email jferguson@midlandtexas.gov if you plan to attend the teleconference so your name and contact information can be added to the attendance roll and to ensure you receive a copy of the Addendum following the pre-bid teleconference meeting.

2. Personnel Overview
   - Matt Carr – City Engineer
   - Mike Pacelli – Traffic Engineer
   - Cory Moose – Assistant Utilities Director
   - Josh Ferguson – Engineering Manager – CIP, project engineer
   - Bobby Wojciechowski – Construction Manager, construction management & inspections
   - Rex Swearinger – Operations Planner, utility coordination
   - Taha Sakrani – Associate Traffic Engineer
   - Troy Clabaugh – Sr. Transportation Technician
   - Gabe McClelland – Transportation Manager
   - Jesus Perez – Project Manager
   - Natalie Burgard – Administrative Assistant, document processing
   - Erika Martinez – Purchasing Manager, conduct bid process and bid opening

3. Project Overview and Scope
   - This project will include the removal and installation of water infrastructure and appurtenances as well as all equipment, labor, materials, etc. necessary to complete the work outlined in the Construction Drawings and Specifications, and to satisfactorily complete the work.
   - In general this project involves replacing existing water mains in New York Avenue and Benton Street with mostly new 8” water main.

4. Bid Process
   - Pre-Bid Meeting Teleconference attendance is non-mandatory to bid on this project.
   - ATTENTION: All questions submitted before or after the Non-Mandatory Pre-Bid Meeting Teleconference must be submitted via email to the following email address: jferguson@midlandtexas.gov
   - Addendum distributed by email the Friday afternoon following the Pre-Bid Meeting.
     - The deadline to ask or send questions for the addendum is this Friday, November 6, 2020 at Noon.
     - Questions asked after the Noon deadline will be directed to the information already provided in the bid documents or included in the Addendum.
   - ATTENTION: Due to the Coronavirus (COVID-19) pandemic, the City of Midland’s City Hall is closed to the Public. All bidders are encouraged to mail bid packets to one of the

addresses below rather than delivering them in person in the interests of maintaining social distancing:

USPS Mailing Address:
City of Midland, Texas
Attn: City Secretary's Office
P O Box 1152
Midland, TX 79702

– OR –

Physical Address for mail carriers other than USPS:
City of Midland, Texas
Attn: City Secretary's Office
300 North Loraine St, Suite 330
Midland, TX 79701

If bid packets are delivered in person then bidders must make arrangements in advance to drop the bid packets off at the north doors of City Hall before the bid opening deadline, and social distancing measures will be maintained for the health of all parties involved.

- **Bid Opening is Wednesday, November 18, 2020 at 2:00 PM** in the City Hall Council Chamber located on the 1st Floor of Midland's City Hall.
  - ATTENTION: The public bid opening will be shown via the City Council Meeting live feed in order to maintain social distancing due to COVID-19. This can be accessed from the following web address at the time of the bid opening: http://www.midlandtexas.gov/600/Watch-Council-Meetings
  - No late bids will be accepted.
  - Bidders must be willing to sign the contract as is.
  - Bidders must complete the conflict of interest forms if applicable.
  - Bidders must fill out all bid items in the Proposal. If bid items are left blank then the bid will be considered non-responsive.
  - Bidders have sole responsibility for making sure they have and acknowledge all addendums provided. If all acknowledgement forms are not included with the bid packet submittal then the bid will be considered non-responsive.

5. Notice to Proceed
   - Date of Notice to Proceed to be determined at the Pre-Construction Meeting.
   - Pre-Construction Meeting date will be set after the project bid is awarded.

6. Payment
   - Invoices should be submitted on or before the 1st day of each month and cover work completed up to the 25th day of the preceding month.
   - Invoice submittals need to be itemized and match the bid items listed in the bid packet Proposal.
   - Payment based on the portion of work completed only. No payment for material delivery.
   - 5% retainage until project completion, acceptance, and final payment.
   - Recommended that invoices state "Invoice Due Upon Receipt", or have a due date that is two (2) weeks after the date the invoice is submitted.

7. Project Schedule
   - City Inspector must be notified of all work occurring and be able to perform inspections on any construction or installation that occurs.
   - Typically Monday – Friday from 8:00 AM – 5:00 PM. No work earlier than 7:00 AM or later than 8:00 PM without City permission unless for emergency conditions.
   - Work will not occur on Sundays or legal holidays unless required for emergency situations.
   - Work will not occur on Saturdays unless requested by Contractor in writing at least 48-hours in advance and approved by the City Engineer.

8. Project Specifics
   - Bidders must provide documentation as part of the bid packet submittal proving that they possess either an active Water Operator D license, and active Wastewater D license or

an active Class 1 Collections license, and the Contractor must maintain at least one of these active licenses for the entirety of the project.
- Comply with all OSHA and other applicable safety requirements and regulations at all times.
- Construction staking is solely the responsibility of the Contractor.
- Construction testing is solely the responsibility of the Contractor.
- Contractor is responsible for Traffic Control for this project.
- There is a one (1) calendar year warranty period on this project. This includes all infrastructure installed.

9. Additional Information, Clarifications, and Corrections
   - Bidders are directed to bid the item quantities listed in the Bid Packet's Proposal, not the quantities listed in the design drawings.
   - If a Bidder wishes to deliver a bid submittal in person then they are directed to call City Purchasing to coordinate this.

10. Any Additional Questions?

Please direct all questions or comments following the Pre-Bid Meeting to Josh Ferguson with the City of Midland.

Engineering Services

Josh Ferguson
Office Phone: (432) 685-7290
Cell Phone: (432) 241-5078
Email: jferguson@midlandtexas.gov

Pre-Bid Teleconference Meeting Attendance

U19-04

New York Avenue & Benton Street Water Improvements

Date: 11-04-2020 - 3:00 PM

☑	Name *(Please Print)*	Company Name *(Please Print)*	Phone Number	Fax Number	Email
√	Josh Ferguson	City of Midland	(432) 241-5078		jferguson@midlandtexas.gov
✓	Carl Craigo	City of Midland			ccraigo@midlandtexas.gov
	Cory Moose	City of Midland			cmoose@midlandtexas.gov
	Michael Pacelli	City of Midland			mpacelli@midlandtexas.gov
✓	Bobby Wojciechowski	City of Midland			bwojciechowski@midlandtexas.gov
✓	Matt Carr	City of Midland			mcarr@midlandtexas.gov
	Taha Sakrani	City of Midland			tsakrani@midlandtexas.gov
	Jesus Perez	City of Midland			jperez@midlandtexas.gov
	Michael Williams	City of Midland			mwilliams@midlandtexas.gov
✓	Erika Martinez	City of Midland			emunoz@midlandtexas.gov
✓	Tyler Koch	J&H Services			tyler@jhservicesinc.com
✓	Alberto Caballero	Entrench			alberto@entrenchinc.com
✓	Ever Rodriguez	Entrench			ever@entrenchinc.com
✓	Emily Ford	Boler Equipment			emily@boler.net
✓	Tyler Clutter	TEC			tylerclutter@tecexcavation.com
✓	James Hindman	TEC			jhindman@tecexcavation.com
✓	David Chandler	Red Deer			david@reddeerconstructiontx.com
✓	Trey Chandler	Red Deer			trey@reddeerconstructiontx.com
✓	JJ Flores	FC Traffic Control			jephtef@fc-traffic.com
✓	Iliana Guillen	Torres Trucking			torrestruckingrequests@gmail.com
✓	Thomas Leffew	Torres Trucking			

MIDLAND
Engineering Services

ADDENDUM #02

Project Number U19-04

TO ALL BIDDERS ON THE SUBJECT BID: **New York Avenue & Benton Street Water Improvements**

ADDENDUM #02

DATE: November 11, 2020

1. Q/A and Clarification

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Boler Equipment Service, Inc
Company Name

Bidder Authorized Signature — **11.18.2020** Date

Greg Boler — **432.694.0660**
Please Print Above Name — Phone

New York Avenue & Benton Street Water Improvements
Project Number U19-04

Q/A and Clarification

During the Pre-Bid Meeting, the following questions were raised by one or more bidders. Below is a list of the questions along with the answers and clarifications.

Clarification: All information provided in Addendum 01 for this project remains in effect unless specifically addressed in this Addendum 02.

Clarification: All addendum acknowledgement forms must be included with the bid for the bid to be considered complete. Bidders have sole responsibility for making sure they have and acknowledge all addendums provided for this project bid.

Clarification: Contractor must be willing to sign contract as is.

Clarification: Check that all insurance forms are in order when submitting bids.

Clarification: Check that all conflict of interest forms are completed if applicable.

Clarification: Contractor must fill out all bid items in the Proposal for the bid to be considered complete.

Clarification: Contractor is responsible for all construction staking.

Clarification: All invoice submittals are to be itemized and are to match the Proposal item listed.

Clarification: Utility covers matching City Details are now available. All utility covers and cover patterns are to match the City standard details.

Clarification: Contractor is responsible for all traffic control during this project.

Clarification: There is a one (1) calendar year warranty period on this project.

Clarification: It is recommended that Bidders use the USPS mailing address rather than the physical City Hall address for bid submittals that are mailed in as the physical address has experienced issues on occasion in the past. The USPS mailing address is unchanged from what is listed in the original bid packet and the pre-bid teleconference meeting agenda.

Clarification: There will be no more than three (3) consecutive intersecting street closures allowed at a time in series for this project.

Clarification: Contractor is responsible for notifying all adjacent properties of any planned service interruptions no less than two (2) business days in advance of any such interruptions. Service interruptions are to be kept as short as is reasonably possible. This requirement does not apply in emergency situations.

Clarification: Contractor is responsible for maintaining access to all adjacent properties at all times, barring those times when actual construction activity necessary to complete the work is taking place in front of driveway approaches or similar points of access. When such work is not occurring then access must be restored by means of traffic rated steel plates or other equivalent means until such time as the work is completed.

Clarification: Contractor is to return all existing fire hydrants removed during this project to the City of Midland Utilities. Fire hydrant removal is considered subsidiary to the bid items listed in the Proposal.

Clarification: Saw-cutting is considered subsidiary to the bid items listed in the Proposal.

Clarification: Contractor will be required to start construction on the north end of Benton Street and proceed south. Only after the work along Benton Street is complete will the Contractor be allowed to start work on New York Avenue. This is needed to coordinate construction activity with a future paving project that will be following behind this utility project. If both projects are in construction at the same time, the utility project and its construction activity will take precedence over the paving project and its construction activity.

Clarification: The water main grade shown in the construction drawing set is deeper in places than would be typical for most City projects, and this was done intentionally. This is to ensure the new water main will not be in conflict with the future roadway project, which will be adjusting the final grades of the road surface after this utility project is complete.

Question: Are they going to allow full road closures?
Answer: Requests for full closures will be evaluated on a case-by-case basis, but will likely be allowed as needed provided there are no lulls in construction activity and residents are still provided a means of accessing their property.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Be it known that

CHRISTOPHER LANCE ADAMS

has fulfilled the requirements in accordance with the laws of the State of Texas for

CLASS D WATER OPERATOR

License Number: **WO0046458**
Issue Date: **08/24/2020**
Expiration Date: **08/24/2023**

Executive Director
Texas Commission on Environmental Quality

December 15, 2020

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Be it known that

PHILLIP D BULLARD

has fulfilled the requirements in accordance with the laws of the State of Texas for

CLASS C WATER DISTRIBUTION OPERATOR

License Number: **WD0011340**
Issue Date: **06/05/2019**
Expiration Date: **05/21/2022**

Executive Director
Texas Commission on Environmental Quality

NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS PROJECT NUMBER: U19-04 OCTOBER 2020

MAYOR

PATRICK PAYTON

COUNCIL MEMBERS

SCOTT DUFFORD	DISTRICT 1
JOHN NORMAN	DISTRICT 2
JACK LADD	DISTRICT 3
LORI BLONG	DISTRICT 4
MICHAEL TROST	AT LARGE
SPENCER ROBNETT	AT LARGE

Josh Ferguson — ENGINEER

10/21/2020 — SUBMITTED

Matt Carr, P.E. — CITY ENGINEER

10/21/2020 — RECOMMENDED

Jose E Ortiz 10/21/2020 — ENGINEERING SERVICE DIRECTOR

RECOMMENDED

CONTRACTOR _____

DATE WORK BEGAN _____

DATE WORK COMPLETED _____

DATE WORK ACCEPTED _____

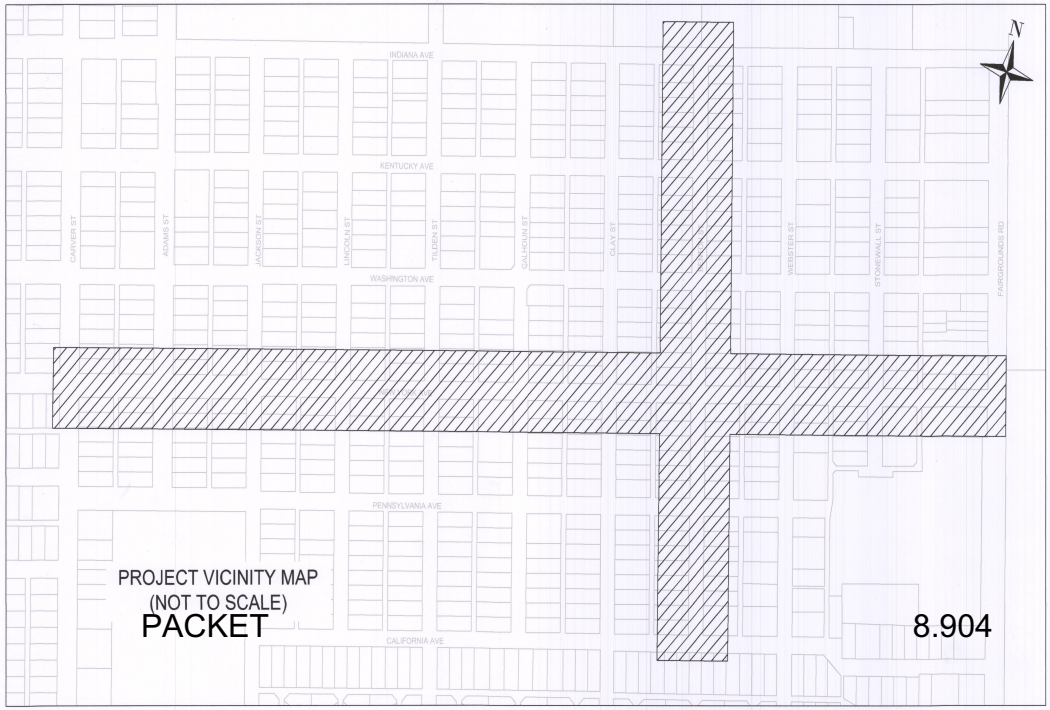
FINAL CONTRACT COST _____

INTERM CITY MANAGER
ROBERT PATRICK

ENGINEERING SERVICES DIRECTOR
JOSE E. ORTIZ

CITY ENGINEER
MATT C. CARR, P.E.
OFFICE: (432) 685-7286

CITY OF MIDLAND, 300 N. LORAINE ST.,
MIDLAND, TX 79702



PROJECT VICINITY MAP
(NOT TO SCALE)

SHEET INDEX	
SHEET	DESCRIPTION
C-101	COVER
C-102	GENERAL NOTES
C-201 TO C-204	EXISTING CONDITIONS
C-301 TO C-304	EROSION CONTROL PLAN
C-401 TO C-406	DEMOLITION PLAN
C-501 TO C-506	PAVING PLAN
C-601	MASTER PLAN
C-602 TO C-607	PLAN & PROFILE: WL-A
C-608 TO C-610	PLAN & PROFILE: WL-I
C-611	PLAN & PROFILE: WL-B
C-612	PLAN & PROFILE: WL-C
C-613	PLAN & PROFILE: WL-D
C-614	PLAN & PROFILE: WL-E
C-615	PLAN & PROFILE: WL-F
C-616	PLAN & PROFILE: WL-G
C-617	PLAN & PROFILE: WL-H
C-618	PLAN & PROFILE: WL-J
C-619	PLAN & PROFILE: WL-K
C-620	PLAN & PROFILE: WL-L & WL-M
C-701 TO C-704	DETAILS

PACKET 8.904 December 15, 2020

811 Know what's below. Call before you dig.

Description	Date	By

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale N / A
Horz. Scale N / A
Job No. U19-04
Date OCTOBER 2020
Rev. No.

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

COVER

STATE OF TEXAS JOSHUA C. FERGUSON 11792 LICENSED PROFESSIONAL ENGINEER

Josh Ferguson

SHEET C-101
01 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-101 Cover.dwg Oct 21, 2020 — 11:03am plingston

GENERAL NOTES:

A) THIS DESIGN IS FOR PUBLIC WATER IMPROVEMENTS ALONG NEW YORK AVENUE FROM CARVER STREET TO FAIRGROUNDS ROAD AND ALONG BENTON STREET FROM INDIANA AVENUE TO CALIFORNIA AVENUE.

B) ALL CONSTRUCTION IS TO COMPLY WITH THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS WHEREVER APPLICABLE. ALL OTHER STANDARDS AND REQUIREMENTS ARE TO COMPLY WITH ALL APPLICABLE FEDERAL AND STATE REGULATIONS AND STANDARDS. WHEREVER CITY OF MIDLAND STANDARDS AND FEDERAL OR STATE REQUIREMENTS DIFFER, THE MORE RESTRICTIVE STANDARD, REQUIREMENTS, OR REGULATION WILL GOVERN.

C) ALL BEARINGS, DIMENSIONS, AND COORDINATES SHOWN IN THIS CONSTRUCTION DRAWING SET ARE RELATED TO THE TEXAS STATE PLANE COORDINATE SYSTEM, TEXAS CENTRAL ZONE, NORTH AMERICAN DATUM 1983. ALL ELEVATIONS ARE RELATED TO THE NORTH AMERICAN VERTICAL DATUM 1988.

D) EXISTING UTILITIES, INFRASTRUCTURE, AND OTHER OBJECTS INDICATED IN THESE PLANS HAVE BEEN LOCATED USING CITY OF MIDLAND RECORDS, SURVEY AND SITE VISITS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THIS INFORMATION ANY ISSUES, CONFLICTS, OR DISCREPANCIES ENCOUNTERED IN TEH FIELD THAT CONFLICT WITH TEH DESIGN DRAWINGS ARE TO BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER PRIOR TO MAKING ANY DESIGN CHANGES IN THE FIELD.

E) CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A TRAFFIC CONTROL PLAN TO THE CITY OF MIDLAND FOR REVIEW AND APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY.

F) CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ALL EXISTING FACILITIES THAT ARE ENCOUNTERED REGARDLESS OF WHETHER OR NOT THEY APPEAR IN THE CONSTRUCTION DRAWING SET.

G) CONTRACTOR IS TO NOTIFY ALL AFFECTED PROPERTIES AT LEAST 48 HOURS IN ADVANCE OF ANY KNOWN OR PLANNED INTERRUPTION OF SERVICE OR ACCESS DUE TO ANY CONSTRUCTION ACTIVITY PERFORMED BY THE CONTRACTOR.

H) OSHA REQUIREMENTS AND ALL OTHER APPLICABLE FEDERAL, STATE, OR CITY OF MIDLAND SAFETY REQUIREMENTS ARE TO BE FOLLOWED AND COMPLIED WITH AT ALL TIMES.

DEMOLITION NOTES:

I) CONTRACTOR IS TO NOTIFY ENGINEER OF ANY ADDITIONAL DEMOLITION THAT MAY BE NEEDED AND RECEIVE WRITTEN CONFIRMATION THAT SUCH DEMOLITION IS APPROVED PRIOR TO ANY ADDITIONAL DEMOLITION TAKING PLACE.

II) CONSTRUCTOR IS TO TAKE CARE NOT TO DAMAGE OR REMOVE ANY EXISTING INFRASTRUCTURE OR PROPERTY, PUBLIC OR PRIVATE, THAT IS NOT INDICATED BY THIS CONSTRUCTION DRAWING SET. ANY SUCH DAMAGE OR REMOVAL MUST BE REPLACED OR REPAIRED BY CONTRACTOR AT THEIR SOLE EXPENSE TO EQUAL OR BETTER CONDITION.

III) EXISTING WATER MAIN PIPE IDENTIFIED FOR REMOVAL IS TO BE REMOVED IN ITS ENTIRETY, INCLUDING ANY FITTINGS STRUCTURES, AND APPURTENANCES.

VI) EXISTING WATER MAIN PIPE IDENTIFIED TO BE ABANDON IN PLACE MUST BE COMPLETELY FILLED WITH FLOWABLE FILL 2-SACK (2 SACK = 188 POUNDS PER CUBIC YARD) AND CAPPED AT BOTH ENDS OF ABANDONED PIPE SECTION.

V) ALL SAW-CUT IS TO HAVE CLEAN AND STRAIGHT EDGES AND IS CONSIDERED INCIDENTAL TO ALL PAVEMENT REMOVAL.

VI) ALL TRENCH PAVEMENT REPAIRS ARE TO INCLUDE 1.0' T-TOPPING ON EITHER SIDE OF ANY TRENCH EXCAVATION.

VII) ALL EXISTING FIRE HYDRANTS REMOVED ARE TO BE RETURNED TO CITY OF MIDLAND.

CONSTRUCTION NOTES:

a) WHEREVER POSSIBLE NEW PUBLIC UTILITY MAINS ARE TO END WITH A FULL PIPE SECTION.

b) ALL REPAIRS OR REPLACEMENT OF EXISTING PAVEMENT ARE TO BE TO EQUAL OR BETTER CONDITION THAN THE EXISTING PAVEMENT.

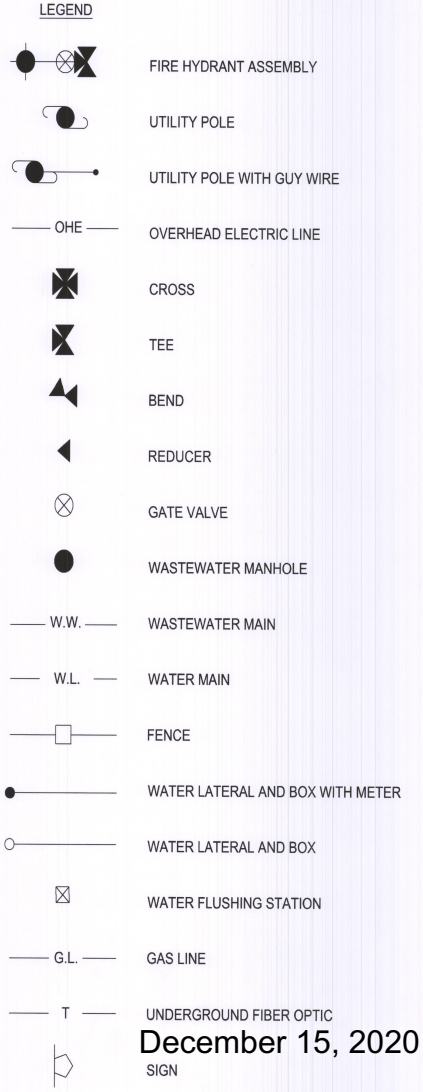
c) WHERE UTILITY MAINS ARE INSTALLED IN EXISTING PAVEMENT, THE PAVEMENT IS TO BE SAW CUT.

d) ANY AND ALL FLOWABLE FILL (2-SACK, 188-LBS/CY) MUST BE CURED FOR NO LESS THAN THREE (3) DAYS PRIOR TO THE PLACEMENT OF ANY PAVEMENT OVER THE FLOWABLE FILL MATERIAL.

e) CONTRACTOR IS RESPONSIBLE FOR ALL PROJECT CONSTRUCTION STAKING AND SURVEYING.

f) CONTRACTOR IS RESPONSIBLE FOR ALL PROJECT TESTING.

LEGEND



811 Know what's below. Call before you dig.

Description	By	Date

Drawn By	P.KINGSTON
Checked By	J.FERGUSON
Approved By	J.FERGUSON
Vert. Scale	N/A
Horz. Scale	N/A
Job No.	U19-04
Date	OCTOBER 2020
Rev. No.	
Date	
By	

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS

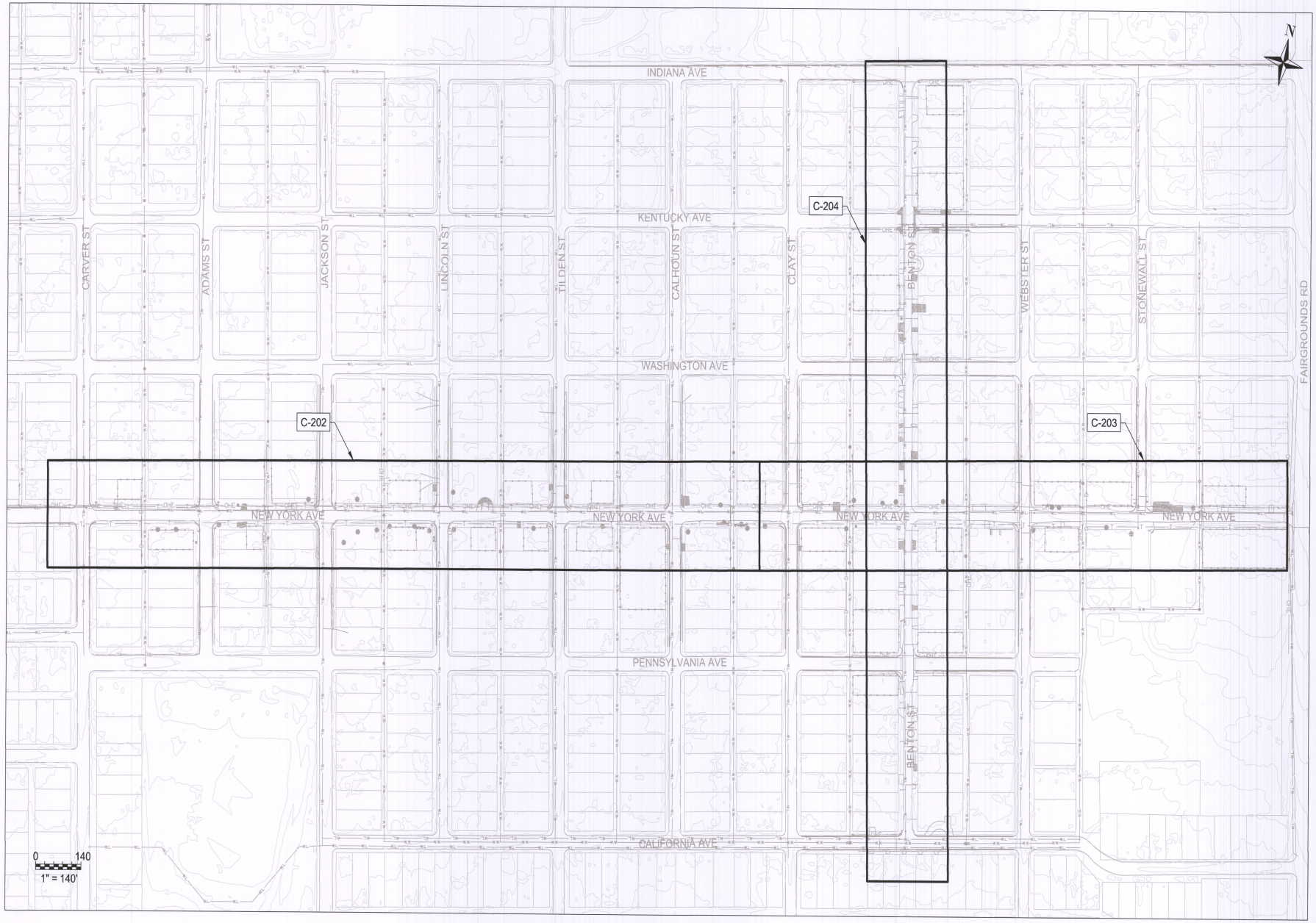
GENERAL NOTES

STATE OF TEXAS — OCT 5, 2020 — JOSHUA C. FERGUSON — 117692 — LICENSED PROFESSIONAL ENGINEER

SHEET C-102

02 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-102 General Notes.dwg Oct 05, 2020 - 9:13am pkingston



EXISTING CONDITION NOTES:

A) EXISTING CONDITIONS SHOWN ARE BASED ON AVAILABLE PREVIOUS DESIGN DRAWINGS, CITY OF MIDLAND GIS DATA, CITY OF MIDLAND LIDAR CONTOUR DATA, SPOT SURVEY DATA, AND SITE VISITS. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

B) EXISTING GAS, ELECTRIC, AND COMMUNICATION LINES WERE LOCATED FROM ONE-CALL MARKERS, CONTRACTOR IS TO TAKE ALL NECESSARY STEPS AND PRECAUTIONS TO ENSURE THE SAFETY OF BOTH PUBLIC AND CONTRACTOR'S WORKERS WHEN ANY TRENCHING OR OTHER WORK IS TAKING PLACE NEAR THESE LINES.

C) ALL EXISTING TREES ARE TO REMAIN AND ARE TO BE UNDISTURBED DURING CONSTRUCTION ACTIVITY. CONTRACTOR IS TO NOTIFY ENGINEER OF ANY ISSUES OR CONFLICTS WITH EXISTING TREES AND WAIT FOR DIRECTION BEFORE PROCEEDING FOR TOUCH PRUNING ANY ACTIVITY THAT MIGHT HARM A TREE.

PACKET 8.906 December 15, 2020

Know what's below. Call before you dig.

Drawn By	P KINGSTON				
Checked By	J FERGUSON				
Approved By	J FERGUSON				
Vert. Scale	1:140				
Horz. Scale	N/A				
Job No.	U19-04	Rev. No.	Date	By	Description
Date	OCTOBER 2020				

MIDLAND Engineering Services

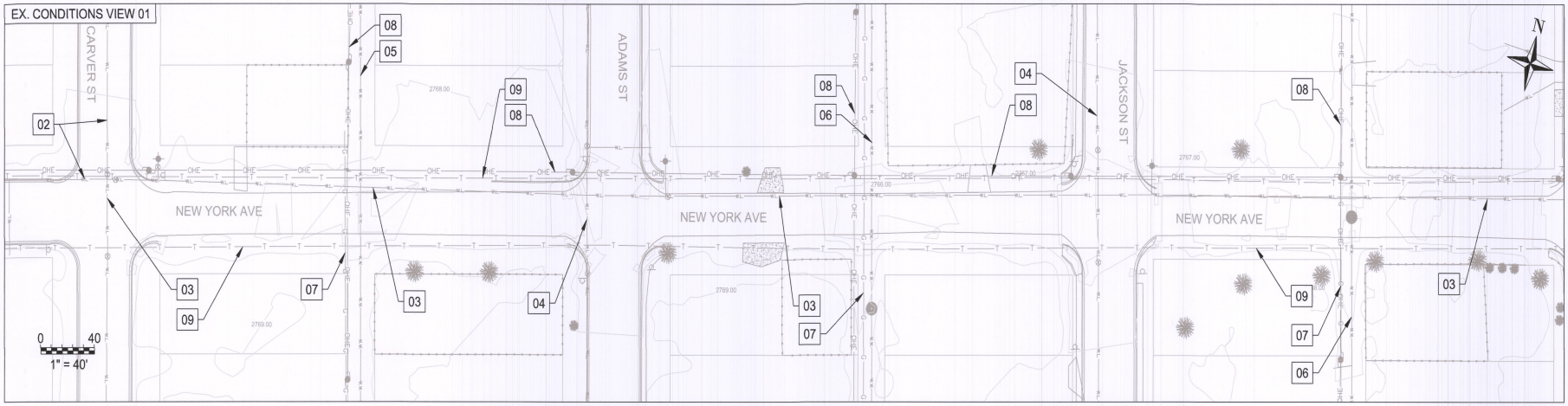
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

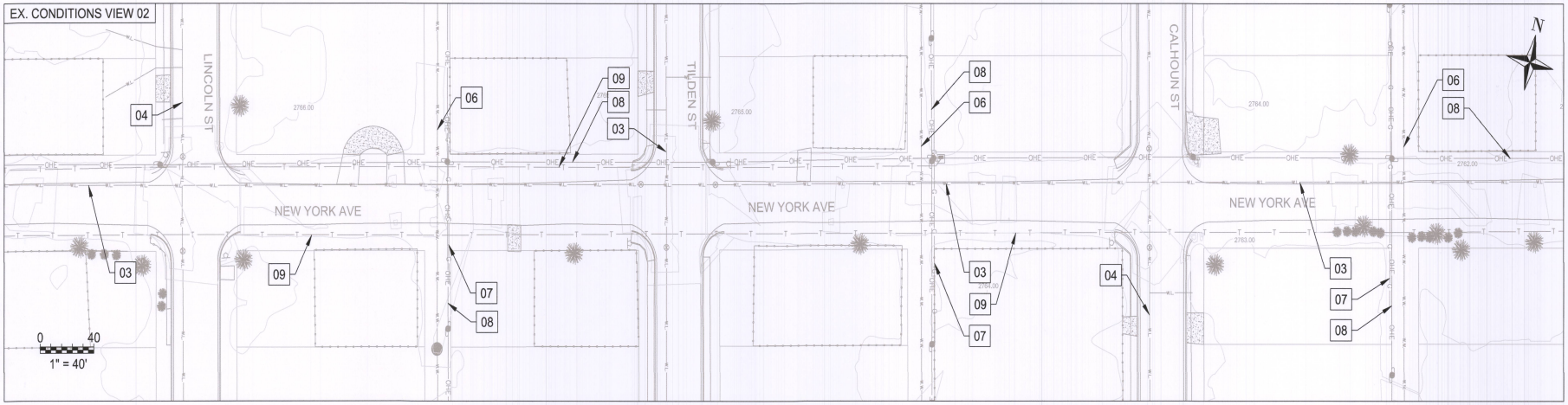
EXISTING CONDITIONS
MASTER PLAN

STATE OF TEXAS
OCT 21 2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-201
03 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-201 Ex.Conditions Master Plan.dwg Oct 05, 2020 – 11:27am pkingston





KEYED NOTES:

01 EXISTING 12" WATER MAIN

02 EXISTING 10" WATER MAIN

03 EXISTING 6" WATER MAIN

04 EXISTING 4" WATER MAIN

05 EXISTING 12" WASTEWATER MAIN

06 EXISTING 6" WASTEWATER MAIN

07 EXISTING ACTIVE GAS LINE

08 EXISTING ACTIVE OVERHEAD LINES

09 EXISTING ACTIVE UNDERGROUND TELEPHONE LINE

PACKET 8.907 December 15, 2020

811 Know what's below. Call before you dig.

					Description
					By
					Date
					Rev. No.

Drawn By	P.KINGSTON
Checked By	J.FERGUSON
Approved By	J.FERGUSON
Vert. Scale	1:40
Horz. Scale	N/A
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS

EXISTING CONDITIONS NEW YORK STREET

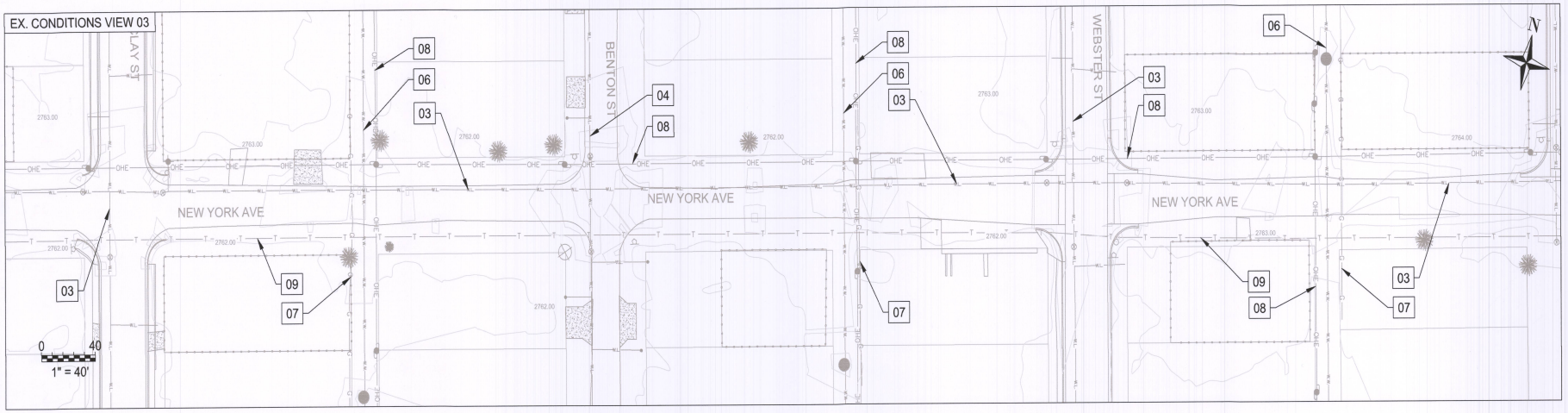
STATE OF TEXAS 2021 2020 JOSHUA C. FERGUSON 117692 LICENSED PROFESSIONAL ENGINEER

SHEET C-202

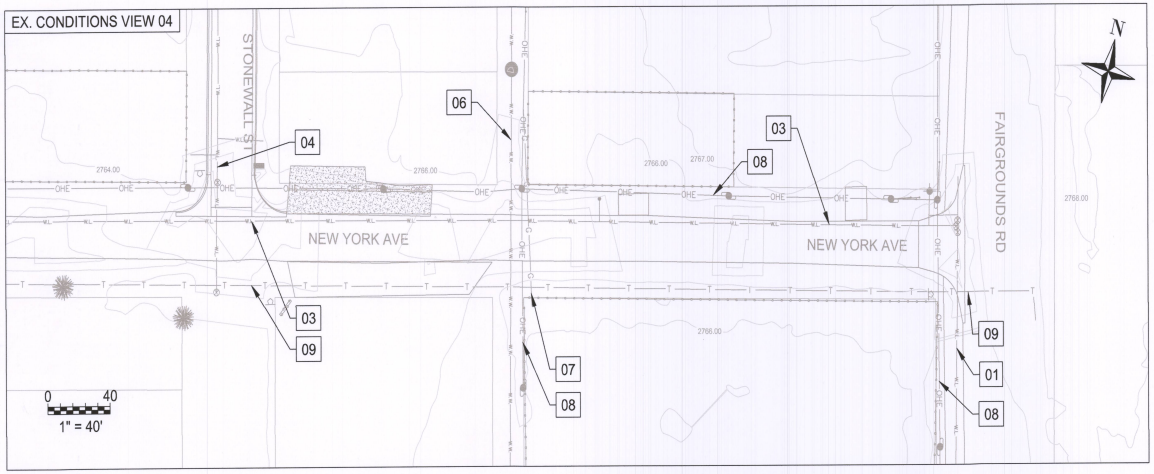
04 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-202 Ex.Conditions.dwg Oct 05, 2020 - 11:28am pkingston

EX. CONDITIONS VIEW 03



EX. CONDITIONS VIEW 04



KEYED NOTES:

01 EXISTING 12" WATER MAIN

02 EXISTING 10" WATER MAIN

03 EXISTING 6" WATER MAIN

04 EXISTING 4" WATER MAIN

05 EXISTING 12" WASTEWATER MAIN

06 EXISTING 6" WASTEWATER MAIN

07 EXISTING ACTIVE GAS LINE

08 EXISTING ACTIVE OVERHEAD LINES

09 EXISTING ACTIVE UNDERGROUND TELEPHONE LINE

PACKET 8.908 December 15, 2020

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:40
Horz. Scale	N / A
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

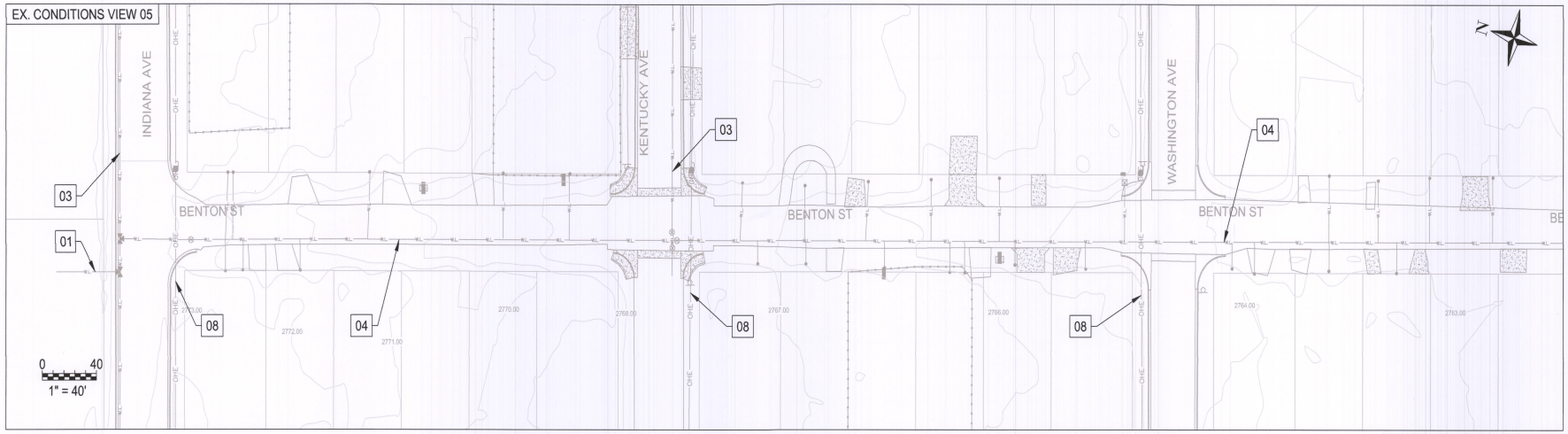
EXISTING CONDITIONS
NEW YORK STREET

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED PROFESSIONAL ENGINEER
10/21/2020

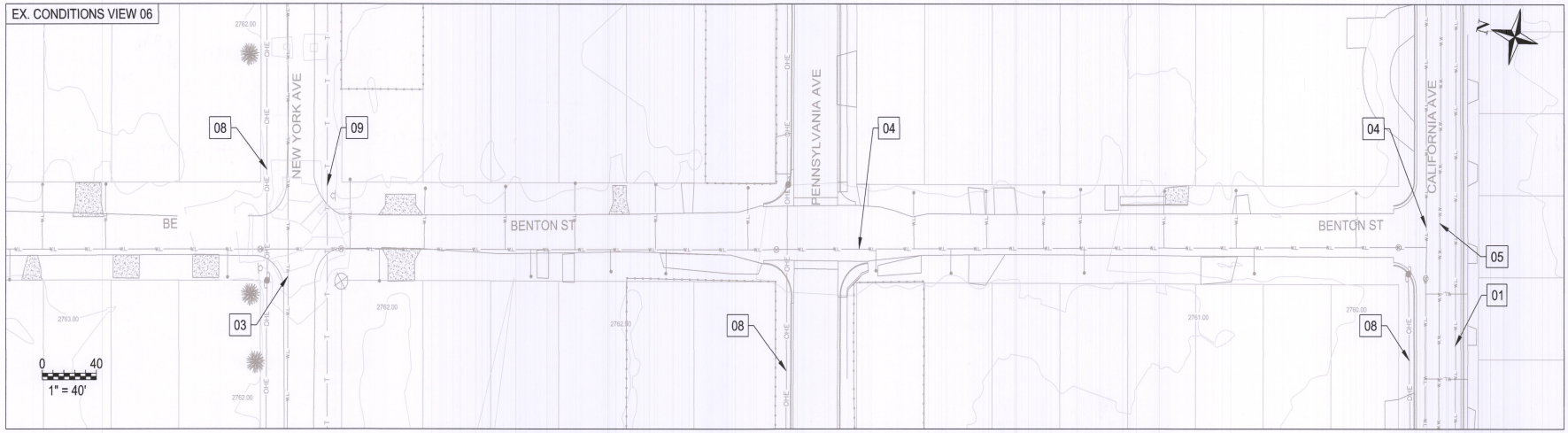
SHEET C-203
05 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-203 Ex.Conditions.dwg Oct 05, 2020 - 11:29am pkingston

EX. CONDITIONS VIEW 05



EX. CONDITIONS VIEW 06



KEYED NOTES:

01 EXISTING 12" WATER MAIN

02 EXISTING 10" WATER MAIN

03 EXISTING 6" WATER MAIN

04 EXISTING 4" WATER MAIN

05 EXISTING 12" WASTEWATER MAIN

06 EXISTING 6" WASTEWATER MAIN

07 EXISTING ACTIVE GAS LINE

08 EXISTING ACTIVE OVERHEAD LINES

09 EXISTING ACTIVE UNDERGROUND TELEPHONE LINE

PACKET 8.909 December 15, 2020

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:40
Horz. Scale	N / A
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

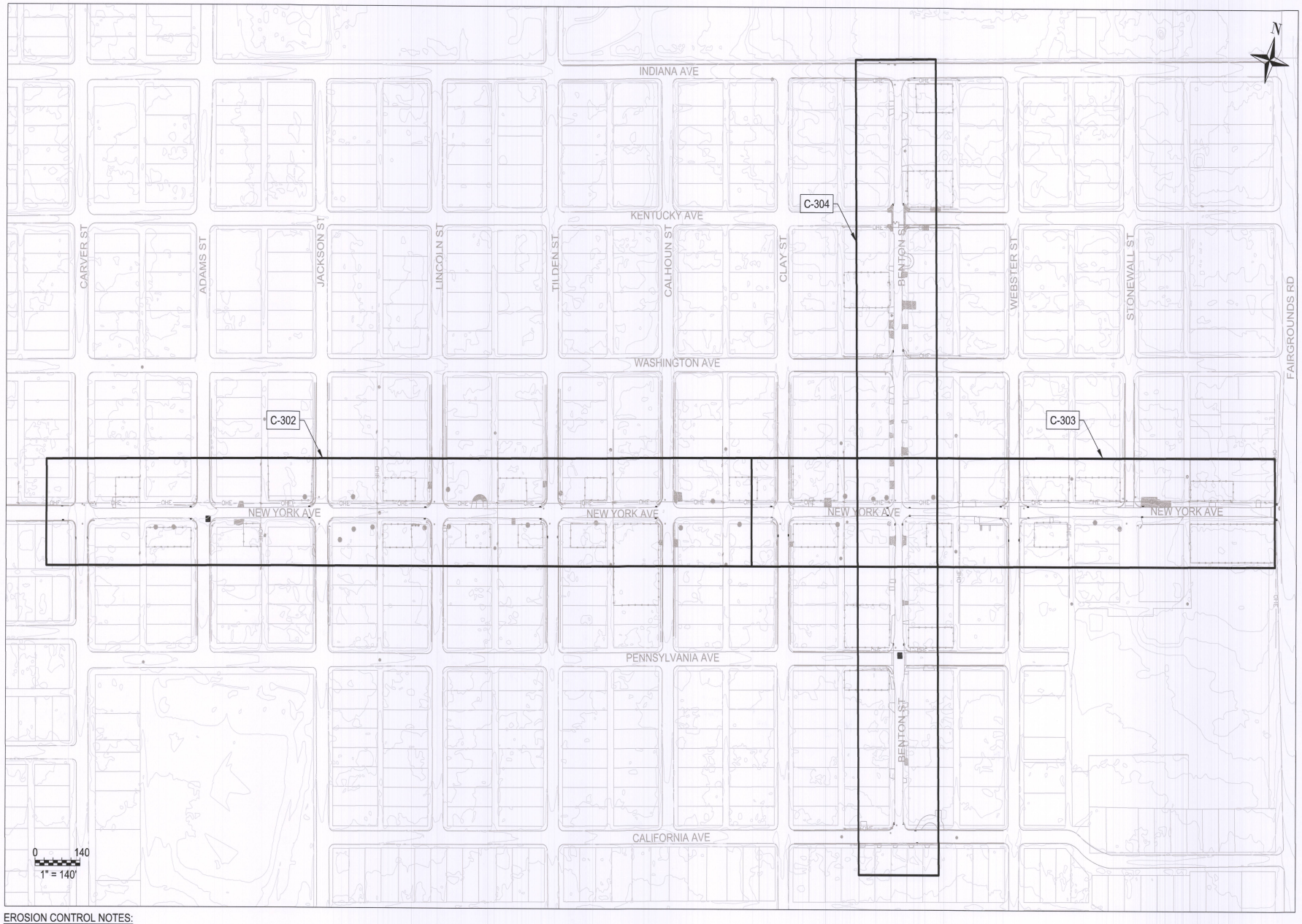
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

EXISTING CONDITIONS
BENTON STREET

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
2020

SHEET C-204
06 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-204 Ex.Conditions.dwg Oct 05, 2020 - 11:30am pkingston



EROSION CONTROL NOTES:

A) INSTALL EROSION CONTROL MEASURES PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY ON PROJECT SITE.

B) CONTRACTOR IS TO MAINTAIN EROSION CONTROL MEASURES AT ALL TIMES. REPAIRS TO EXISTING EROSION CONTROL MEASURES ARE TO BE MADE IMMEDIATELY UPON DISCOVERY THAT SUCH REPAIRS ARE NEEDED. ALL EROSION CONTROL MEASURES AT THE PROJECT SITE ARE TO BE INSPECTED IMMEDIATELY FOLLOWING ANY STORM EVENT.

C) ANY ON-SITE STORAGE OF SPOILS, MATERIALS, OR EQUIPMENT ARE TO BE LOCATED WITHIN THE EXISTING NEW YORK AVENUE RIGHT-OF-WAY DESIGNATED AS PART OF THE WORK ZONE AREA.

D) CONTRACTOR IS TO MAINTAIN A REASONABLY CLEAN PROJECT SITE AT ALL TIMES. ANY SEDIMENT, DEBRIS, ETC. OUTSIDE THE PROJECT SITE ARE TO BE REMOVED PROMPTLY.

E) CONCRETE TRUCKS CANNOT UNDER ANY CIRCUMSTANCE WASHOUT IN THE UTILITY TRENCHES. CONTRACTOR IS TO PROVIDE A WASHOUT CONTAINER FOR CONCRETE TRUCKS AND MUST REMOVE ALL WASHOUT AND SPOILS FROM THE PROJECT SITE.

F) IMPLEMENT SUPPLEMENTAL EROSION CONTROL MEASURES AS NEEDED DURING STORM EVENTS. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AT THE SOLE DISCRETION OF THE ENGINEER IF AT ANY TIME THE ENGINEER BELIEVES THE EXISTING EROSION CONTROL MEASURES ARE INSUFFICIENT FOR THE NEEDS OF THE PROJECT SITE.

G) GENERAL PROJECT WORK ZONE AREA SHOWN FOR REFERENCE. ACTUAL PROJECT WORK ZONE AREA LIMITS TO BE DETERMINED PRIOR TO STARTING CONSTRUCTION ACTIVITY.

PACKET 8.910 December 15, 2020

Know what's below. Call before you dig.

Drawn By	P KINGSTON						
Checked By	J FERGUSON						
Approved By	J FERGUSON						
Vert. Scale	1:150						
Horz. Scale	N/A						
Job No.	U19-04				Rev. No.	Date	By	Description
Date	OCTOBER 2020						

MIDLAND Engineering Services

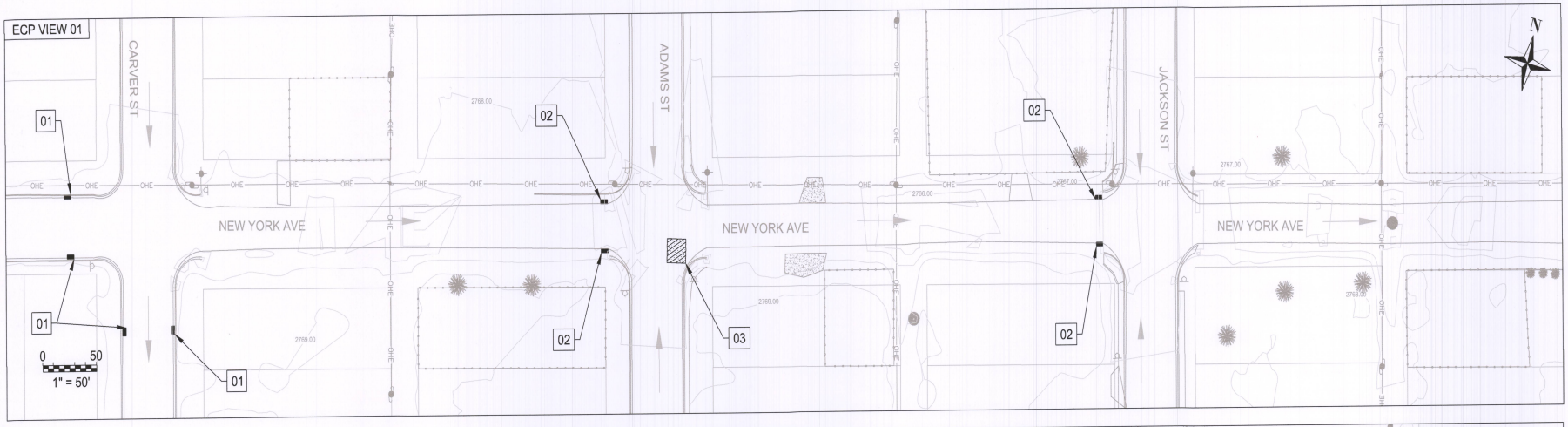
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

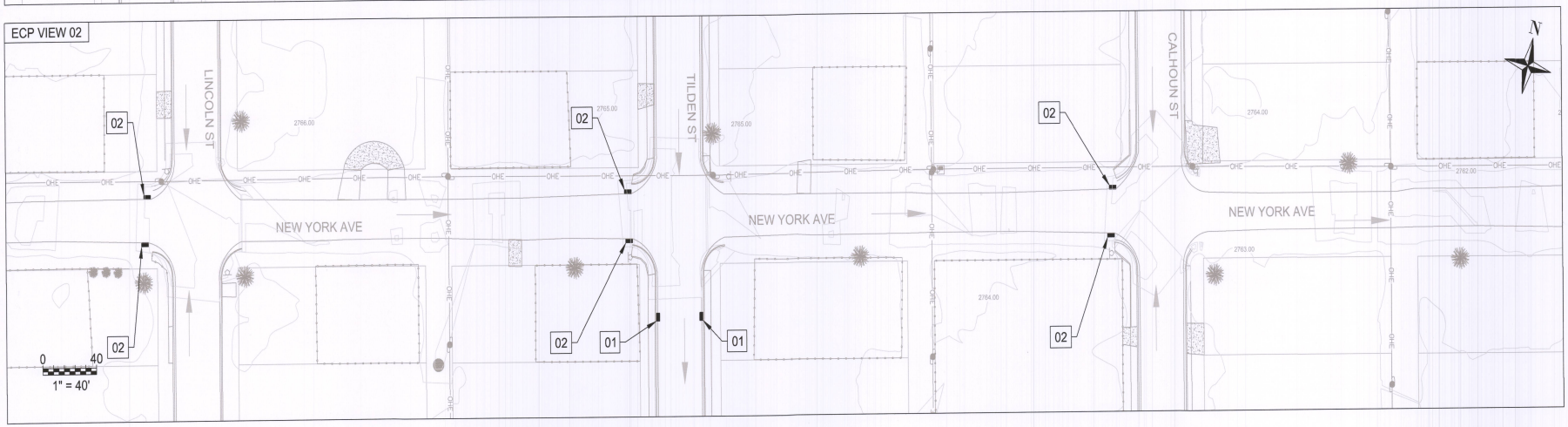
EROSION CONTROL
MASTER PLAN

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
2020

SHEET C-301
07 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-301 EGP Master Plan.dwg Oct 19, 2020 - 7:53am pkingston





KEYED NOTES:

01 PLACE SAND BAGS IN GUTTER FLOWLINE UPSTREAM OF CURB OPENINGS AND AT THE LIMITS OF THE WORK ZONE AREA.

02 PLACE SANDS BAGS ACROSS DRAINAGE DITCH UPSTREAM OF INTERSECTIONS AND AT THE LIMITS OF THE WORK ZONE AREA.

03 LOCATE CONCRETE WASHOUT WITHIN PROJECT AREA AND SHIFT AS NECESSARY FOR CONSTRUCTION ACTIVITY. ALL WASHOUT AND OTHER SPOILS ARE TO BE REMOVED FROM SITE.

PACKET 8.911 December 15, 2020

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:40
Horz. Scale	N / A
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS

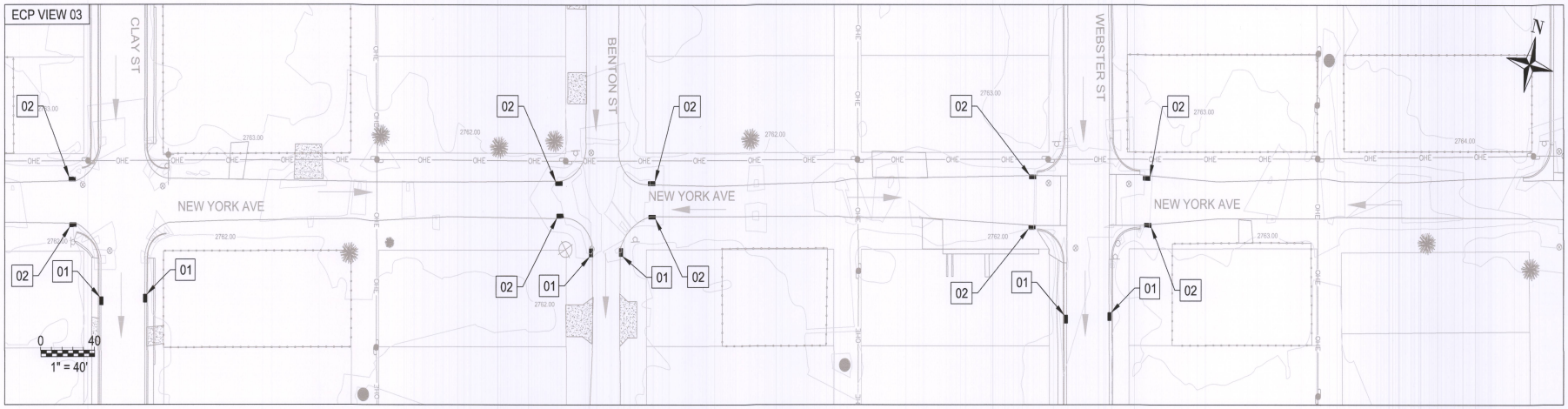
EROSION CONTROL PLAN NEW YORK AVENUE

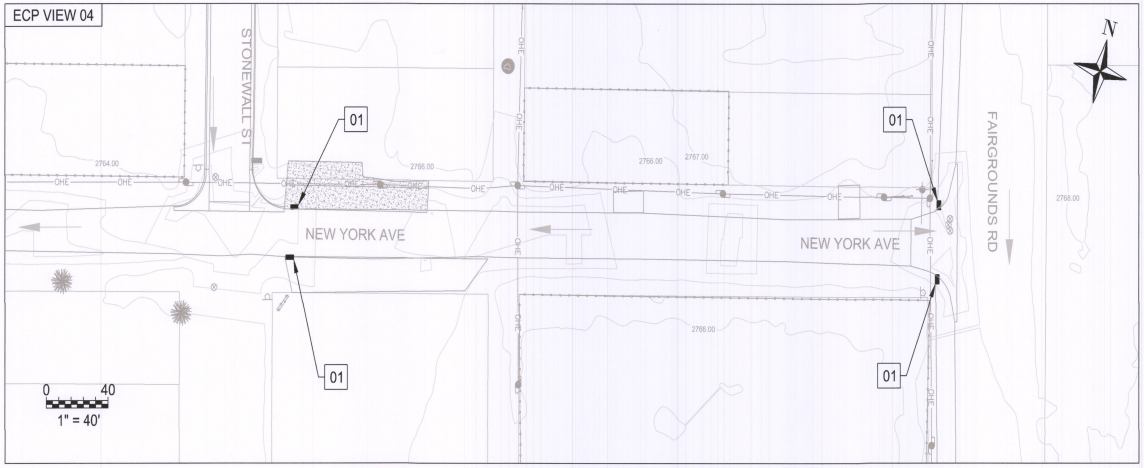
STATE OF TEXAS 10-21 2020 JOSHUA C. FERGUSON 117692 LICENSED PROFESSIONAL ENGINEER

SHEET C-302

08 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-302 ECP.dwg Oct 19, 2020 - 7:57am pkingston





KEYED NOTES:

01 PLACE SAND BAGS IN GUTTER FLOWLINE UPSTREAM OF CURB OPENINGS AND AT THE LIMITS OF THE WORK ZONE AREA.

02 PLACE SANDS BAGS ACROSS DRAINAGE DITCH UPSTREAM OF INTERSECTIONS AND AT THE LIMITS OF THE WORK ZONE AREA.

03 LOCATE CONCRETE WASHOUT WITHIN PROJECT AREA AND SHIFT AS NECESSARY FOR CONSTRUCTION ACTIVITY. ALL WASHOUT AND OTHER SPOILS ARE TO BE REMOVED FROM SITE.

811 Know what's below. Call before you dig.

Description	Date	By

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:40
Horz. Scale N / A
Job No. U19-04
Date OCTOBER 2020
Rev. No.

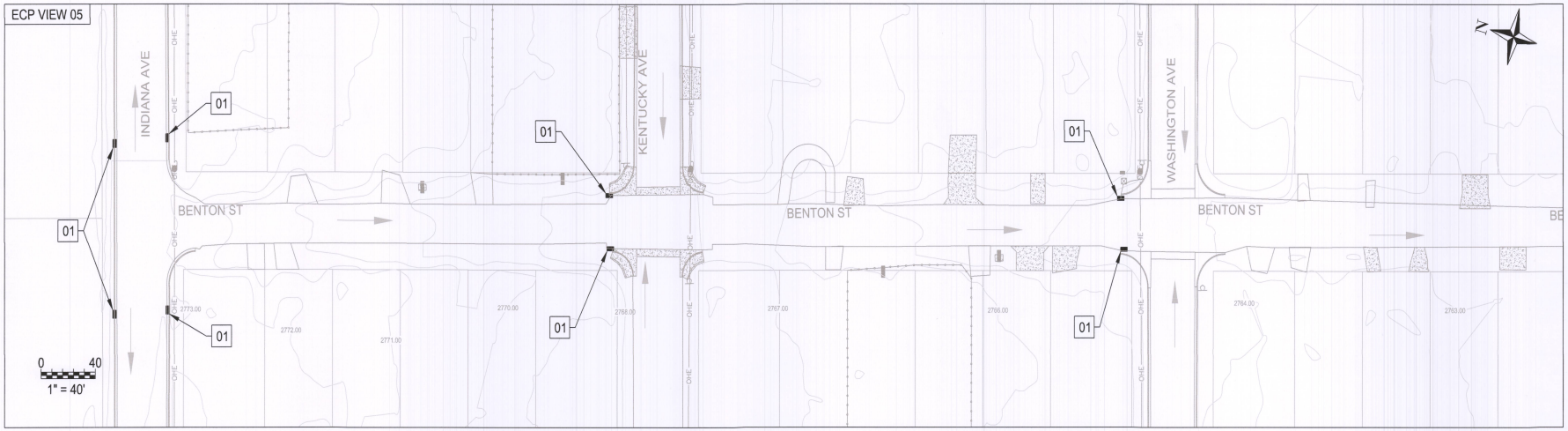
MIDLAND Engineering Services

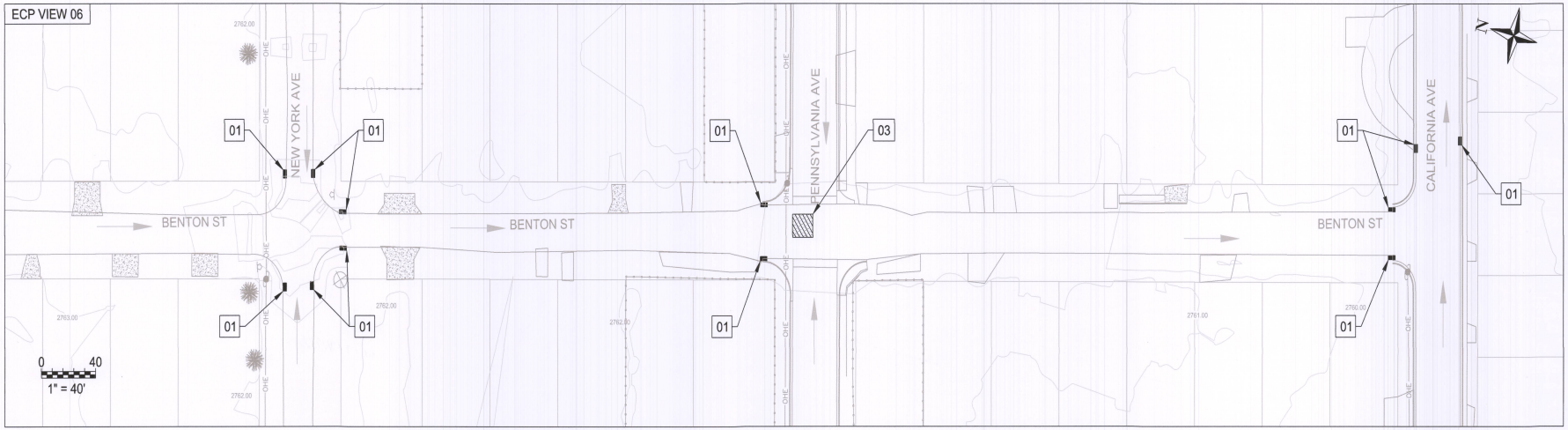
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS
EROSION CONTROL PLAN
NEW YORK AVENUE

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED PROFESSIONAL ENGINEER
10-21-2020

SHEET C-303
09 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-303 ECP.dwg Oct 19, 2020 - 8:01am pkingston





KEYED NOTES:

01 PLACE SAND BAGS IN GUTTER FLOWLINE UPSTREAM OF CURB OPENINGS AND AT THE LIMITS OF THE WORK ZONE AREA.

02 PLACE SANDS BAGS ACROSS DRAINAGE DITCH UPSTREAM OF INTERSECTIONS AND AT THE LIMITS OF THE WORK ZONE AREA.

03 LOCATE CONCRETE WASHOUT WITHIN PROJECT AREA AND SHIFT AS NECESSARY FOR CONSTRUCTION ACTIVITY. ALL WASHOUT AND OTHER SPOILS ARE TO BE REMOVED FROM SITE.

PACKET 8.913 December 15, 2020

811 Know what's below. Call before you dig.

Description	Date	By

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:40
Horz. Scale N / A
Job No. U19-04
Date OCTOBER 2020
Rev. No.

MIDLAND Engineering Services

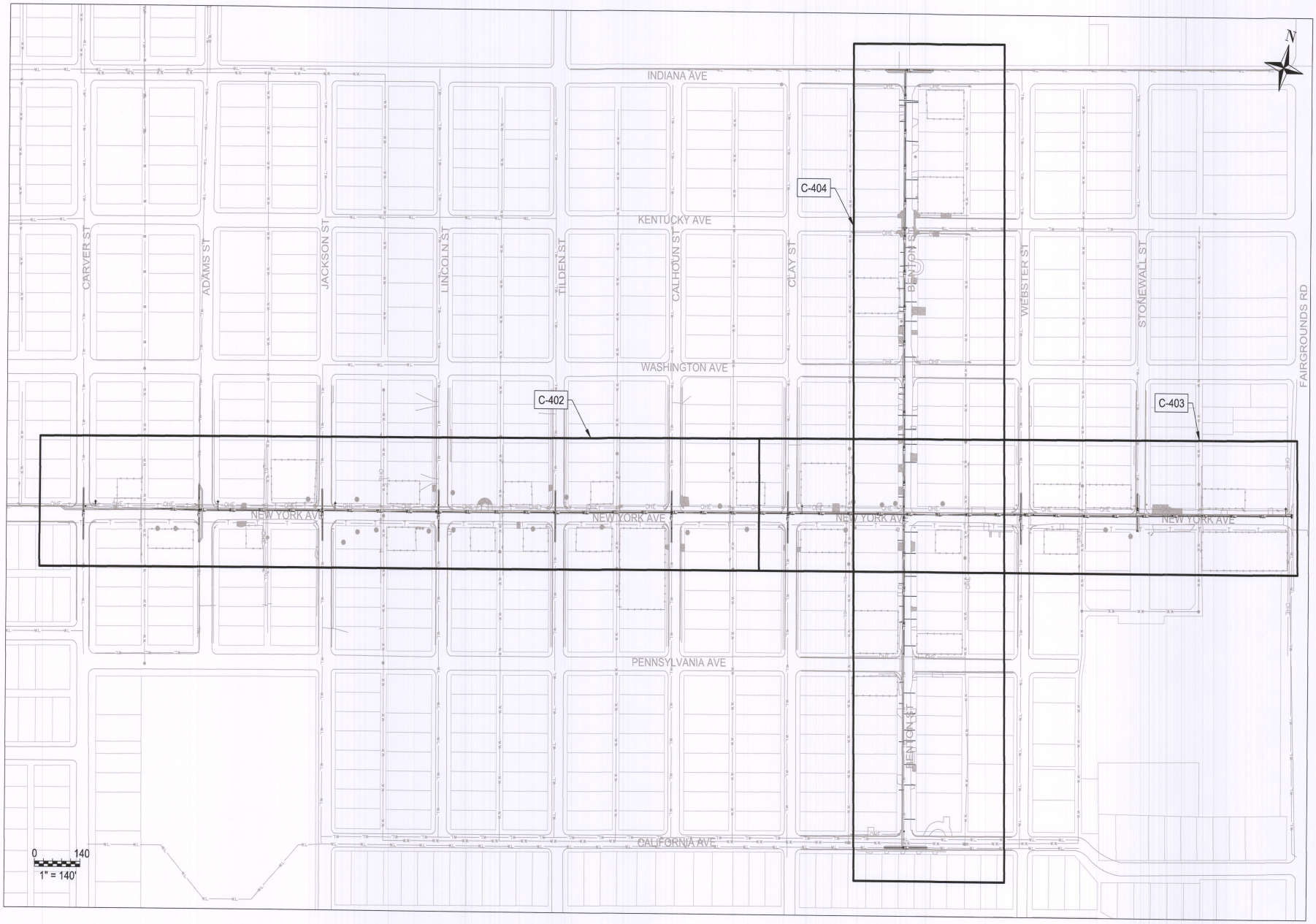
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

EROSION CONTROL PLAN
BENTON STREET

STATE OF TEXAS 2021 2020 JOSHUA C. FERGUSON 117692 LICENSED PROFESSIONAL ENGINEER

SHEET C-304
10 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\WL Plans\C-304 ECP.dwg Oct 19, 2020 - 8:02am pkingston



DEMOLITION NOTES:

A) ALL DEMOLITION DIMENSIONS ARE APPROXIMATE BASED ON THE MOST RELIABLE DATA AVAILABLE. CONTRACTOR IS TO FIELD VERIFY ACTUAL DIMENSIONS AND NOTIFY ENGINEER OF QUANTITY INCREASES OR DISCREPANCIES.

B) ALL SAW-CUTS FOR PAVEMENT REMOVAL ARE TO BE CUT IN CLEAN, STRAIGHT LINES.

C) NO EXISTING INFRASTRUCTURE IS TO BE REMOVED THAT IS NOT NOTED FOR REMOVAL ON THIS SHEET WITHOUT WRITTEN CONFIRMATION FROM ENGINEER PRIOR TO SUCH REMOVAL TAKING PLACE. ANY EXISTING INFRASTRUCTURE DAMAGED OR REPLACED TO EQUAL OR BETTER CONDITION AT CONTRACTOR'S SOLE EXPENSE.

D) NOTIFY ENGINEER OF ANY CONFLICTS OF DISCREPANCIES BEFORE REMOVING ANYTHING NOTED FOR REMOVAL.

E) TYPICAL TRENCH PAVEMENT REPAIR WIDTH IS ANTICIPATED TO BE 4.0' FOR FIRE LATERAL TRENCHES, AND 3.0' FOR WATER SERVICE LATERAL TRENCHES. CONTRACTOR IS TO OBTAIN PERMISSION FROM ENGINEER PRIOR TO INCREASING TYPICAL TRENCH PAVEMENT REPAIR WIDTHS.

PACKET

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:140
Horz. Scale	N/A
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

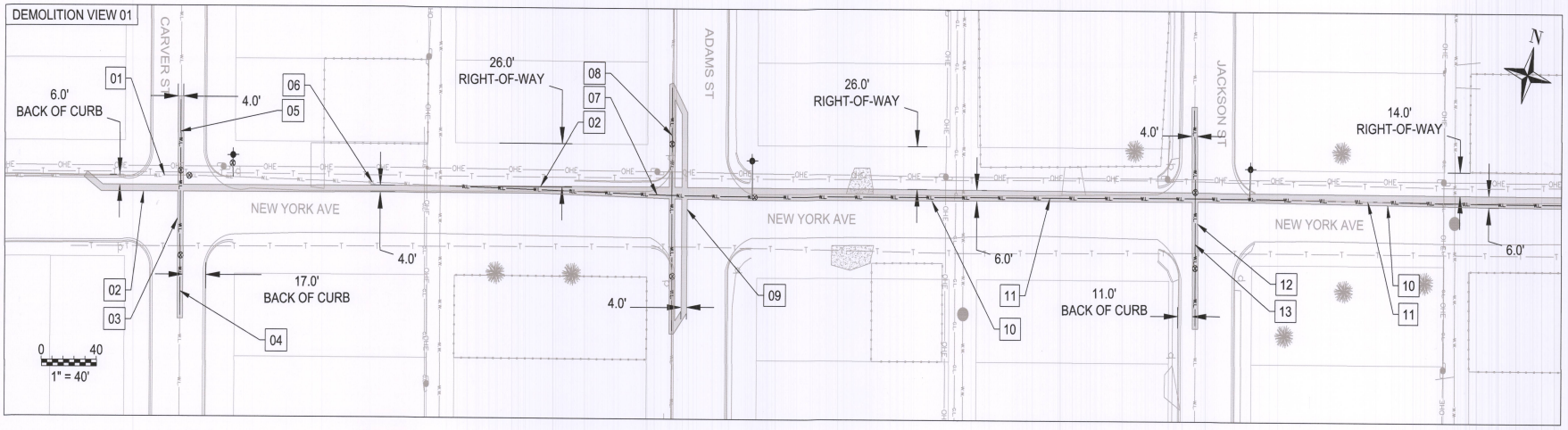
NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS

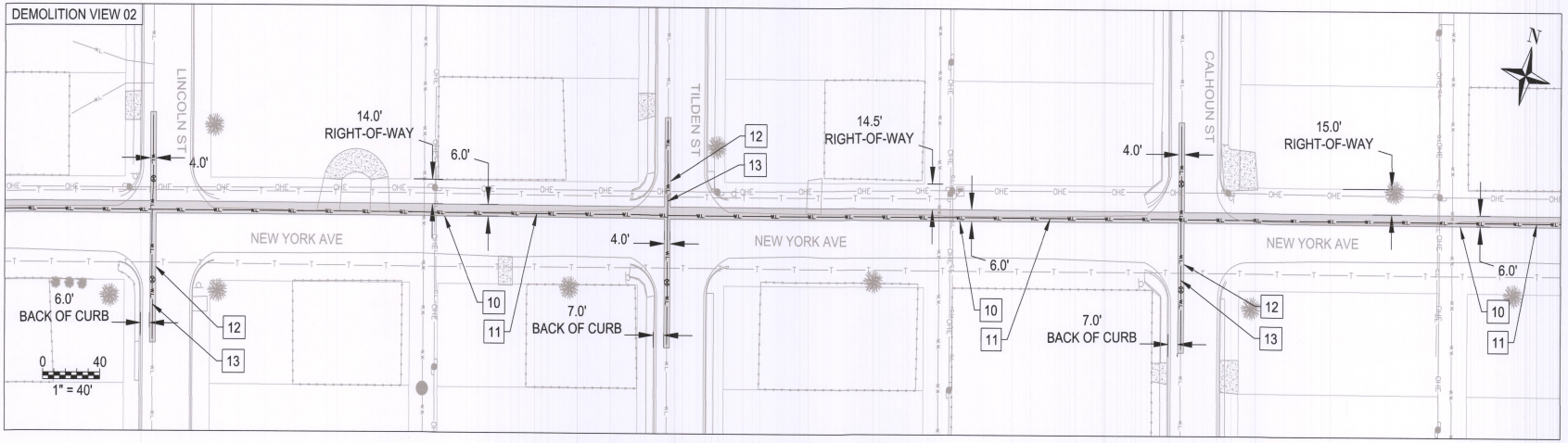
DEMOLITION MASTER PLAN

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED PROFESSIONAL ENGINEER

SHEET C-401
11 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-401 DEMO Master Plan.dwg Oct 19, 2020 - 8:03am pkingston





DEMOLITION NOTES:

F) ASPHALT PAVEMENT REMOVAL FOR ALL WATER SERVICE LATERALS FOR C-402 IS APPROXIMATELY 56-SY.

G) CONCRETE CURB REMOVAL FOR ALL WATER SERVICE AND FIRE LATERALS FOR C-402 IS APPROXIMATELY 24-LF.

KEYED NOTES:

01 ABANDON EXISTING 10" CAST IRON PIPE IN PLACE, FILL VOID WITH FLOWABLE FILL 2-SACK (2-SACK = 188 LB/CY), APPROXIMATELY 2-CY FOR 67' OF PIPE FROM 60' WEST OF CARVER STREET TO CARVER STREET ALONG NEW YORK AVENUE.

02 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 193-SY, FROM 435' WEST OF CARVER STREET TO ADAM STREET ALONG NEW YORK AVENUE.

03 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 60-SY, NORTH TO SOUTH ALONG CARVER STREET.

04 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 84.5', NORTH TO SOUTH ALONG CARVER STREET.

05 REMOVE EXISTING 10" CAST IRON PIPE, APPROXIMATELY 45.5', NORTH TO SOUTH ALONG CARVER STREET.

06 ABANDON EXISTING 6" CAST IRON PIPE IN PLACE, FILL VOID WITH FLOWABLE FILL 2-SACK (2-SACK = 188 LB/CY), APPROXIMATELY 2-CY FOR 196' OF PIPE AND FROM CARVER STREET INTERSECTION TO 161' WEST OF ADAMS STREET INTERSECTION ALONG NEW YORK AVENUE.

07 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 161', FROM 161' WEST OF ADAMS STREET INTERSECTION TO ADAMS STREET INTERSECTION ALONG NEW YORK AVENUE.

08 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 150', NORTH TO SOUTH ALONG ADAMS STREET.

09 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 255-SY, NORTH TO SOUTH ALONG ADAMS STREET.

10 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 1200-SY, FROM ADAMS STREET TO CLAY STREET ALONG NEW YORK AVENUE.

11 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 1800', FROM ADAMS STREET TO CLAY STREET ALONG NEW YORK AVENUE.

12 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 60-SY, NORTH TO SOUTH ALONG JACKSON, LINCOLN, TILDEN, AND CALHOUN STREET.

13 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 130', NORTH TO SOUTH ALONG JACKSON, LINCOLN, TILDEN, AND CALHOUN STREET.

811 Know what's below. Call before you dig.

Drawn By	P KINGSTON			
Checked By	J FERGUSON			
Approved By	J FERGUSON			
Vert. Scale	1:40			
Horz. Scale	N / A			
Job No.	U19-04			
Date	OCTOBER 2020	Rev. No.	Date	By	Description

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET WATER IMPROVEMENTS

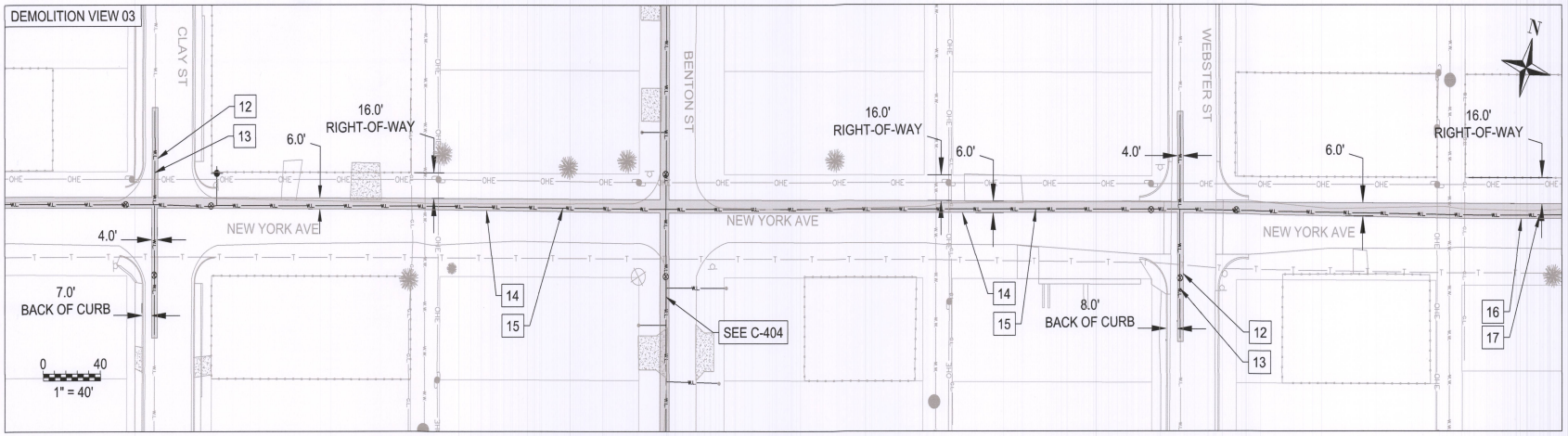
DEMOLITION PLAN NEW YORK AVENUE

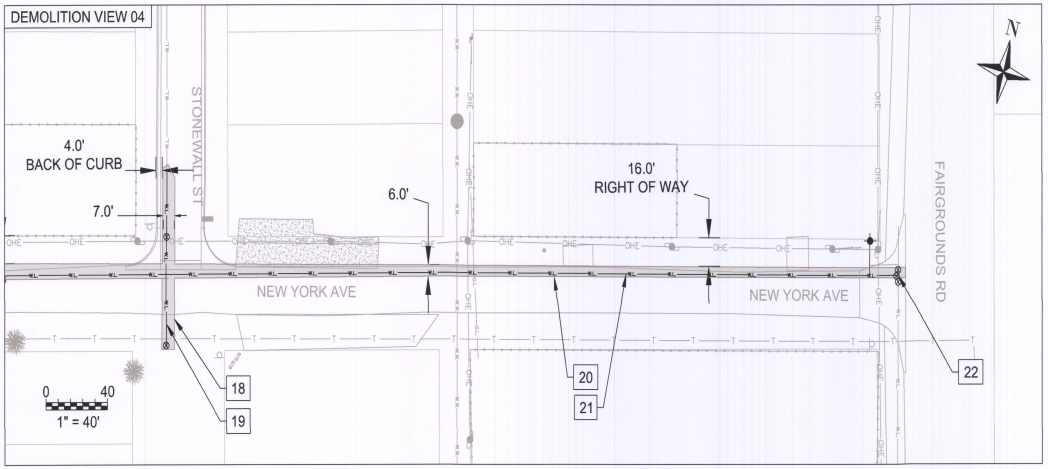
STATE OF TEXAS JOSHUA C. FERGUSON 117692 LICENSED PROFESSIONAL ENGINEER

SHEET C-402

12 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-402 Demolition.dwg Oct 19, 2020 - 8:04am pkingston





DEMOLITION NOTES:

F) ASPHALT PAVEMENT REMOVAL FOR ALL WATER SERVICE LATERALS FOR C-403 IS APPROXIMATELY 46-SY.

G) CONCRETE CURB REMOVAL FOR ALL WATER SERVICE AND FIRE LATERALS FOR C-403 IS APPROXIMATELY 23-LF.

KEYED NOTES:

112 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 60-SY, NORTH TO SOUTH ALONG JACKSON, LINCOLN, TILDEN, CALHOUN, CLAY, AND WEBSTER STREET.

13 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 130', NORTH TO SOUTH ALONG JACKSON, LINCOLN, TILDEN, CALHOUN, CLAY, AND WEBSTER STREET.

14 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 480-SY, FROM CLAY STREET TO WEBSTER STREET ALONG NEW YORK AVENUE.

15 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 720', FROM CLAY STREET TO WEBSTER STREET ALONG NEW YORK AVENUE.

16 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 135-SY, FROM WEBSTER STREET TO STONEWALL STREET ALONG NEW YORK AVENUE.

17 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 200', FROM WEBSTER STREET TO STONEWALL STREET ALONG NEW YORK AVENUE.

18 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 80-SY, NORTH TO SOUTH ALONG STONEWALL STREET.

19 REMOVE EXISTING 4" CAST IRON PIPE, APPROXIMATELY 101', NORTH TO SOUTH ALONG STONEWALL STREET.

20 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 320-SY, FROM STONEWALL STREET TO FAIRGROUNDS STREET ALONG NEW YORK AVENUE.

21 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 480', FROM STONEWALL STREET TO FAIRGROUNDS STREET ALONG NEW YORK AVENUE.

22 REMOVE EXISTING 12" CAST IRON PIPE, APPROXIMATELY 3', NORTH ALONG FAIRGROUNDS ROAD.

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:40
Horz. Scale N / A
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

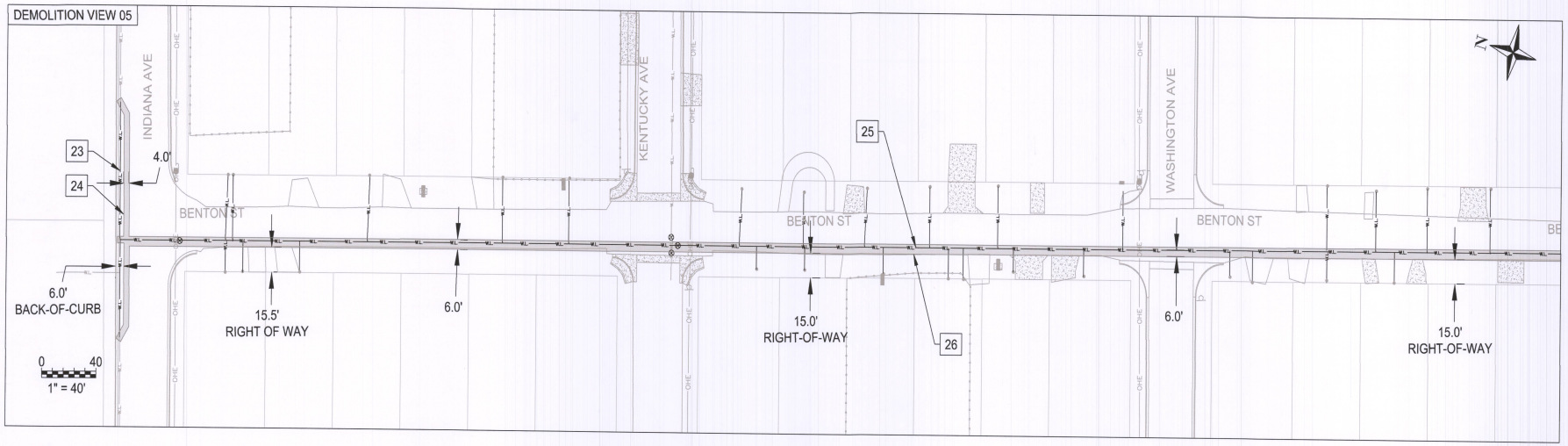
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

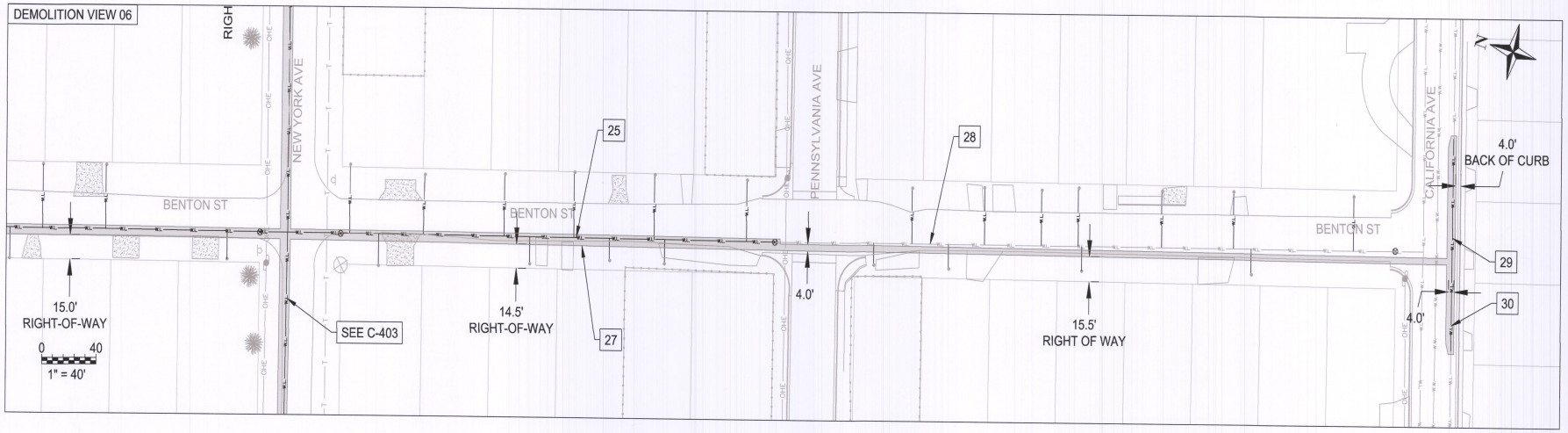
DEMOLITION PLAN
NEW YORK AVENUE

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED PROFESSIONAL ENGINEER
DEC 21 2020

SHEET C-403
13 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-403 Demolition.dwg Oct 19, 2020 - 8:05am pkingston





DEMOLITION NOTES:

H) ASPHALT PAVEMENT REMOVAL FOR ALL WATER SERVICE LATERALS FOR C-406 IS APPROXIMATELY 665-SY.

I) CONCRETE CURB REMOVAL FOR ALL WATER SERVICE AND FIRE LATERALS FOR C-406 IS APPROXIMATELY 23-LF.

J) CONCRETE SIDEWALK REMOVAL FOR ALL WATER SERVICES FOR C-406 IS APPROXIMATELY 15-SY.

KEYED NOTES:

23 ABANDON EXISTING 6" CAST IRON PIPE IN PLACE, FILL VOID WITH FLOWABLE FILL 2-SACK (2-SACK = 188 LB/CY), APPROXIMATELY 1-CY FOR 145' OF PIPE EAST TO WEST ALONG INDIANA AVENUE.

24 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 69-SY, EAST TO WEST ALONG INDIANA AVENUE.

25 REMOVE EXISTING 6" CAST IRON PIPE, APPROXIMATELY 1510', FROM INDIANA AVENUE TO PENNSYLVANIA AVENUE ALONG NEW YORK AVENUE.

26 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 1010-SY, FROM INDIANA AVENUE TO PENNSYLVANIA AVENUE ALONG BENTON STREET.

27 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 215-SY, FROM PENNSYLVANIA AVENUE TO CALIFORNIA AVENUE ALONG BENTON STREET.

28 ABANDON EXISTING 6" CAST IRON PIPE IN PLACE, FILL VOID WITH FLOWABLE FILL 2-SACK (2-SACK = 188 LB/CY), APPROXIMATELY 3-CY FOR 480' OF PIPE, FROM PENNSYLVANIA AVENUE TO CALIFORNIA AVENUE ALONG BENTON STREET.

29 REMOVE EXISTING 12" CAST IRON PIPE, APPROXIMATELY 136', EAST TO WEST ALONG CALIFORNIA AVENUE.

30 ASPHALT PAVEMENT REMOVAL, APPROXIMATELY 88-SY, EAST TO WEST ALONG CALIFORNIA AVENUE.

PACKET

811 Know what's below. Call before you dig.



PAVING & SIDEWALK NOTES:

A) ALL NEW PAVEMENT AND CONCRETE PLACED ARE TO BE PLACED CLEANLY AND FLUSH WITH ALL ADJACENT, EXISTING PAVEMENT OR CONCRETE.

B) EXISTING STAND-UP CURBS ALONG CARVER STREET, INDIANA AVENUE, AND CALIFORNIA AVENUE ARE 7.0" CURBS RATHER THAN CURRENT 6.0" CITY STANDARD IN THIS AREA. MATCH EXISTING CURB HEIGHT THROUGHOUT.

C) FROM JACKSON STREET TO FAIRGROUNDS ROAD, THE DISTANCE BETWEEN NEW YORK AVENUE NORTH RIGHT-OF-WAY TO TRENCH NORTH BOUNDARY IS 18.0'. FROM INDIANA AVENUE TO CALIFORNIA, THE DISTANCE BETWEEN BENTON STREET WEST RIGHT-OF-WAY TO TRENCH WEST BOUNDARY IS 15.0'.

811 Know what's below. Call before you dig.

Description	Date	By

Drawn By	P.KINGSTON
Checked By	J.FERGUSON
Approved By	J.FERGUSON
Vert. Scale	1:140
Horz. Scale	N/A
Job No.	U19-04
Date	OCTOBER 2020
Rev. No.	

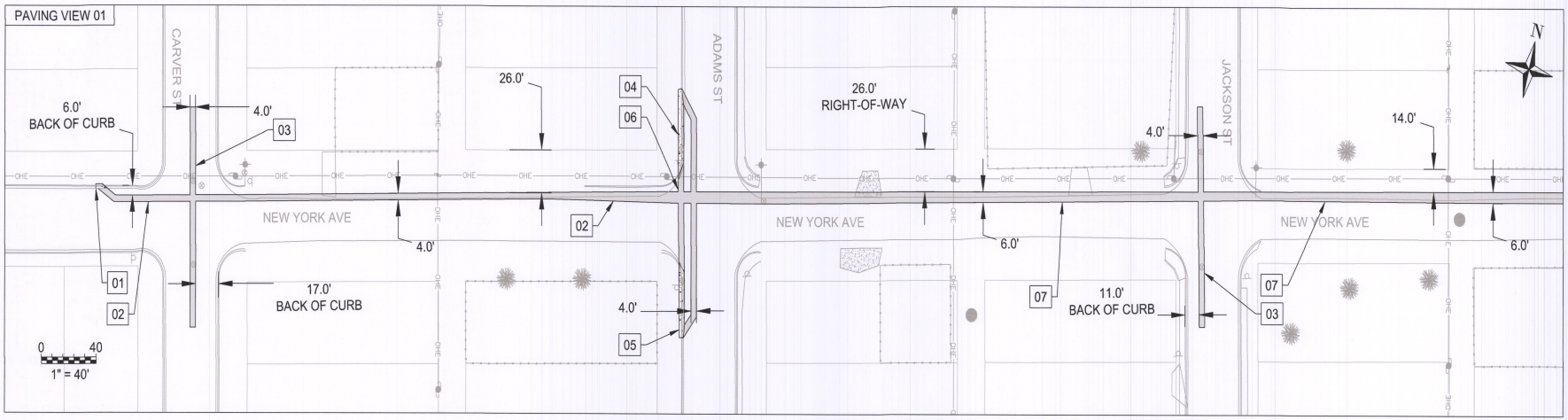
MIDLAND Engineering Services

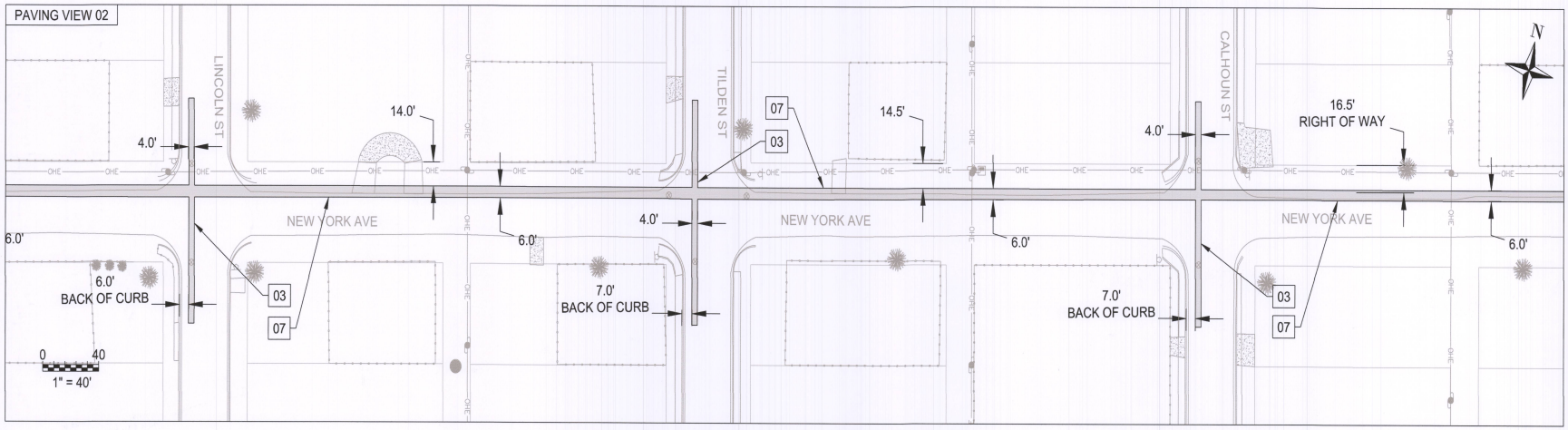
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS
PAVING MASTER PLAN

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
DATE 2020

SHEET C-501
15 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-405 PVNG Master Plan.dwg Oct 05, 2020 - 11:38am pkingston





KEYED NOTES:

01 REMOVE 8.0' EXISTING CURB DURING CONSTRUCTION AND REPLACE WITH MATCHING 7" STAND-UP CURB SECTION AT CONSTRUCTION COMPLETION.

02 PLACE 2" TYPE 'D' HMAC PAVEMENT, 193-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

03 PLACE 2" TYPE 'D' HMAC PAVEMENT, 60-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

04 REMOVE 55.0' EXISTING CURB DURING CONSTRUCTION AND REPLACE WITH MATCHING 7" STAND-UP CURB SECTION AT CONSTRUCTION COMPLETION.

05 REMOVE 49.0' EXISTING CURB DURING CONSTRUCTION AND REPLACE WITH MATCHING 7" STAND-UP CURB SECTION AT CONSTRUCTION COMPLETION.

06 PLACE 2" TYPE 'D' HMAC PAVEMENT, 255-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

07 PLACE 2" TYPE 'D' HMAC PAVEMENT, 1200-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:40
Horz. Scale	N / A
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

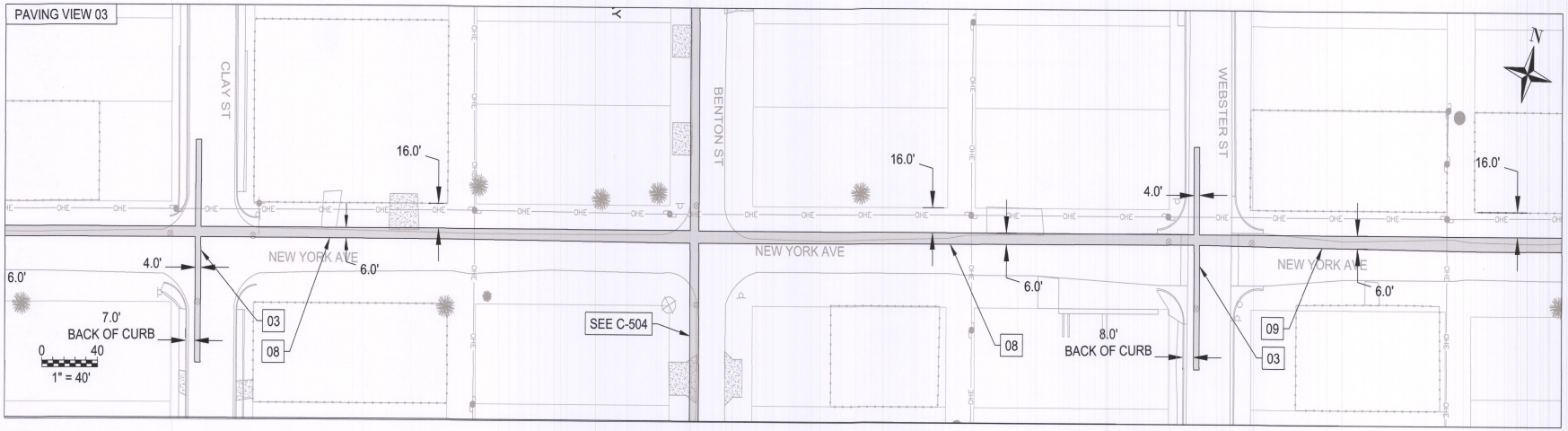
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

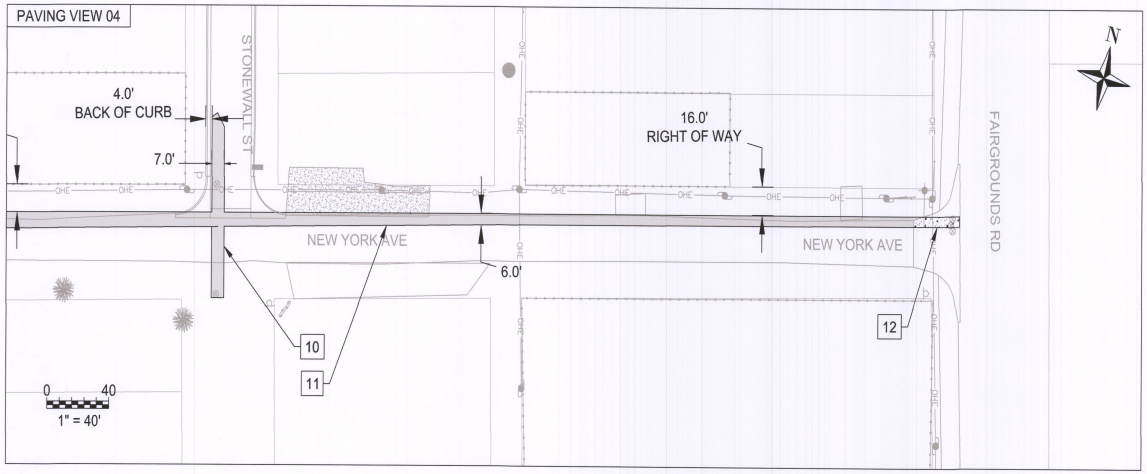
PAVING PLAN
NEW YORK STREET

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-502
16 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-406 PVNG.dwg Oct 05, 2020 - 11:39am pkingston





KEYED NOTES:

03 PLACE 2" TYPE 'D' HMAC PAVEMENT, 60-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

08 PLACE 2" TYPE 'D' HMAC PAVEMENT, 480-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

09 PLACE 2" TYPE 'D' HMAC PAVEMENT, 135-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

10 PLACE 2" TYPE 'D' HMAC PAVEMENT, 80-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

11 PLACE 2" TYPE 'D' HMAC PAVEMENT, 300-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

12 PLACE 4" CONCRETE PAVEMENT, 20-SY. MATCH CONCRETE PAVEMENT AREA REMOVED AND THICKNESS.

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:40
Horz. Scale	N / A
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

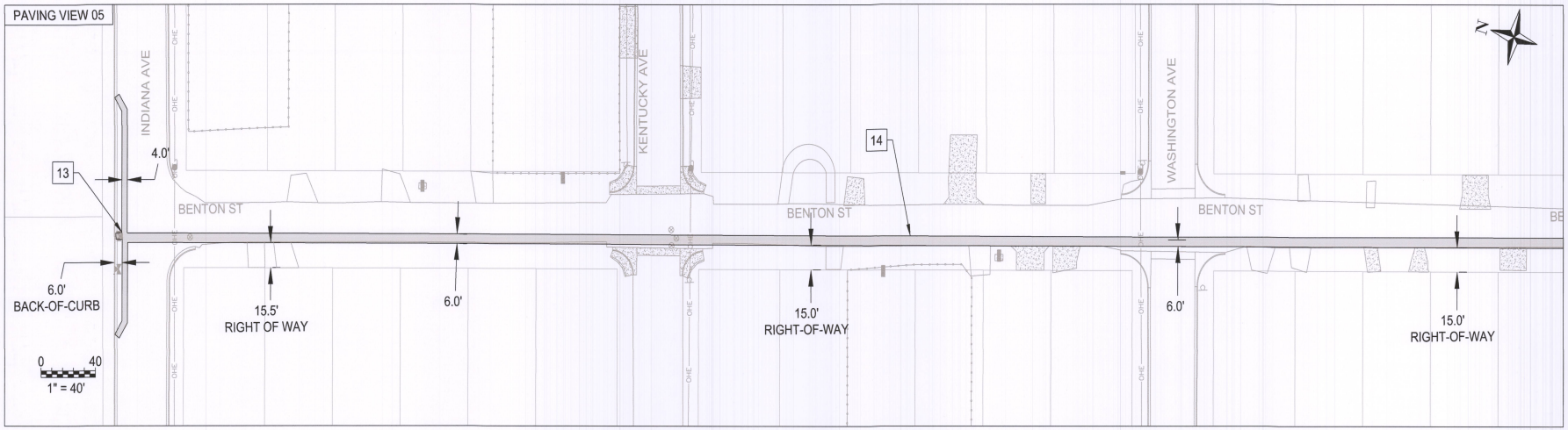
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

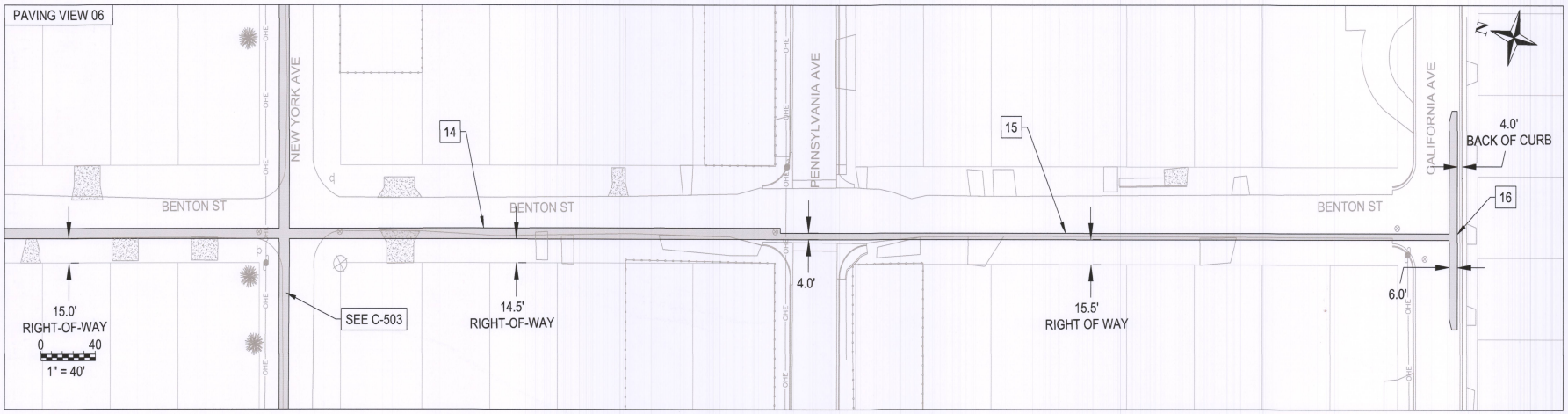
PAVING PLAN
NEW YORK STREET

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
10/21/2020

SHEET C-503
17 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-407 PVNG.dwg Oct 05, 2020 - 11:40am pkingston





KEYED NOTES:

13 PLACE 2" TYPE 'D' HMAC PAVEMENT, 69-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

14 PLACE 2" TYPE 'D' HMAC PAVEMENT, 1010-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

15 PLACE 2" TYPE 'D' HMAC PAVEMENT, 215-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

16 PLACE 2" TYPE 'D' HMAC PAVEMENT, 88-SY, PER CITY DETAIL 311, SHEET C-701. MATCH ASPHALT PAVEMENT AREA REMOVED.

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:150
Horz. Scale	N / A
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

PAVING PLAN
BENTON STREET

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
OCTOBER 2020

SHEET C-504
18 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-408 PVNG.dwg Oct 05, 2020 - 11:39am pkingston



MASTER PLAN NOTES:

A) ALL NEW WATER MAINS TO MAINTAIN A MINIMUM COVER OF 4.0' FROM EXISTING SURFACE, AND A MINIMUM VERTICAL SEPARATION OF 2.0' ABOVE EXISTING WASTEWATER MAINS, GAS LINES, AND PRODUCT LINES UNLESS SPECIFICALLY NOTED OTHERWISE.

B) ALL NEW WATER VALVES TO BE LOCATED ADJACENT TO CROSS OR TEE FITTINGS UNLESS SPECIFICALLY NOTED OTHERWISE.

C) ALL NEW WATER MAINS ARE ARE GENERALLY PARALLEL TO AND 17.5' FROM NEW YORK AVENUE NORTHERN RIGHT OF WAY BOUNDARY AND BENTON STREET WESTERN RIGHT OF WAY BOUNDARY.

D) ALL SEPARATION DIMENSIONS BETWEEN NEW AND EXISTING UTILITIES ARE APPROXIMATE.

E) ALL PROPOSED WATER MAIN IMPROVEMENTS ARE TO CONNECT TO EXISTING WATER SYSTEM REGARDLESS OF DIMENSIONS SHOWN.

Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:140
Horz. Scale	N / A
Job No.	U19-04
Date	OCTOBER 2020

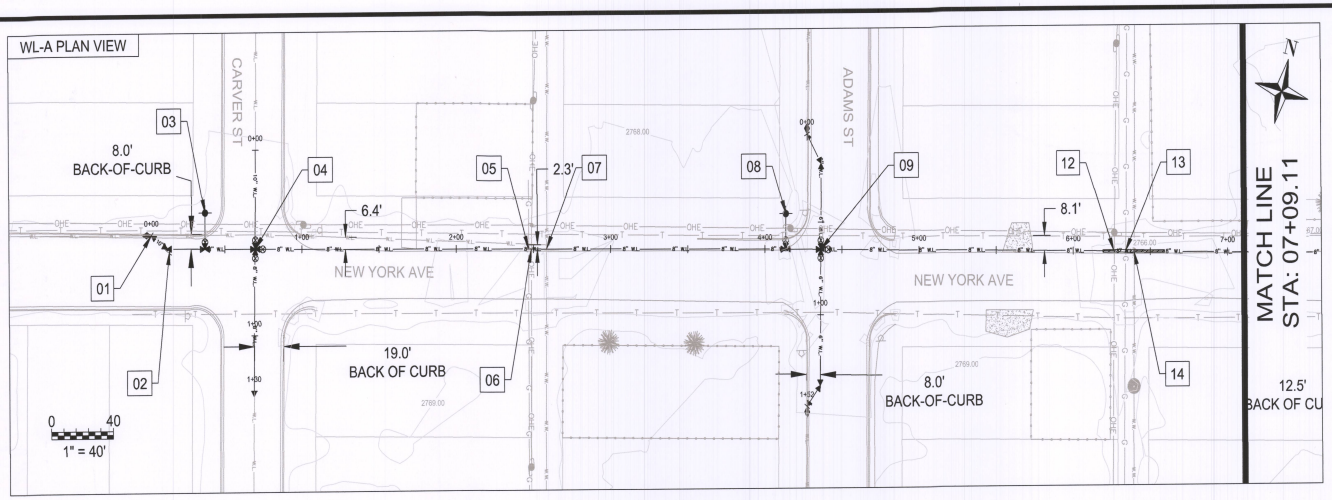
MIDLAND Engineering Services

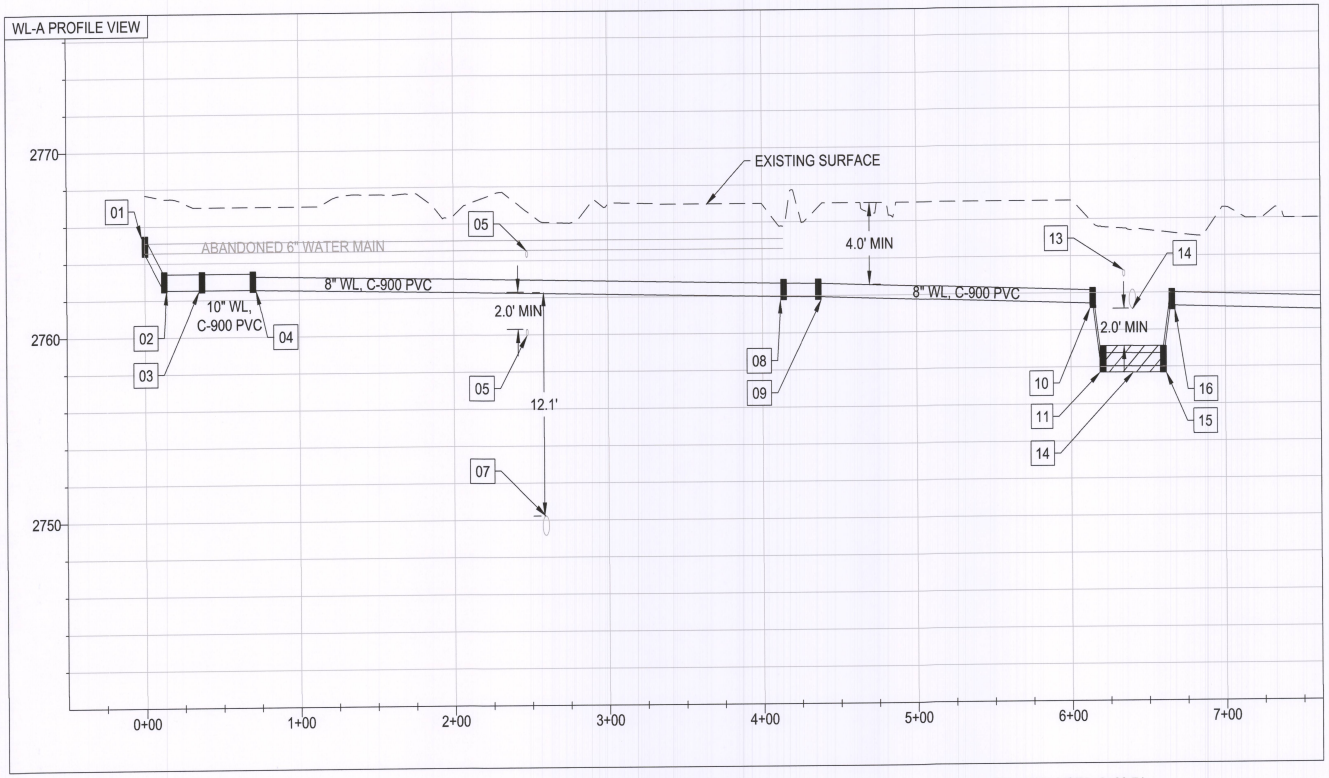
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS
MASTER PLAN

STATE OF TEXAS
OCT 21 2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-601
19 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-501 Master Plan.dwg Oct 19, 2020 - 8:52am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS AND METERS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

01 WL-A STA: 0+00.00
WATER FITTING INV = 2762.64
CONNECT TO EXISTING 10" WATER MAIN
1 - 10" 22.5° BEND (MJ X MJ)
ROTATE BEND 45° TO THE SOUTH
SEE DETAIL W1, SHEET C-702.

02 WL-A STA: 0+12.54
N: 10693027.4546
E: 1761831.5508
WATER FITTING INV = 2762.51
1 - 10" 22.5° BEND (MJ X MJ)
ROTATE BEND 45° TO THE NORTH
SEE DETAIL W1, SHEET C-702.

03 WL-A STA: 0+37.11
WATER FITTING INV = 2762.52
1 - FIRE HYDRANT ASSEMBLY
1 - 10" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
19.7' - 6" FIRE LATERAL (C-900 PVC)

04 WL-A STA: 0+69.71
WL-B STA: 0+53.31
N: 10693041.7626
E: 1761887.0587
WATER FITTING INV = 2762.64
1 - 10" X 10" CROSS (MJ X MJ)
1 - 10" GATE VALVE (MJ X MJ)
2 - 10" X 8" REDUCER (MJ X MJ)
2 - 8" GATE VALVE (MJ X MJ)

KEYED NOTES (CONT.):

05 WL-A STA: 2+46.86
EXISTING GAS LINE TO BE RELOCATED BY OTHERS.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WATER MAIN AND GAS LINE.
EX. SURFACE = 2766.58
EX. GAS LINE INV = 2764.03 (APPROX.)
WATER MAIN INV = 2762.25 (4.3' DEPTH)
PROP. GAS LINE ToP = 2760.25 (APPROX.)

06 WL-A STA: 2+48.69
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

07 WL-A STA: 2+58.45
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING. MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WATER MAIN AND WASTEWATER MAIN.
EX. SURFACE = 2766.06
WATER MAIN INV = 2762.23 (3.83' DEPTH)
WASTEWATER MAIN ToP = 2750.22

08 WL-A STA: 4+13.46
WATER FITTING INV = 2761.96
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
23.0" - 6" FIRE LATERAL (C-900 PVC)

09 WL-A STA: 4+36.34
WL-C STA: 0+64.67
N: 10693134.0712
E: 1762241.7063
WATER FITTING INV = 2761.95
1 - 8" X 6" CROSS (MJ X MJ)
2 - 6" GATE VALVES (MJ X MJ)
1 - 8" GATE VALVE (MJ X MJ)

10 WL-A STA: 6+14.32
WATER FITTING INV = 2761.47
1 - 8" 45° BEND (MJ X MJ)

11 WL-A STA: 6+19.32
WATER FITTING INV = 2758.07
1 - 8" 45° BEND (MJ X MJ)

12 WL-A STA: 6+26.41
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

13 WL-A STA: 6+33.86
EXISTING GAS LINE CROSSING.
MAINTAIN MINIMUM 2.0' SEPARATION BETWEEN WATER MAIN CASING PIPE AND GAS LINE.
EX. SURFACE = 2765.22
EX. GAS LINE = 2762.88 (APPROX.)
WATER MAIN ENCASEMENT ToP = 2759.13
WATER MAIN INV = 2758.06 (7.5' DEPTH)

14 WL-A STA: 6+39.31
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING AND WATER MAIN CASING PIPE.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WASTEWATER MAIN AND WATER MAIN CASING PIPE.
20.0' - 16" STEEL CASING PIPE
EX. SURFACE = 2765.24
WASTEWATER MAIN INV = 2761.13
WATER MAIN ENCASEMENT ToP = 2759.13
WATER MAIN INV = 2758.06 (7.5' DEPTH)

15 WL-A STA: 6+59.33
WATER FITTING INV = 2758.05
1 - 8" 45° BEND (MJ X MJ)

16 WL-A STA: 6+64.33
WATER FITTING INV = 2761.29
1 - 8" 45° BEND (MJ X MJ)

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:4
Horz. Scale 1:40
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

PLAN & PROFILE
WL-A

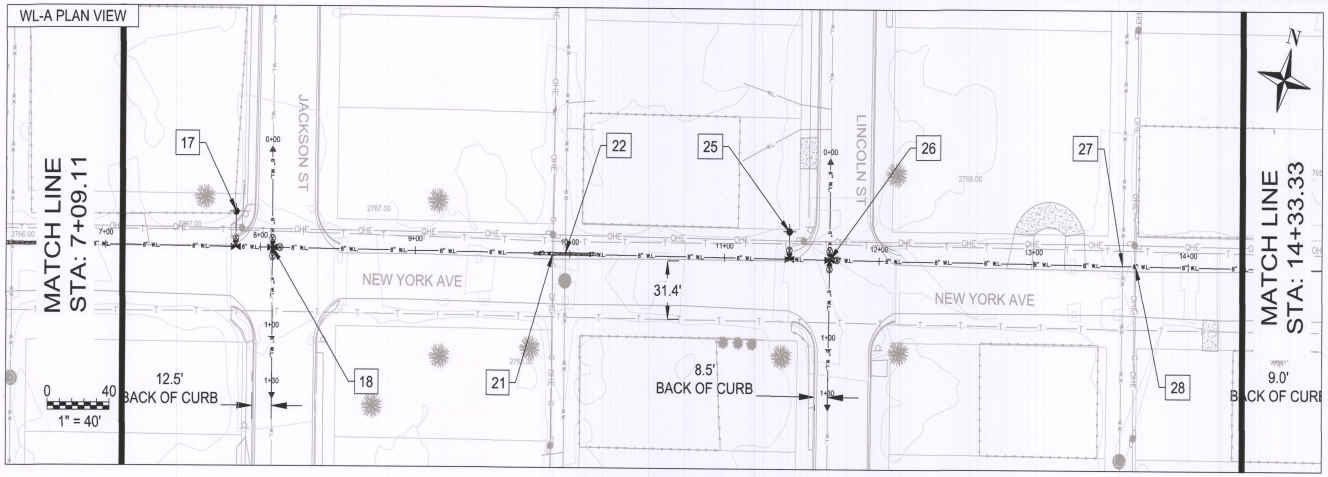
STATE OF TEXAS
10/21 2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-602
20 OF 42

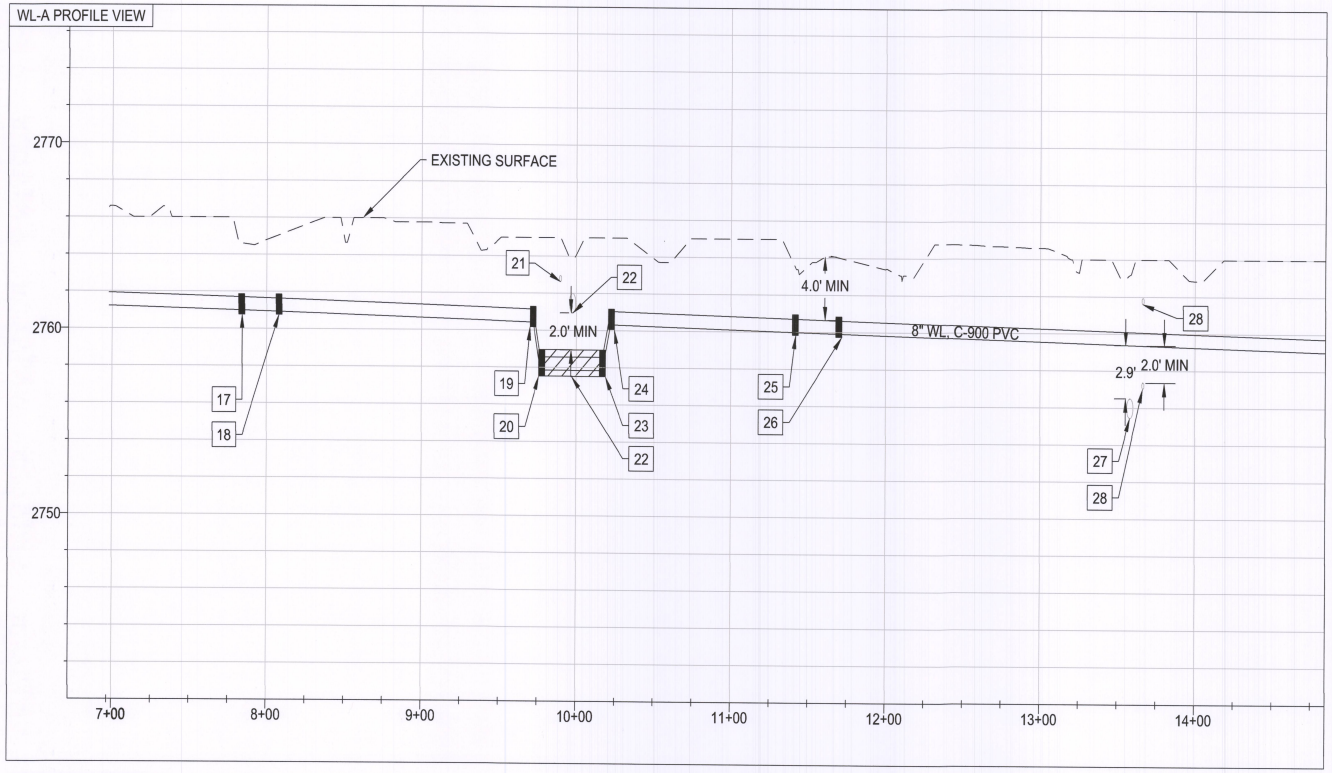
File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-502 P&P.dwg Oct 19, 2020 - 8:56am pkingston

PACKET 8.923 December 15, 2020

WL-A PLAN VIEW



WL-A PROFILE VIEW



CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

17 WL-A STA: 7+83.92
WATER FITTING INV = 2760.84
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
23.1' - 6" FIRE LATERAL (C-900 PVC)

18 WL-A STA: 8+07.76
WL-D STA: 0+51.70
N: 10693225.6138
E: 1762601.6904
WATER FITTING INV = 2760.96
1 - 8" X 6" CROSS (MJ X MJ)
2 - 6" GATE VALVE (MJ X MJ)
1 - 8" GATE VALVE (MJ X MJ)

KEYED NOTES:

19 WL-A STA: 9+71.87
WATER FITTING INV = 2760.41
1 - 8" 45° BEND (MJ X MJ)

20 WL-A STA: 9+76.87
WATER FITTING INV = 2757.88
1 - 8" 45° BEND (MJ X MJ)

21 WL-A STA: 9+88.82
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!
EXISTING GAS LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN CASING PIPE AND GAS LINE.
EX. SURFACE = 2765.00
EX. GAS LINE INV = 2762.63 (APPROX.)
WATER MAIN ENCASEMENT ToP = 2758.95
WATER MAIN ToP = 2758.59 (6.4' COVER)

22 WL-A STA: 9+96.87
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER
MAIN CROSSING AND WATER MAIN CASING PIPE.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WASTEWATER MAIN AND WATER MAIN ENCASEMENT.
20.0' - 16" STEEL CASING PIPE
EX. SURFACE = 2763.73
WASTEWATER MAIN INV = 2760.95
WATER MAIN ENCASEMENT ToP = 2758.95
WATER MAIN INV = 2758.59 (5.1' COVER)

23 WL-A STA 10+16.88
WATER FITTING INV = 2757.87
1 - 8" 45° BEND (MJ X MJ)

24 WL-A STA: 10+21.88
WATER FITTING INV = 2760.30
1 - 8" 45° BEND (MJ X MJ)

25 WL-A STA: 11+41.79
WATER FITTING INV = 2759.99
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
21.0" - 6" FIRE LATERAL (C-900 PVC)

26 WL-A STA: 11+67.95
WL-E STA: 0+51.76
N: 10693314.2881
E: 1762950.7899
WATER FITTING INV = 2759.91
1 - 8" X 6" CROSS (MJ X MJ)
2 - 6" GATE VALVES (MJ X MJ)
1 - 8" GATE VALVES (MJ X MJ)

27 WL-A STA: 13+57.44
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN
CROSSING. MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION
BETWEEN WATER MAIN AND WASTEWATER MAIN.
EX. SURFACE = 2763.11
WATER MAIN INV = 2759.33 (3.8' DEPTH)
WASTEWATER MAIN ToP = 2756.51

28 WL-A STA: 13+65.23
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!
EXISTING GAS LINE TO BE RELOCATED BY OTHERS.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND GAS LINE.
EX. SURFACE = 2764.00
EX. GAS LINE INV = 2761.61 (APPROX.)
WATER MAIN INV = 2759.31 (4.7' DEPTH)
PROP. GAS LINE ToP = 2757.31 (APPROX)

811 Know what's below. Call before you dig.

No.	Description	By	Date

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:4
Horz. Scale 1:40
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

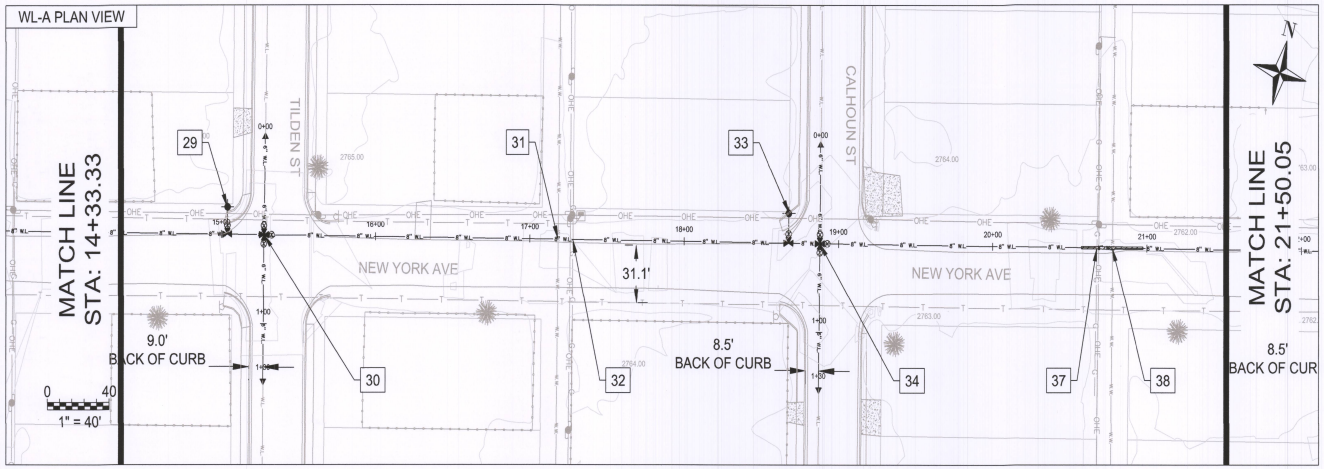
PLAN & PROFILE
WL-A

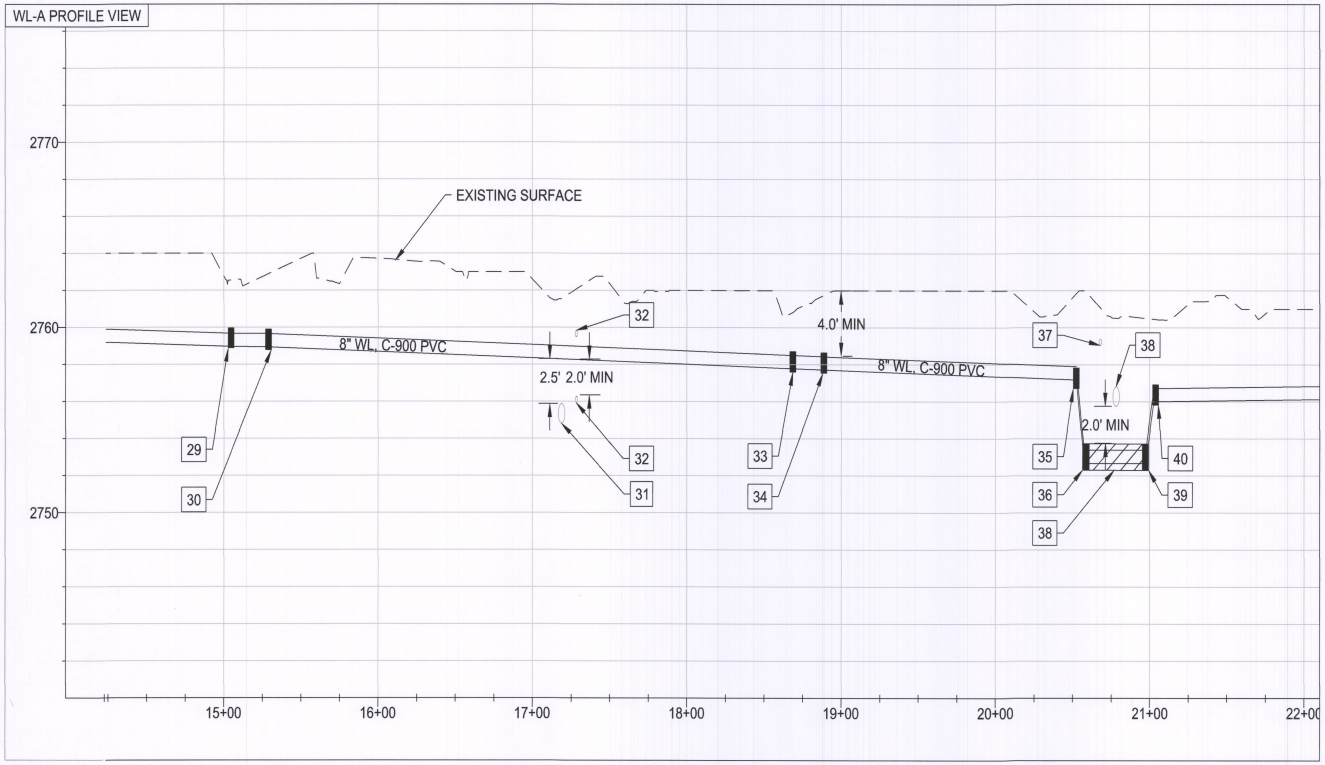
STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-603
21 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-503 P&P.dwg Oct 19, 2020 - 9:07am pkingston

PACKET 8.924 December 15, 2020





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

29 WL-A STA: 15+03.84
WATER FITTING INV = 2758.97
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
20.1' - 6" FIRE LATERAL (C-900 PVC)

30 WL-A STA: 15+27.68
WL-F STA: 0+51.91
N:10693402.8912
E:1763299.4398
WATER FITTING INV = 2758.95
1 - 8" X 6" CROSS (MJ X MJ)
2 - 6" GATE VALVE (MJ X MJ)
1 - 8" GATE VALVE (MJ X MJ)

KEYED NOTES (CON'T):

31 WL-A STA: 17+18.14
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING. MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WATER MAIN AND WASTEWATER MAIN.
EX. SURFACE = 2761.37
WATER MAIN INV = 2758.26 (3.1' DEPTH)
WASTEWATER MAIN ToP = 2755.87

32 WL-A STA: 17+26.44
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!
EXISTING GAS LINE TO BE RELOCATED BY OTHERS.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WATER MAIN AND GAS LINE.
EX. SURFACE = 2761.90
EX. GAS LINE INV= 2759.50 (APPROX.)
WATER MAIN INV = 2758.26 (4.8' DEPTH)
PROP. GAS LINE ToP = 2756.26 (APPROX)

33 WL-A STA: 18+67.64
WATER FITTING INV = 2757.79
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
21.0" - 6" FIRE LATERAL (C-900 PVC)

34 WL-A STA: 18+87.85
WL-G STA: 0+52.01
N: 10693491.6120
E: 1763648.5502
WATER FITTING INV = 2757.72
1 - 8" X 6" CROSS (MJ X MJ)
2 - 6" GATE VALVES (MJ X MJ)
1 - 8" GATE VALVES (MJ X MJ)

35 WL-A STA: 20+52.49
WATER FITTING INV = 2756.16
1 - 8" 45° BEND (MJ X MJ)

36 WL-A STA: 20+57.49
WATER FITTING INV = 2752.71
1 - 8" 45° BEND (MJ X MJ)

37 WL-A STA: 20+68.08
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!
EXISTING GAS LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WATER MAIN CASING PIPE AND GAS LINE.
EX. SURFACE = 2761.13
EX. GAS LINE = 2759.06 (APPROX.)
WATER MAIN ENCASEMENT ToP = 2753.73
WATER MAIN INV = 2752.70 (8.4' DEPTH)

38 WL-A STA: 20+77.49
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING AND WATER MAIN CASING PIPE.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WASTEWATER MAIN AND WATER MAIN ENCASEMENT.
20.0' - 16" STEEL CASING PIPE
EX. SURFACE = 2760.25
WASTEWATER MAIN INV = 2755.76
WATER MAIN ENCASEMENT ToP = 2753.73
WATER MAIN INV = 2752.70 (7.6' DEPTH)

39 WL-A STA 20+97.50
WATER FITTING INV = 2752.69
1 - 8" 45° BEND (MJ X MJ)

40 WL-A STA: 21+02.50
WATER FITTING INV = 2755.76
1 - 8" 45° BEND (MJ X MJ)

PACKET 8.925 December 15, 2020

811 Know what's below. Call before you dig.

No.	Description	By	Date

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:4
Horz. Scale 1:40
Job No. U19-04
Date OCTOBER 2020
Rev. No.

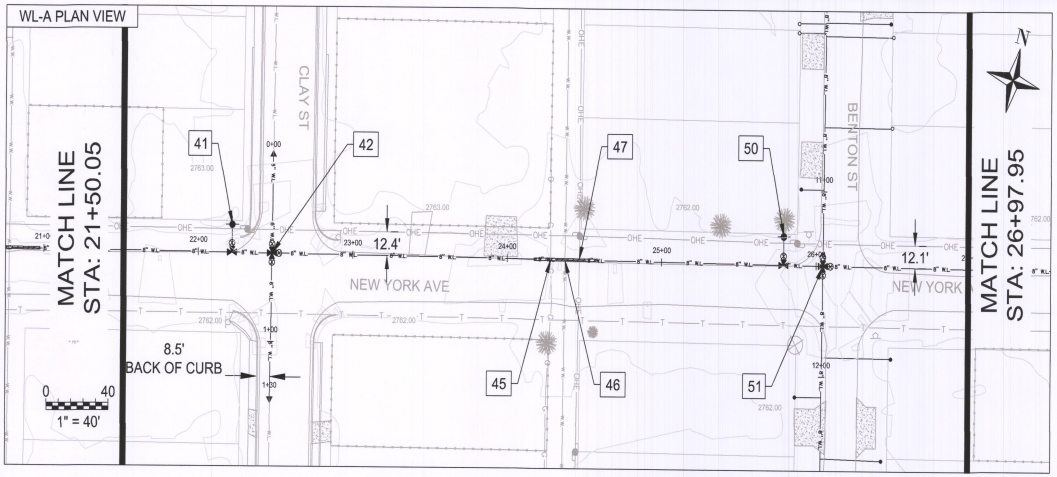
MIDLAND Engineering Services

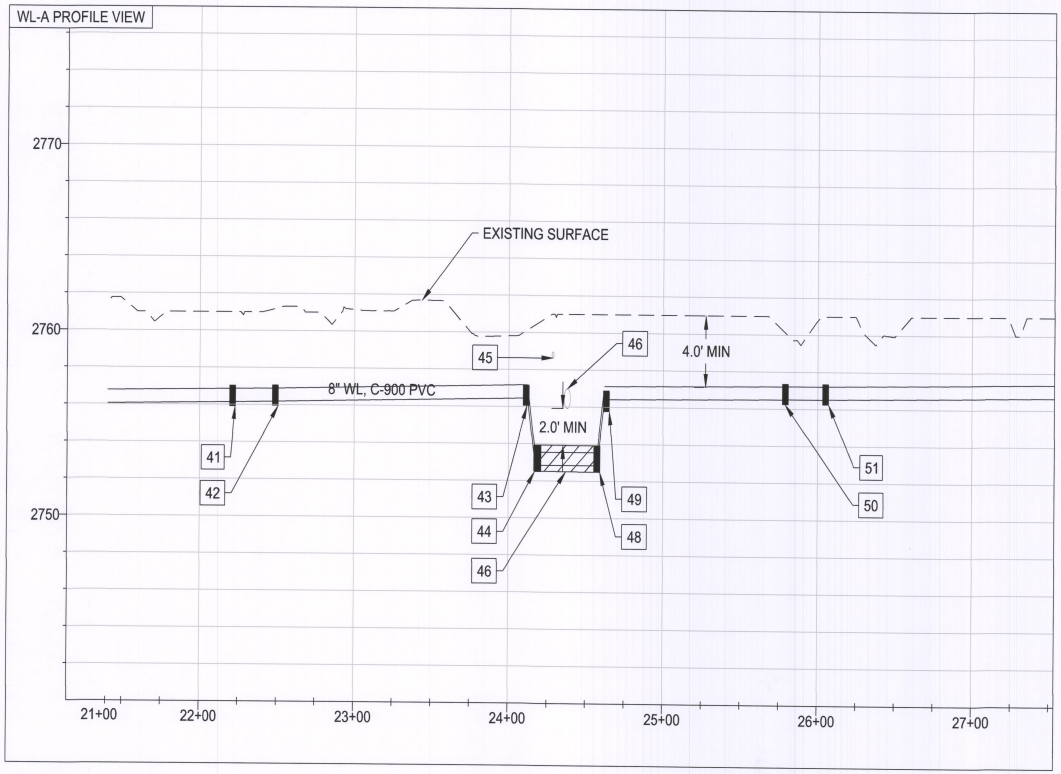
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS
PLAN & PROFILE
WL-A

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
Josh Ferguson

SHEET C-604
22 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-504 P&P.dwg Oct 19, 2020 - 9:06am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

41 WL-A STA: 22+21.78
WATER FITTING INV = 2756.14
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
21.0' - 6" FIRE LATERAL (C-900 PVC)

42 WL-A STA: 22+47.64
WL-H STA: 0+52.23
N: 10693580.2281
E: 1763997.2124
WATER FITTING INV = 2756.20
1 - 8" X 6" CROSS (MJ X MJ)
2 - 6" GATE VALVE (MJ X MJ)
1 - 8" GATE VALVE (MJ X MJ)

43 WL-A STA: 24+12.22
WATER FITTING INV = 2756.27
1 - 8" 45° BEND (MJ X MJ)

44 WL-A STA: 24+17.22
WATER FITTING INV = 2752.87
1 - 8" 45° BEND (MJ X MJ)

45 WL-A STA: 24+27.92
EXISTING GAS LINE CROSSING.
MAINTAIN MINIMUM 2.0' SEPARATION BETWEEN WATER MAIN CASING PIPE AND GAS LINE.
EX. SURFACE = 2761.00
EX. GAS LINE = 2758.63 (APPROX.)
WATER MAIN ENCASEMENT ToP = 2753.94
WATER MAIN INV = 2752.87 (8.1' DEPTH)

46 WL-A STA: 24+37.23
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING AND WATER MAIN CASING PIPE.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WASTEWATER MAIN AND WATER MAIN ENCASEMENT.
20.0' - 16" STEEL CASING PIPE
EX. SURFACE = 2760.65
WASTEWATER MAIN INV = 2755.93
WATER MAIN ENCASEMENT ToP = 2753.93
WATER MAIN INV = 2752.86 (7.8' COVER)

47 WL-A STA: 24+46.52
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

48 WL-A STA 24+57.23
WATER FITTING INV = 2752.86
1 - 8" 45° BEND (MJ X MJ)

49 WL-A STA: 24+62.23
WATER FITTING INV = 2756.06
1 - 8" 45° BEND (MJ X MJ)

50 WL-A STA: 25+78.83
WATER FITTING INV = 2756.50
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
20.0" - 6" FIRE LATERAL (C-900 PVC)

51 WL-A STA: 26+04.29
WL-I STA: 11+40.16
N: 10693668.0686
E: 1764342.8736
WATER FITTING INV = 2756.51
1 - 8" X 6" CROSS (MJ X MJ)
1 - 8" GATE VALVES (MJ X MJ)
2 - 6" GATE VALVES (MJ X MJ)

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By: P KINGSTON
Checked By: J FERGUSON
Approved By: J FERGUSON
Vert. Scale: 1:4
Horiz. Scale: 1:40
Job No.: U19-04
Date: OCTOBER 2020

MIDLAND Engineering Services

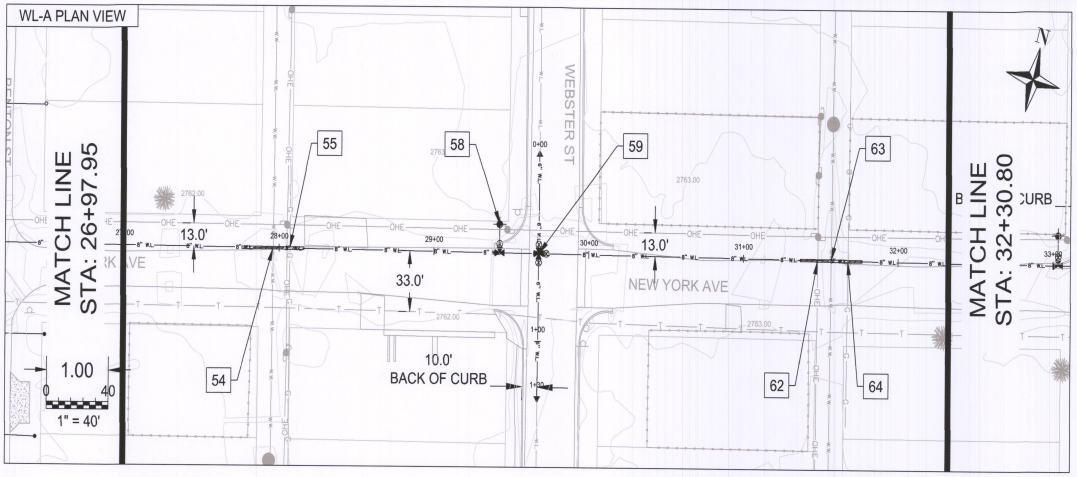
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

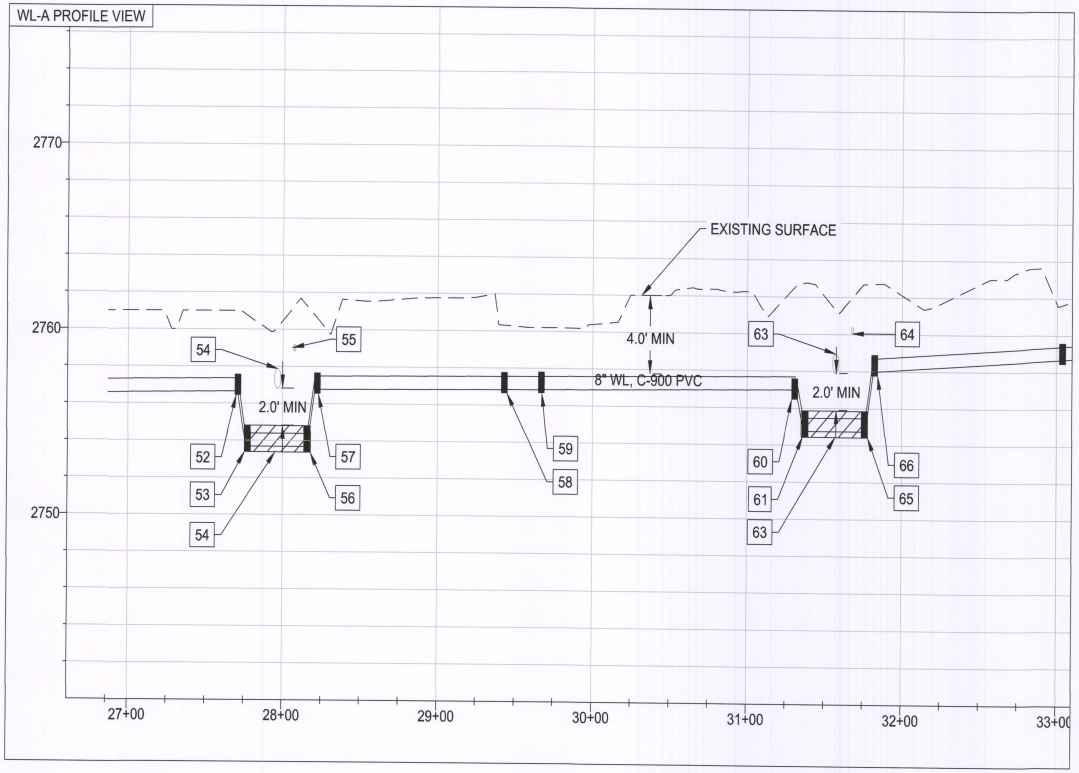
PLAN & PROFILE
WL-A

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED PROFESSIONAL ENGINEER
10/21/2020

SHEET C-605
23 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-505 P&P.dwg Oct 19, 2020 - 9:08am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES (CON'T):

52 WL-A STA 27+70.99
WATER FITTING INV = 2756.66
1 - 8" 45° BEND (MJ X MJ)

53 WL-A STA: 27+75.99
WATER FITTING INV = 2753.72
1 - 8" 45° BEND (MJ X MJ)

54 WL-A STA: 27+95.99
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING AND WATER MAIN CASING PIPE.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WASTEWATER MAIN AND WATER MAIN ENCASEMENT.
20.0' - 16" STEEL CASING PIPE
EX. SURFACE = 2759.95
WASTEWATER MAIN INV = 2756.83
WATER MAIN ENCASEMENT ToP = 2754.83
WATER MAIN INV = 2753.71 (6.2' DEPTH)

KEYED NOTES (CON'T):

55 WL-A STA: 28+05.55
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!
EXISTING GAS LINE CROSSING.
MAINTAIN MINIMUM 2.0' SEPARATION BETWEEN WATER MAIN CASING PIPE AND GAS LINE.
EX. SURFACE = 2761.08
EX. GAS LINE = 2758.86 (APPROX.)
WATER MAIN ENCASEMENT ToP = 2754.83
WATER MAIN INV = 2753.70 (7.4' DEPTH)

56 WL-A STA 28+16.00
WATER FITTING INV = 2753.70
1 - 8" 45° BEND (MJ X MJ)

57 WL-A STA: 28+21.00
WATER FITTING INV = 2756.76
1 - 8" 45° BEND (MJ X MJ)

58 WL-A STA: 29+42.29
WATER FITTING INV = 2756.85
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
19.0' - 6" FIRE LATERAL (C-900 PVC)

59 WL-A STA: 29+67.66
WL-J STA: 0+52.54
N: 10693757.5346
E: 1764695.0593
WATER FITTING INV = 2756.86
1 - 8" X 6" CROSS (MJ X MJ)
2 - 6" GATE VALVE (MJ X MJ)
1 - 8" GATE VALVE (MJ X MJ)

60 WL-A STA: 31+31.57
WATER FITTING INV = 2756.76
1 - 8" 45° BEND (MJ X MJ)

61 WL-A STA: 31+36.57
WATER FITTING INV = 2754.84
1 - 8" 45° BEND (MJ X MJ)

62 WL-A STA: 31+47.88
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

63 WL-A STA: 31+56.56
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING AND WATER MAIN CASING PIPE.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WASTEWATER MAIN AND WATER MAIN ENCASEMENT.
20.0' - 16" STEEL CASING PIPE
EX. SURFACE = 2761.39
EX. WASTEWATER MAIN INV = 2757.91
WATER MAIN ENCASEMENT ToP = 2755.91
WATER MAIN INV = 2754.84 (6.5' DEPTH)

64 WL-A STA: 31+67.31
EXISTING GAS LINE CROSSING.
MAINTAIN MINIMUM 2.0' SEPARATION BETWEEN WATER MAIN CASING PIPE AND GAS LINE.
EX. SURFACE = 2761.93
EX. GAS LINE = 2760.06 (APPROX.)
WATER MAIN ENCASEMENT ToP = 2755.90
WATER MAIN INV = 2754.83 (7.1' DEPTH)

65 WL-A STA 31+76.58
WATER FITTING INV = 2754.83
1 - 8" 45° BEND (MJ X MJ)

66 WL-A STA: 31+81.58
WATER FITTING INV = 2757.91
1 - 8" 45° BEND (MJ X MJ)

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By P.KINGSTON
Checked By J.FERGUSON
Approved By J.FERGUSON
Vert. Scale 1:4
Horz. Scale 1:40
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

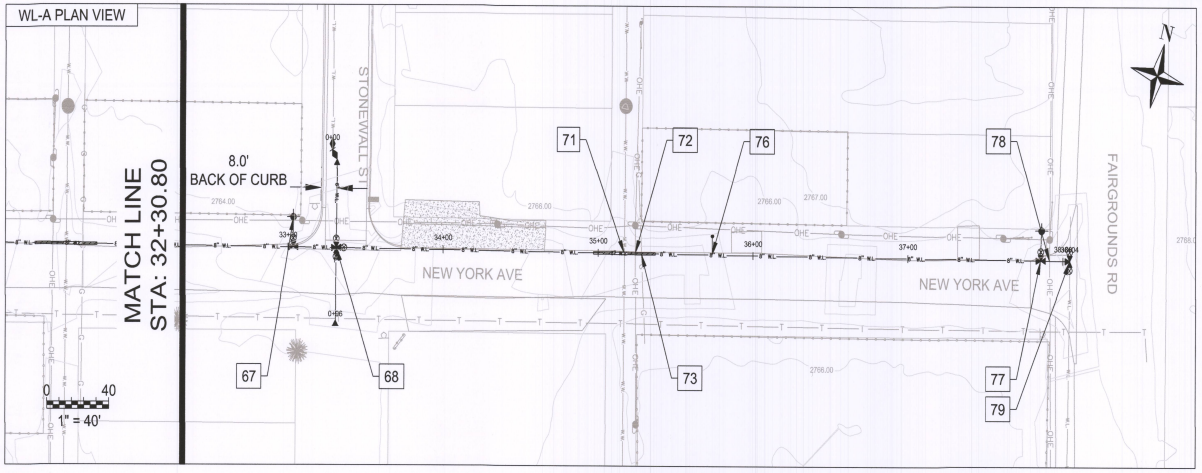
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

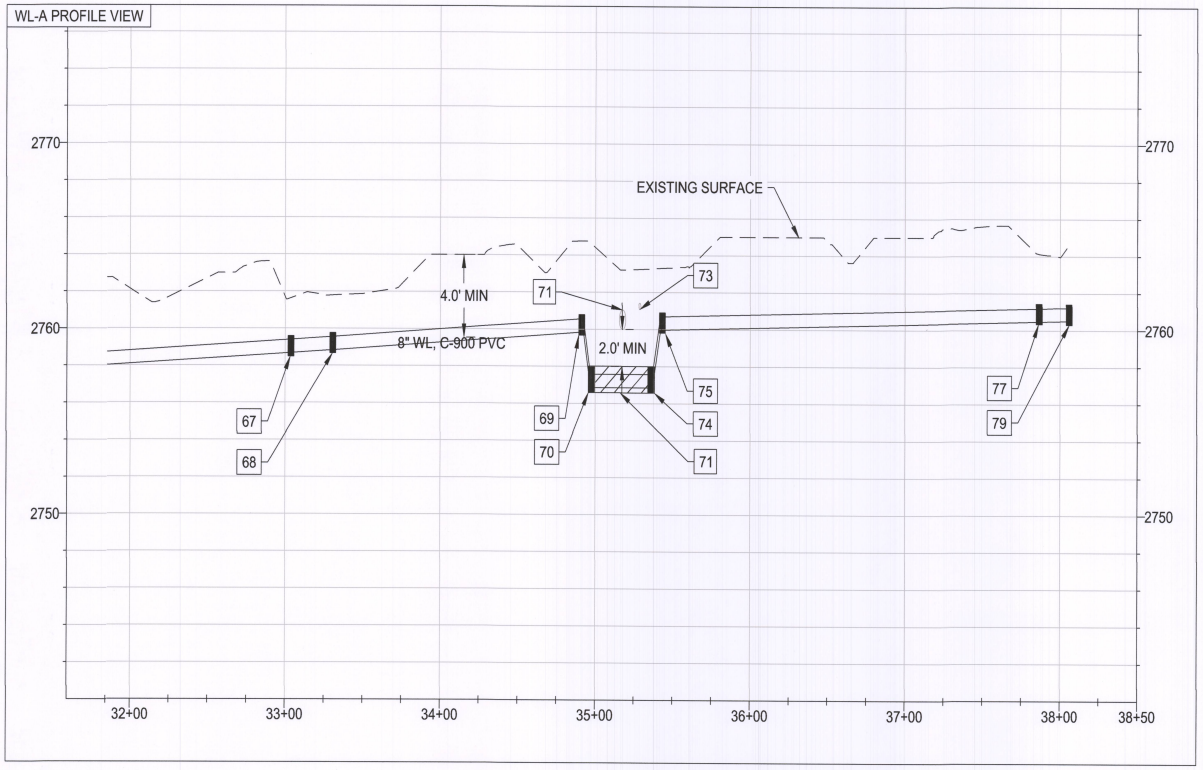
PLAN & PROFILE
WL-A

STATE OF TEXAS
2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-606
24 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-506 P&P.dwg Oct 19, 2020 - 9:10am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES (CON'T):

67 WL-A STA: 33+03.27
WATER FITTING INV = 2758.70
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
19.0" - 6" FIRE LATERAL (C-900 PVC)

68 WL-A STA: 33+31.00
WL-K STA: 0+53.72
N: 10693847.1239
E: 1765047.1901
WATER FITTING INV = 2758.86
1 - 8" X 6" CROSS (MJ X MJ)
2 - 6" GATE VALVES (MJ X MJ)
1 - 8" GATE VALVES (MJ X MJ)

69 WL-A STA: 34+91.95
WATER FITTING INV = 2759.83
1 - 8" 45° BEND (MJ X MJ)

70 WL-A STA: 34+96.95
WATER FITTING INV = 2757.04
1 - 8" 45° BEND (MJ X MJ)

71 WL-A STA: 35+16.87
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING AND WATER MAIN CASING PIPE.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WASTEWATER MAIN AND WATER MAIN ENCASEMENT.
20.0' - 16" STEEL CASING PIPE
EX. SURFACE = 2763.28
EX. WASTEWATER MAIN INV = 2760.00
WATER MAIN ENCASEMENT ToP = 2758.00
WATER MAIN INV = 2756.94 (6.3' DEPTH)

72 WL-A STA: 35+23.84
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

73 WL-A STA: 35+27.83
EXISTING GAS LINE CROSSING.
MAINTAIN MINIMUM 2.0' SEPARATION BETWEEN WATER MAIN CASING PIPE AND GAS LINE.
EX. SURFACE = 2763.32
EX. GAS LINE = 2761.09 (APPROX.)
WATER MAIN INV = 2756.90 (6.4' DEPTH)

74 WL-A STA 35+36.96
WATER FITTING INV = 2756.88
1 - 8" 45° BEND (MJ X MJ)

75 WL-A STA: 35+41.96
WATER FITTING INV = 2760.00
1 - 8" 45° BEND (MJ X MJ)

76 WL-A STA: 35+74.00
20.0' - 1" WATER SERVICE LATERAL

77 WL-A STA: 37+85.65
WATER FITTING INV = 2760.47
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
19.0' - 6" FIRE LATERAL (C-900 PVC)

78 WL-A STA: 37+91.32
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

79 WL-A STA: 38+04.33
N: 10693963.6305
E: 1765505.9580
WATER FITTING INV = 2760.51
1 - 12" X 8" TEE (MJ X FL)
2 - 12" GATE VALVES (MJ X MJ)
3.0' - 12" WATER MAIN, S (C-900 PVC)

Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:4
Horz. Scale 1:40
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

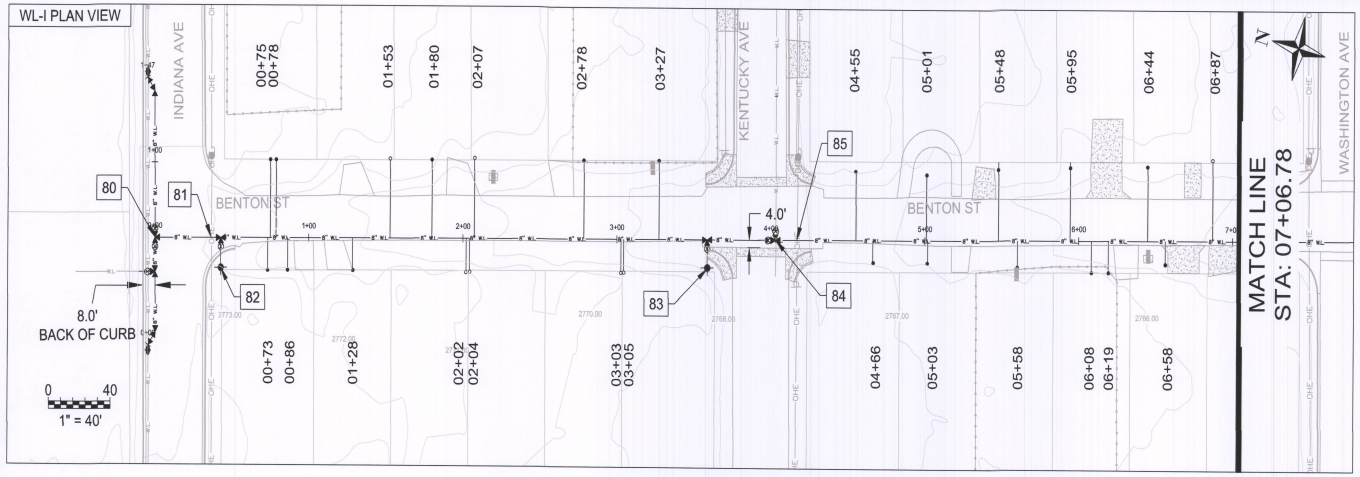
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

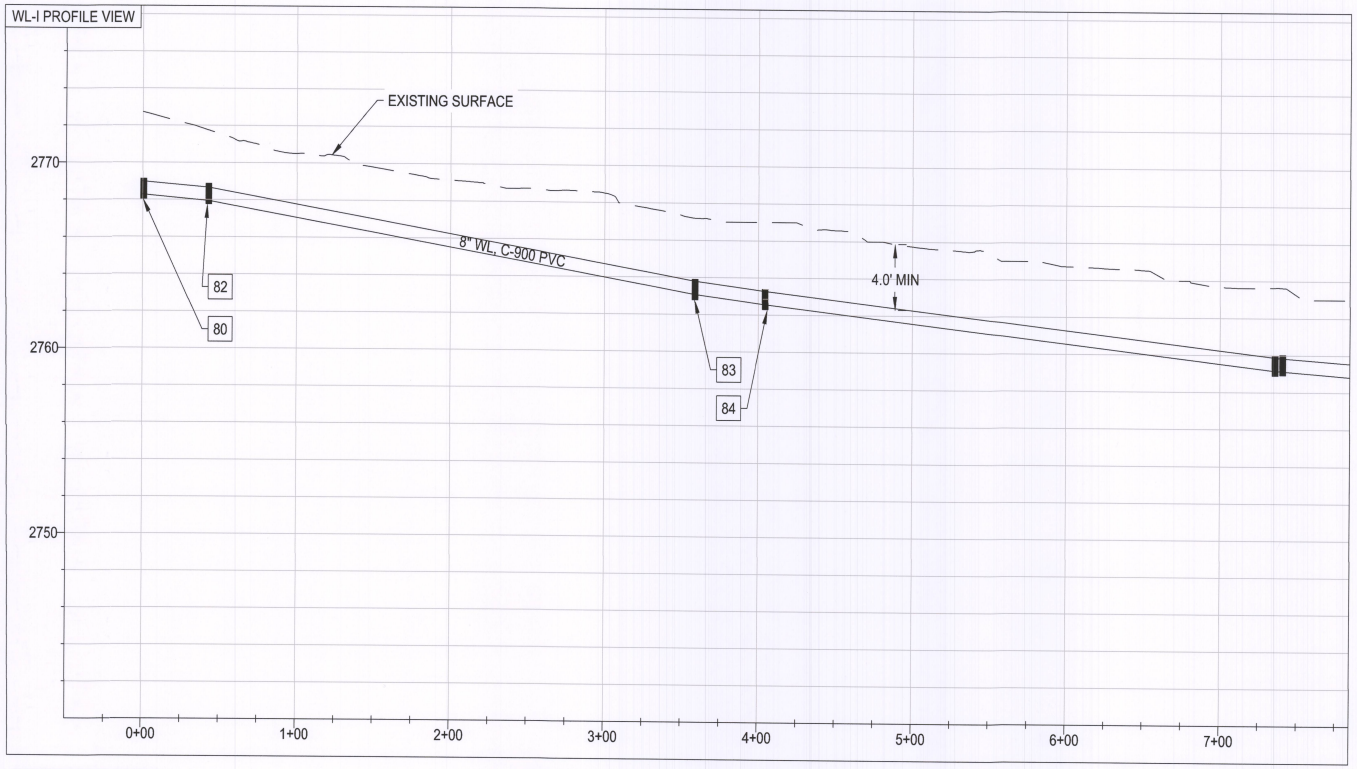
PLAN & PROFILE
WL-A

STATE OF TEXAS
10/21/2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-607
25 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-507 P&P.dwg Oct 19, 2020 - 9:12am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

III) ALL EAST WATER LATERALS TO BE 40' ALONG BENTON AVENUE.

IV) ALL WEST WATER LATERALS TO BE 20' ALONG BENTON AVENUE.

KEYED NOTES:

80 WL-I STA: 0+00.00
WL-L STA: 0+61.19
N: 10694772.9702
E: 1764061.5604
WATER FITTING INV = 2768.28
1 - 8" X 8" TEE (MJ X FL)
2 - 8" GATE VALVE (MJ X MJ)

81 WL-I STA: 0+36.49
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

82 WL-I STA: 0+42.73
WATER FITTING INV = 2767.96
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
20.0' - 6" FIRE LATERAL (C-900 PVC)

83 WL-I STA: 3+58.50
WATER FITTING INV = 2763.09
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
18.0' - 6" FIRE LATERAL (C-900 PVC)
1 - 6" GATE VALVE (MJ X FL)

84 WL-I STA: 4+03.14
N: 10694382.4339
E: 1764161.0407
WATER FITTING INV = 2762.58
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
1 - 8" GATE VALVE (MJ X MJ)

85 WL-I STA: 4+16.97
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

811 Know what's below. Call before you dig.

					Description
				By	
				Date	
				Rev. No.	
Drawn By	P.KINGSTON				
Checked By	J FERGUSON				
Approved By	J FERGUSON				
Vert. Scale	1:4				
Horz. Scale	1:40				
Job No.	U19-04				
Date	OCTOBER 2020				

MIDLAND Engineering Services

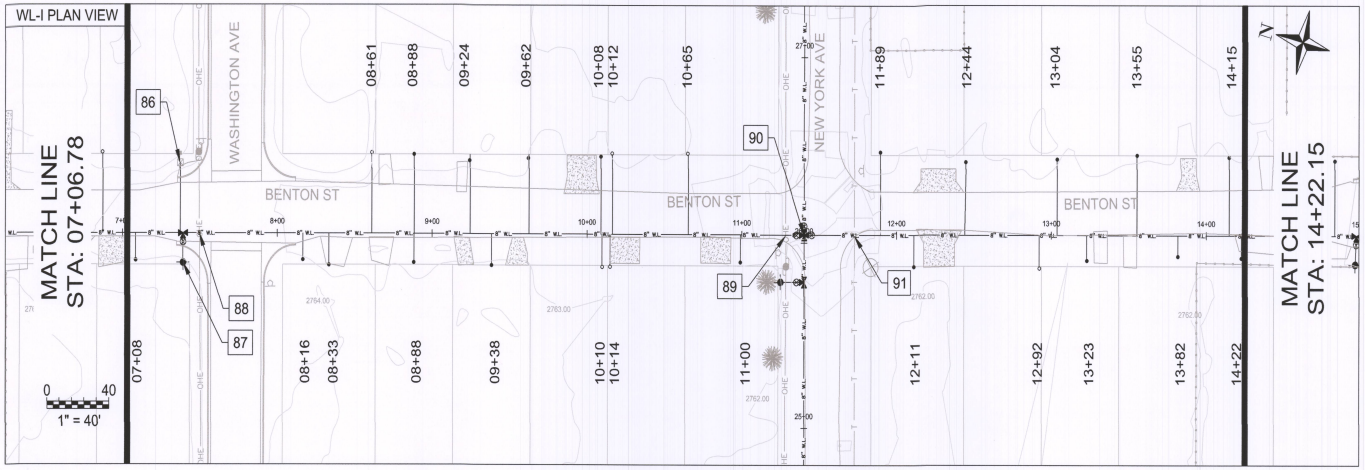
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

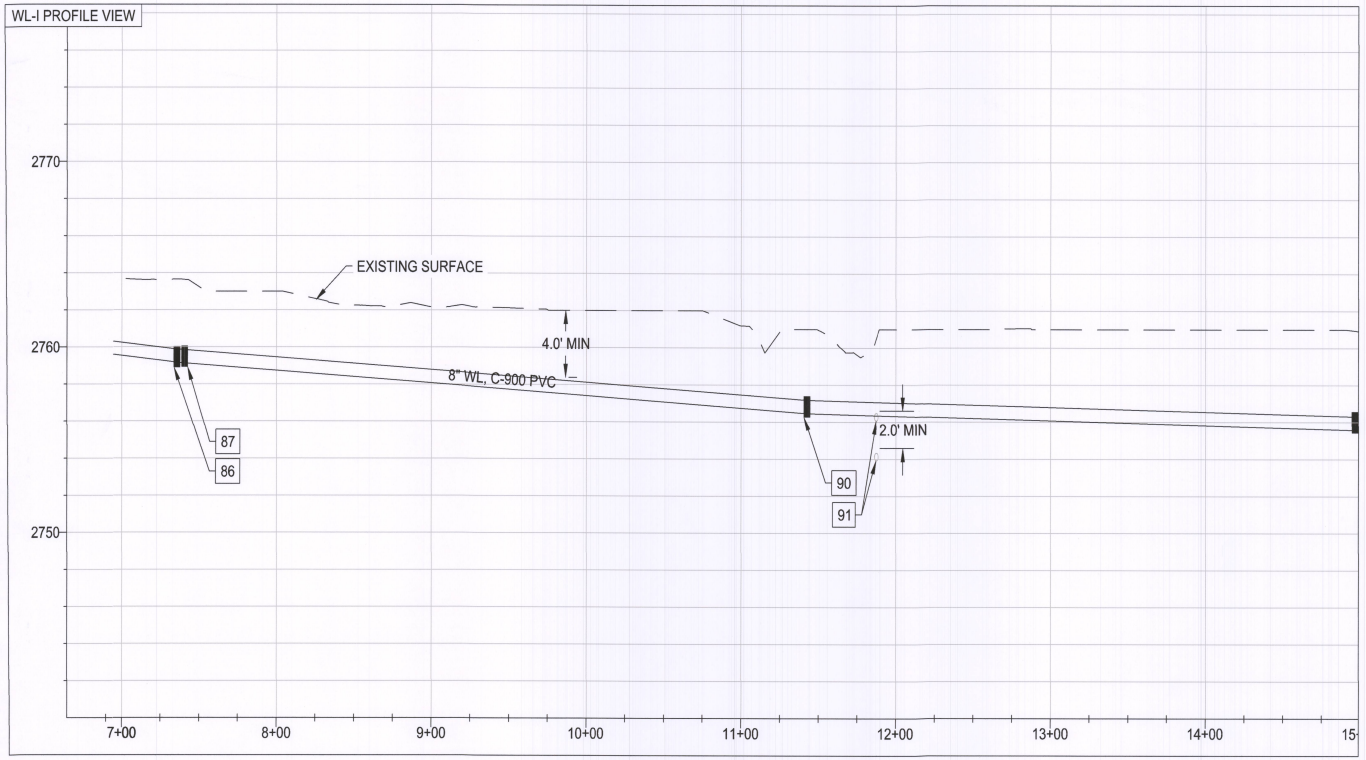
PLAN & PROFILE
WL-I

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED PROFESSIONAL ENGINEER

SHEET C-608
26 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-508 P&P.dwg Oct 19, 2020 - 9:15am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

III) ALL EAST WATER LATERALS TO BE 40' ALONG BENTON AVENUE.

IV) ALL WEST WATER LATERALS TO BE 20' ALONG BENTON AVENUE.

KEYED NOTE:

86 WL-I STA: 7+37.30
WATER FITTING INV = 2759.16
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
30.0' - 6" WATER LATERAL (C-900 PVC)
CONNECT TO EXISTING FLUSHING STATION

87 WL-I STA: 7+39.30
N: 10694058.8088
E: 1734243.9027
WATER FITTING INV = 2759.16
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
18.0' - 6" FIRE LATERAL (C-900 PVC)

88 WL-I STA: 7+49.42
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

89 WL-I STA: 11+28.12
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

90 WL-I STA: 11+40.16
WL-A STA: 26+04.29
SEE KEYED NOTE 51 ON C-605

91 WL-I STA: 11+87.31
EXISTING TELECOMMINCATION LINE CROSSING.
EXERCISE CAUTION!
EX. SURFACE = 2760.75
EX. TELECOMMUNICATION LINE = 2756.48 (APPROX)
WATER MAIN INV =2756.33 (4.5' DEPTH)
PROP. TELECOMMUNICATION LINE = 2761.83 (APPROX)

811 Know what's below. Call before you dig.

No.	Description	Date	By

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:4
Horz. Scale 1:40
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

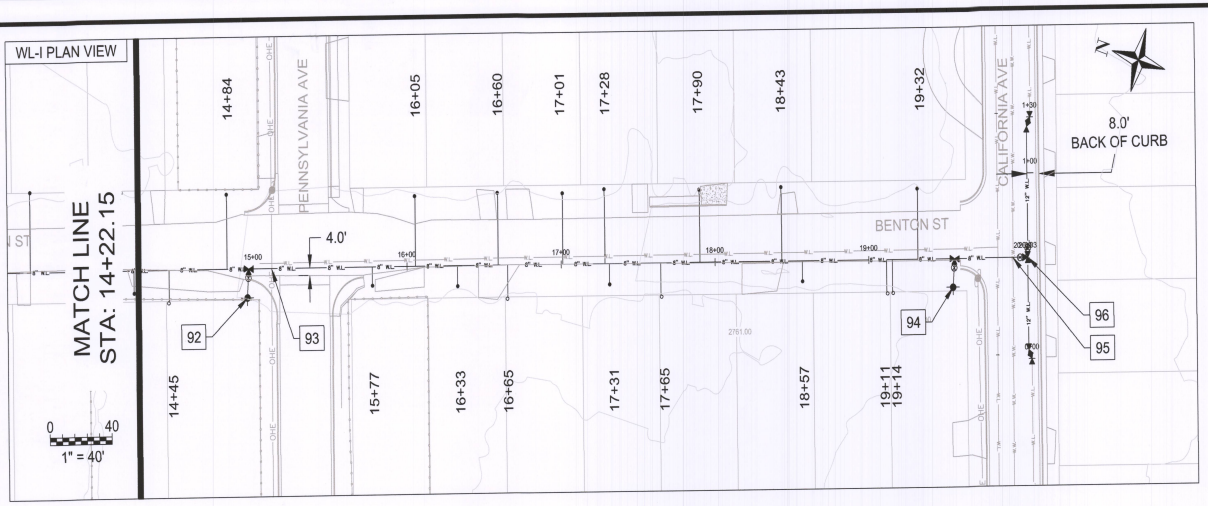
PLAN & PROFILE
WL-I

STATE OF TEXAS
10-21-2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

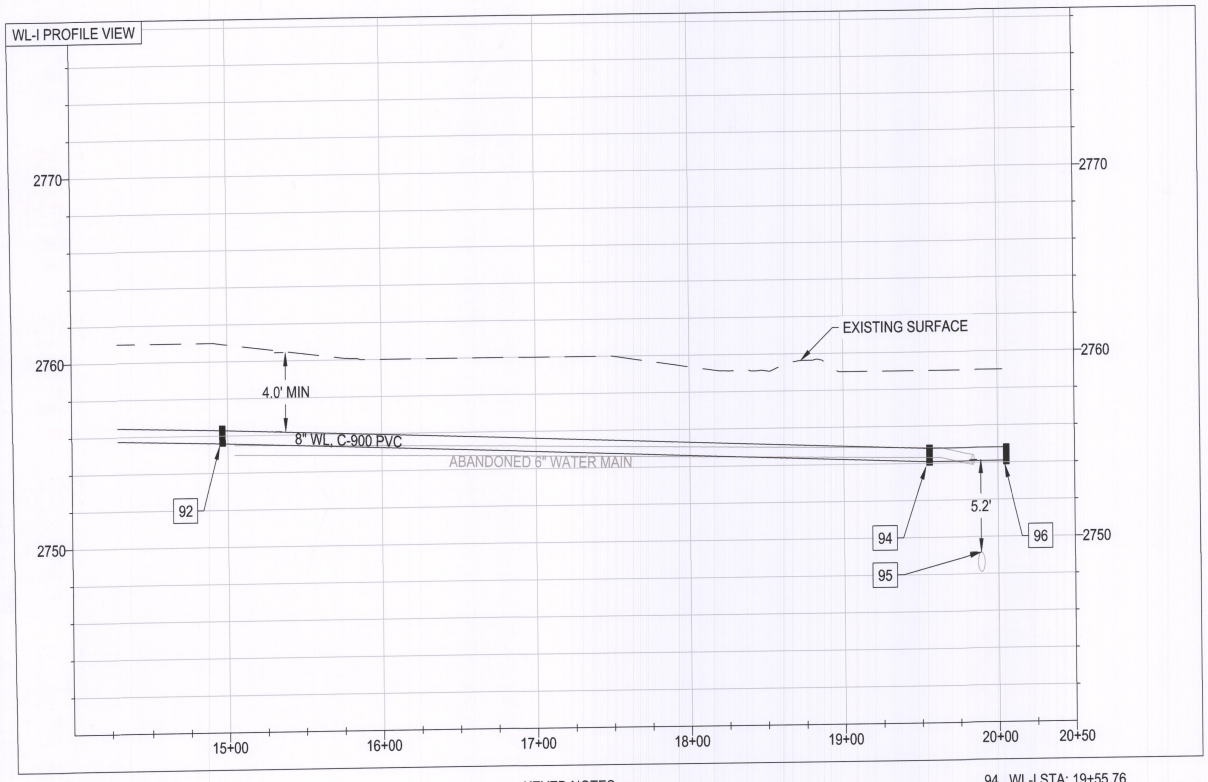
SHEET C-609
27 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-509 P&P.dwg Oct 19, 2020 - 9:17am pkingston

WL-I PLAN VIEW



WL-I PROFILE VIEW



CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

III) ALL EAST WATER LATERALS TO BE 40' ALONG BENTON AVENUE.

IV) ALL WEST WATER LATERALS TO BE 20' ALONG BENTON AVENUE.

KEYED NOTES:

92 WL-I STA: 14+96.92
N: 10693322.3060
E: 1764430.9004
WATER FITTING INV = 2755.59
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
18.0' - 6" FIRE LATERAL (C-900 PVC)

93 WL-I STA: 15+11.79
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

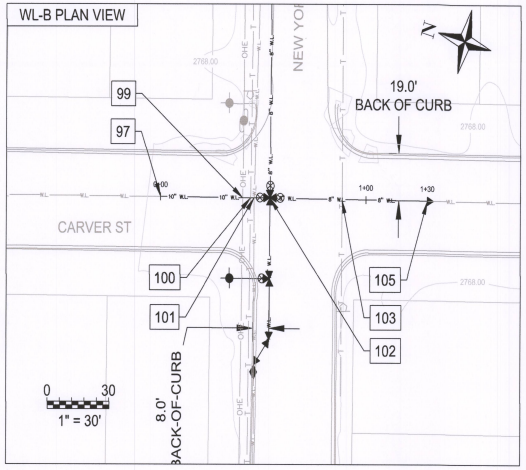
94 WL-I STA: 19+55.76
WATER FITTING INV = 2754.09
1 - FIRE HYDRANT ASSEMBLY
1 - 8" X 6" TEE (MJ X FL)
1 - 6" GATE VALVE (MJ X FL)
18.0' - 6" FIRE LATERAL

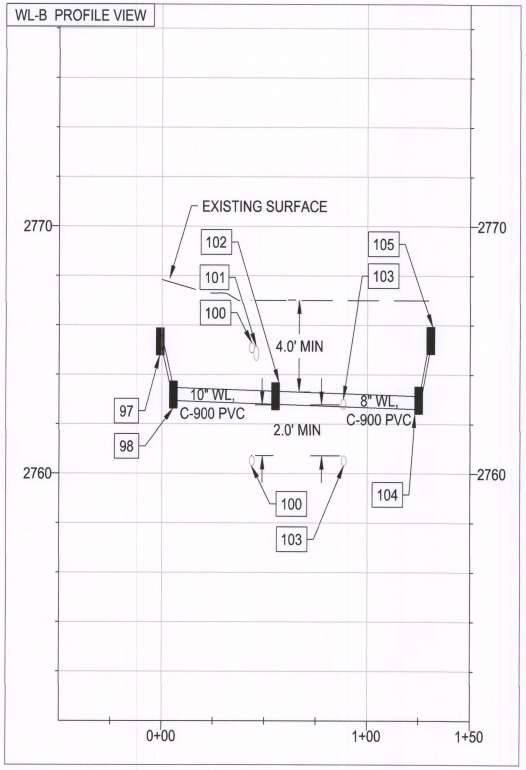
95 WL-I STA: 19+88.69
CENTER WATER MAIN PIPE SEGMENT ON WASTEWATER MAIN CROSSING. MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WATER MAIN AND WASTEWATER MAIN.
EX. SURFACE = 2759.00
WATER MAIN INV = 2754.08 (4.9' DEPTH)
WASTEWATER MAIN ToP = 2749.15

96 WL-I STA: 20+03.34
WL-M STA: 0+54.72
N: 10692829.6629
E: 1764556.3204
WATER FITTING INV = 2754.06
1 - 12" X 8" TEE (MJ X FL)
1 - 12" GATE VALVE (MJ X MJ)
1 - 8" GATE VALVE (MJ X FL)

PACKET 8.931 December 15, 2020

811 Know what's below. Call before you dig.





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

97 WL-B STA: 0+00.00
N: 10693092.8751
E: 1761873.8094
WATER FITTING INV = 2765.09
1 - 10" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 10" WATER MAIN

98 WL-B STA: 0+05.00
WATER FITTING INV = 2762.77
1 - 10" 45° BEND (MJ X MJ)

99 WL-B STA: 0+39.95
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

100 WL-B STA: 0+43.69
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2767.00
EX. TELECOMMUNICATION LINE = 2764.88 (APPROX.)
WATER MAIN INV = 2762.77 (4.6' DEPTH)
PROP. TELECOMMUNICATION LINE = 2760.71 (APPROX.)

101 WL-B STA: 0+45.53
EXISTING ABANDONED WATER LINE CROSSING.
EXERCISE CAUTION!
EX. SURFACE = 2767.23
EX. ABANDON WATER LINE = 2764.57 (APPROX.)
WATER MAIN INV = 2762.77 (4.6' DEPTH)

102 WL-B STA: 0+53.31
WL-A STA: 0+69.71
SEE KEYED NOTE 04 ON C-602

103 WL-B STA: 0+88.35
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2767.00
EX. TELECOMMUNICATION LINE = 2763.00 (APPROX.)
WATER MAIN INV = 2762.77 (4.6' DEPTH)
PROP. TELECOMMUNICATION LINE = 2760.72 (APPROX.)

104 WL-B STA: 1+24.90
WATER FITTING INV = 2762.60
1 - 8" 45° BEND (MJ X MJ)

105 WL-B STA: 1+29.90
N: 10692967.4733
E: 1761905.6435
WATER FITTING INV = 2765.11
1 - 8" 45° BEND (MJ X MJ)
1 - 8" X 6" REDUCER (MJ X MJ)
CONNECT TO EXISTING 6" WATER MAIN

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:3
Horz. Scale	1:30
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

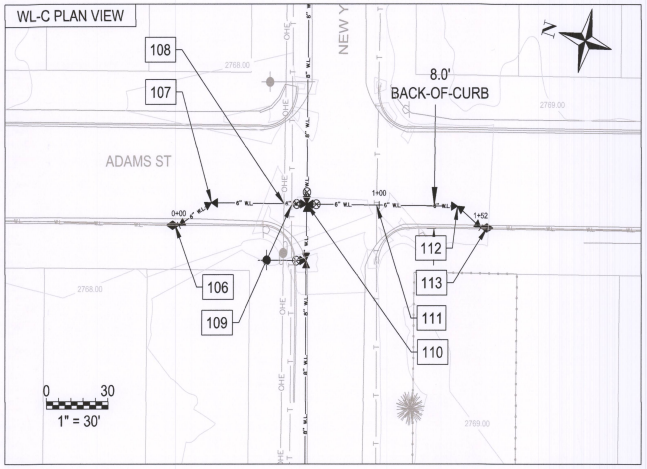
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

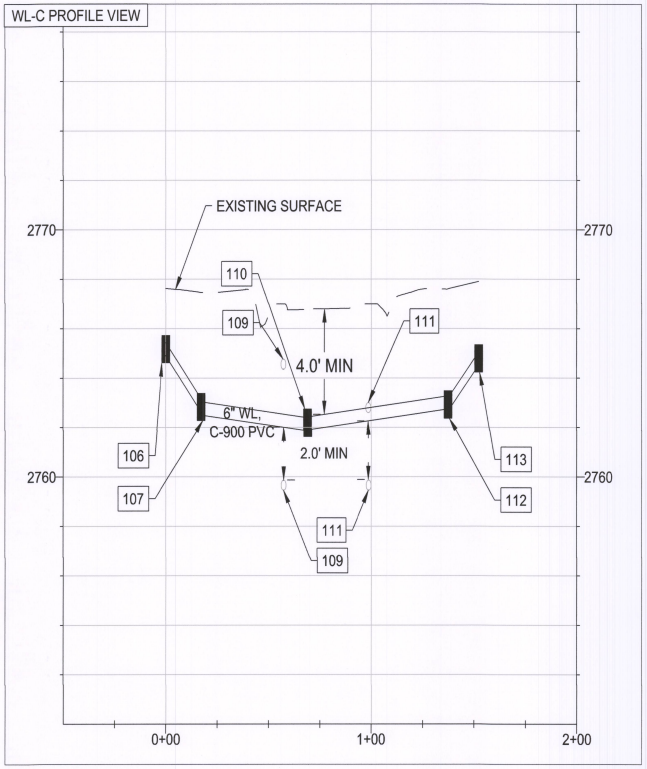
PLAN & PROFILE
WL-B

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
Josh Ferguson

SHEET C-611
29 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-511 P&P.dwg Oct 19, 2020 - 9:26am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

106 WL-C STA: 0+00.00
N: 106936191.9855
E: 1762217.3257
WATER FITTING INV = 2764.91
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN
ROTATE BEND 45° TO THE EAST
SEE DETAIL W1, SHEET C-702.

107 WL-C STA 0+18.26
N: 10693179.0720
E: 1762230.23292
WATER FITTING INV = 2762.51
1 - 6" 45° BEND (MJ X MJ)
ROTATE BEND 45° TO THE WEST
SEE DETAIL W1, SHEET C-702.

108 WL-C STA: 0+53.58
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

109 WL-C STA: 0+57.37
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2767.00
EX. TELECOMMUNICATION LINE = 2764.36 (APPROX.)
WATER MAIN INV = 2761.88 (5.1' DEPTH)
PROP. TELECOMMUNICATION LINE = 2759.87 (APPROX.)

110 WL-C STA: 0+64.67
WL-A STA: 4+36.34
SEE KEYED NOTE 09 ON C-602

111 WL-C STA: 0+98.74
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2767.00
EX. TELECOMMUNICATION LINE = 2763.00 (APPROX.)
WATER MAIN INV = 2761.89 (5.1' DEPTH)
PROP. TELECOMMUNICATION LINE = 2759.86 (APPROX.)

112 WL-C STA 1+38.16
N: 10693062.8657
E: 1762259.7727
WATER FITTING INV = 2762.78
1 - 6" 45° BEND (MJ X MJ)
ROTATE BEND 45° TO THE WEST
SEE DETAIL W1, SHEET C-702.

113 WL-C STA: 01+52.35
N: 10693050.0208
E: 1762284.3601
WATER FITTING INV = 2764.53
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN
ROTATE BEND 45° TO THE EAST
SEE DETAIL W1, SHEET C-702.

811 Know what's below. Call before you dig.

No.	Description	Date	By

Drawn By P.KINGSTON
Checked By J.FERGUSON
Approved By J.FERGUSON
Vert. Scale 1:3
Horz. Scale 1:30
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

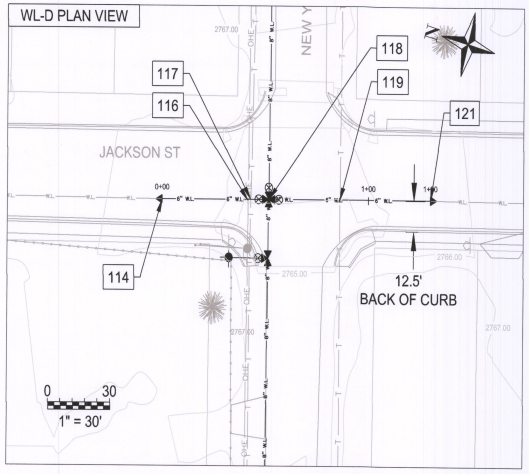
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

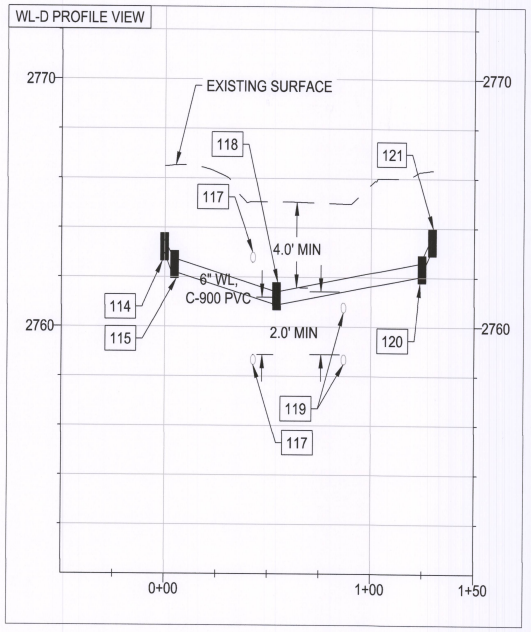
PLAN & PROFILE
WL-C

STATE OF TEXAS
OCT 21 2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-612
30 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-511 P&P.dwg Oct 19, 2020 - 9:26am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

114 WL-D STA: 0+00.00
N: 10693276.0264
E: 1762588.2138
WATER FITTING INV = 2762.95
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

115 WL-D STA: 0+05.00
WATER FITTING INV = 2760.87
1 - 6" 45° BEND (MJ X MJ)

116 WL-D STA: 0+41.64
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

117 WL-D STA: 0+42.95
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2765.05
EX. TELECOMMUNICATION LINE = 2762.60 (APPROX.)
WATER MAIN INV = 2760.87 (4.2' DEPTH)
PROP. TELECOMMUNICATION LINE = 2758.87 (APPROX.)

118 WL-D STA: 0+51.70
WL-A STA: 8+07.79
SEE KEYED NOTE 18 ON C-603

119 WL-D STA: 0+86.14
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2764.99
WATER MAIN INV = 2760.87 (4.1' DEPTH)
EX. TELECOMMUNICATION LINE = 2760.97 (APPROX.)
PROP. TELECOMMUNICATION LINE = 2758.87 (APPROX.)

120 WL-D STA: 1+25.02
WATER FITTING INV = 2760.87
1 - 6" 45° BEND (MJ X MJ)

121 WL-D STA: 1+30.02
N: 10693149.8642
E: 1762621.8707
WATER FITTING INV = 2763.16
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

811 Know what's below. Call before you dig.

No.	Description	By	Date

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:3
Horz. Scale 1:30
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

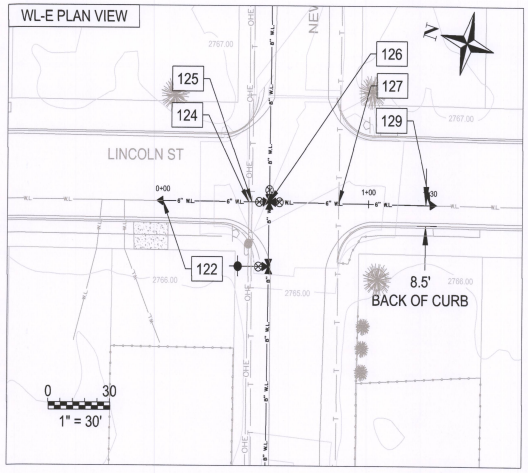
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

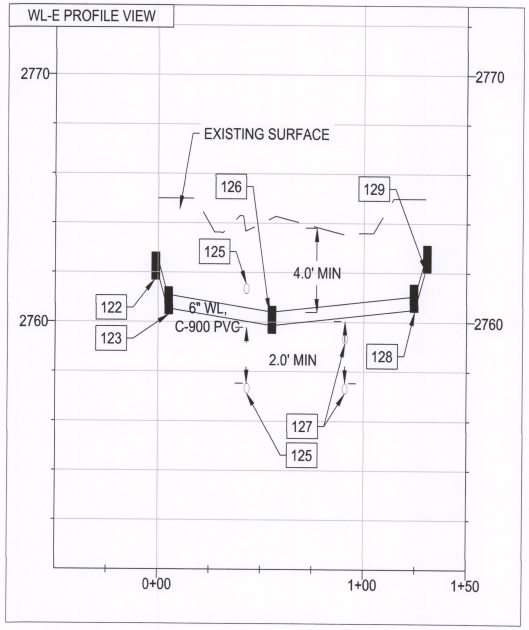
PLAN & PROFILE
WL-D

STATE OF TEXAS
OCT 19 2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-613
31 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-512 P&P.dwg Oct 19, 2020 - 9:36am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

122 WL-E STA: 0+00.00
N: 10693363.8654
E: 1762937.8790
WATER FITTING INV = 2761.96
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

123 WL-E STA: 0+05.00
WATER FITTING INV = 2760.56
1 - 6" 45° BEND (MJ X MJ)

124 WL-E STA: 0+41.70
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

125 WL-E STA: 0+43.27
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2763.71
EX. TELECOMMUNICATION LINE = 2761.15 (APPROX.)
WATER MAIN INV = 2759.53 (4.2' DEPTH)
PROP. TELECOMMUNICATION LINE = 2757.52 (APPROX.)

126 WL-E STA: 0+51.76
WL-A STA: 11+67.95
SEE KEYED NOTE 26 ON C-603

127 WL-E STA: 0+85.39
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2763.55
EX. TELECOMMUNICATION LINE = 2759.55 (APPROX.)
WATER MAIN INV = 2759.53 (4.0' DEPTH)
PROP. TELECOMMUNICATION LINE = 2757.52 (APPROX.)

128 WL-E STA 1+24.90
WATER FITTING INV = 2760.52
1 - 6" 45° BEND (MJ X MJ)

129 WL-E STA: 1+29.90
N: 10693239.0136
E: 1762969.8185
WATER FITTING INV = 2762.31
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By P.KINGSTON
Checked By J.FERGUSON
Approved By J.FERGUSON
Vert. Scale 1:3
Horz. Scale 1:30
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

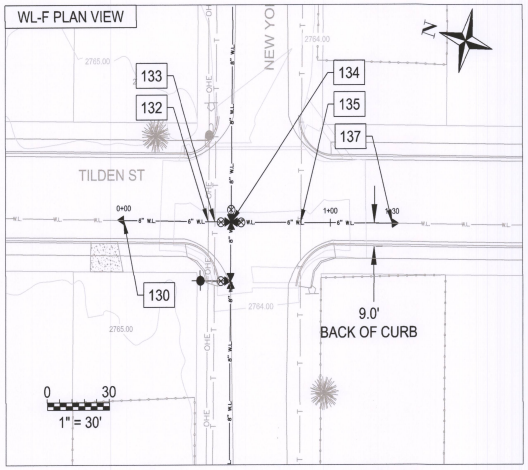
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

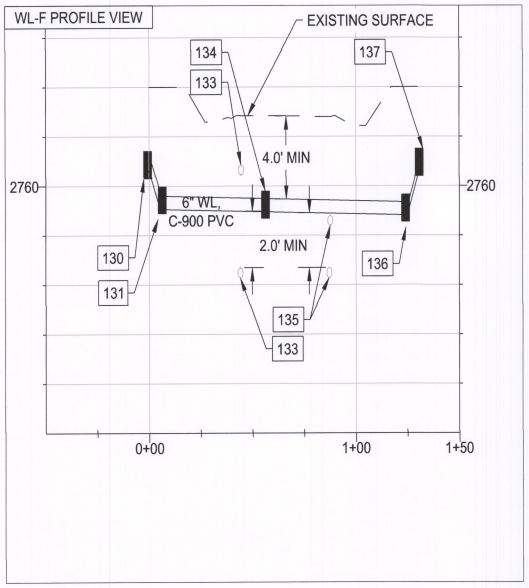
PLAN & PROFILE
WL-E

STATE OF TEXAS
OCT 19 2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-614
32 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-512 P&P.dwg Oct 19, 2020 - 9:37am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

130 WL-F STA: 0+00.00
N: 10693452.7706
E: 1763286.9797
WATER FITTING INV = 2760.61
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

131 WL-F STA: 0+05.00
WATER FITTING INV = 2758.90
1 - 6" 45° BEND (MJ X MJ)

132 WL-F STA: 0+40.85
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

133 WL-F STA: 0+44.04
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2762.85
EX. TELECOMMUNICATION LINE = 2760.45 (APPROX.)
WATER MAIN INV = 2758.78 (4.1' DEPTH)
PROP. TELECOMMUNICATION LINE = 2756.69 (APPROX.)

134 WL-F STA: 0+51.91
WL-A STA: 15+27.68
SEE KEYED NOTE 30 ON C-604

135 WL-F STA: 0+85.48
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2762.83
WATER MAIN INV = 2758.79 (4.1' DEPTH)
EX. TELECOMMUNICATION LINE = 2758.80 (APPROX.)
PROP. TELECOMMUNICATION LINE = 2756.68 (APPROX.)

136 WL-F STA: 1+24.90
WATER FITTING INV = 2758.66
1 - 6" 45° BEND (MJ X MJ)

137 WL-F STA: 1+29.90
N: 10693327.3678
E: 1763318.8920
WATER FITTING INV = 2760.70
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

811 Know what's below. Call before you dig.

No.	Description	By	Date

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:3
Horz. Scale 1:30
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

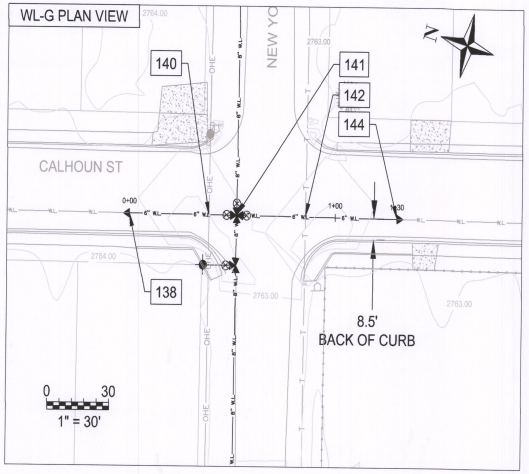
PLAN & PROFILE
WL-F

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
Josh Ferguson

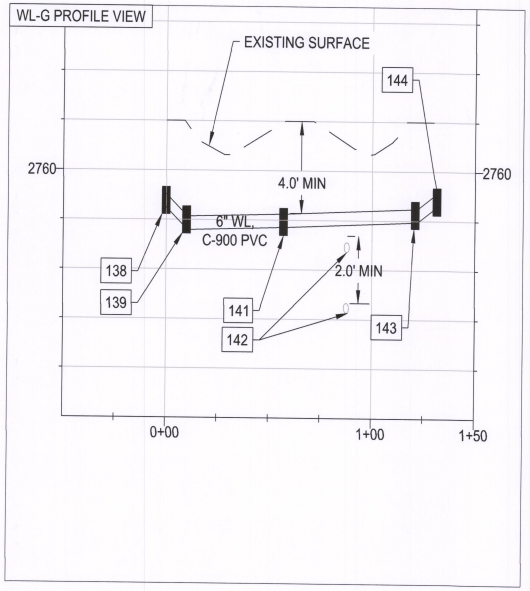
SHEET C-615
33 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-513 P&P.dwg Oct 19, 2020 - 9:39am pkingston

WL-G PLAN VIEW



WL-G PROFILE VIEW



CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

138 WL-G STA: 0+00.00
N: 10693542.0663
E: 1763635.6654
WATER FITTING INV = 2758.49
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 22.5° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

139 WL-G STA: 0+05.00
WATER FITTING INV = 2757.59
1 - 6" 22.5° BEND (MJ X MJ)

140 WL-G STA: 0+38.58
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

141 WL-G STA: 0+52.01
WL-A STA: 18+87.85
SEE KEYED NOTE 34 ON C-604

142 WL-G STA: 0+85.41
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2761.16
WATER MAIN INV = 2756.67 (5.1' DEPTH)
EX. TELECOMMUNICATION LINE = 2757.12 (APPROX.)
PROP. TELECOMMUNICATION LINE = 2754.64 (APPROX.)

143 WL-G STA 1+24.90
WATER FITTING INV = 2757.95
1 - 6" 22.5° BEND (MJ X MJ)

144 WL-G STA: 1+29.90
N: 10693415.7087
E: 1763667.9271
WATER FITTING INV = 2758.53
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 22.5° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:3
Horz. Scale	1:30
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

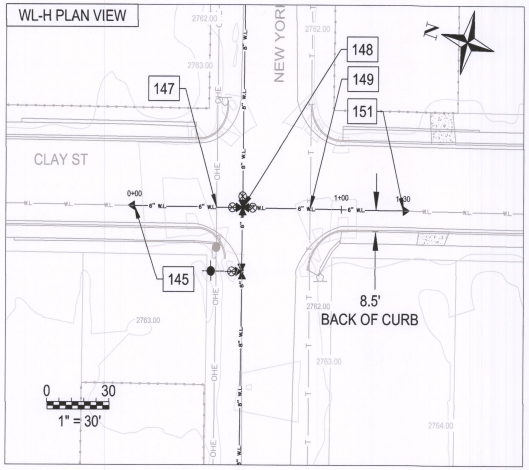
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

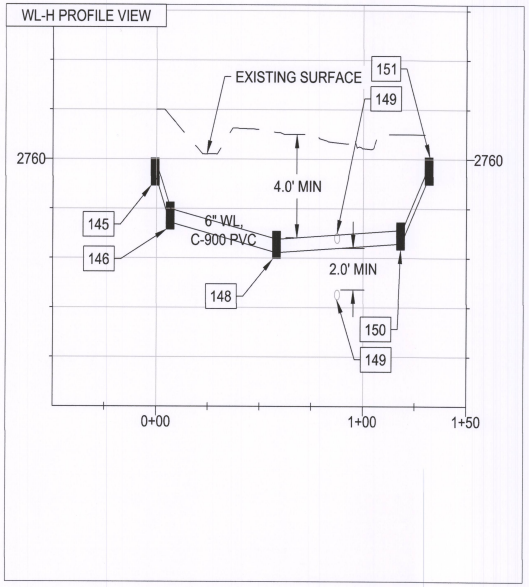
PLAN & PROFILE
WL-G

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-616
34 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-513 P&P.dwg Oct 19, 2020 - 9:41am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

145 WL-H STA: 0+00.00
N:1069363.8486
E:1763984.3654
WATER FITTING INV = 2759.21
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 22.5° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

146 WL-H STA: 0+05.00
WATER FITTING INV = 2757.45
1 - 6" 22.5° BEND (MJ X MJ)

147 WL-H STA: 0+35.69
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

148 WL-H STA: 0+52.23
WL-A STA: 22+47.64
SEE KEYED NOTE 42 ON C-605

149 WL-H STA: 0+87.39
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2760.66
EX. TELECOMMUNICATION LINE = 2756.71 (APPROX.)
WATER MAIN INV = 2756.71 (4.0' DEPTH)
PROP. TELECOMMUNICATION LINE = 2754.71 (APPROX.)

150 WL-H STA: 1+24.90
WATER FITTING INV = 2756.58
1 - 6" 22.5° BEND (MJ X MJ)

151 WL-H STA: 01+29.90
N:10693504.9047
E:1764016.1828
WATER FITTING INV =2759.26
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 22.5° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

811 Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By	P KINGSTON
Checked By	J FERGUSON
Approved By	J FERGUSON
Vert. Scale	1:3
Horz. Scale	1:30
Job No.	U19-04
Date	OCTOBER 2020

MIDLAND Engineering Services

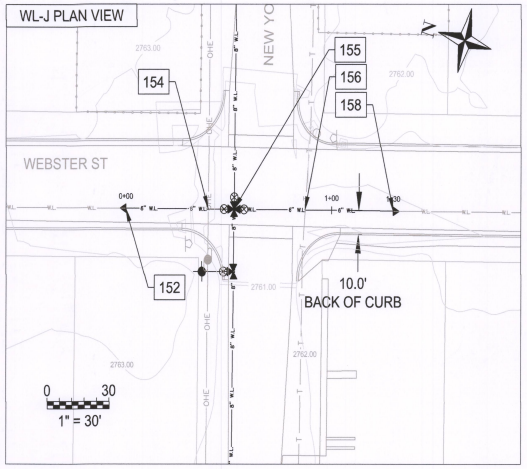
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

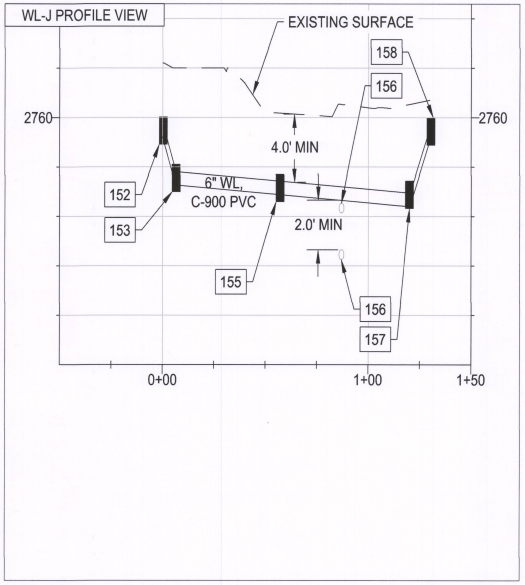
PLAN & PROFILE
WL-H

STATE OF TEXAS
OCT. 31 2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-617
35 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-514 P&P.dwg Oct 19, 2020 - 9:45am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

152 WL-J STA: 0+00.00
N: 10693808.4405
E: 1764681.8728
WATER FITTING INV = 2759.20
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

153 WL-J STA: 0+05.00
WATER FITTING INV = 2757.27
1 - 6" 45° BEND (MJ X MJ)

154 WL-J STA: 0+40.01
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

155 WL-J STA: 0+52.54
WL-A STA: 29+67.66
SEE KEYED NOTE 59 ON C-606

156 WL-J STA: 0+87.07
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2760.54
WATER MAIN INV = 2756.65 (5.6' DEPTH)
EX. TELECOMMUNICATION LINE = 2756.54 (APPROX.)
PROP. TELECOMMUNICATION LINE = 2754.65 (APPROX.)

157 WL-J STA 01+24.90
WATER FITTING INV = 2756.40
1 - 6" 45° BEND (MJ X MJ)

158 WL-J STA: 01+29.90
N: 10693670.6996
E: 1764714.7233
WATER FITTING INV = 2759.19
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN

811 Know what's below. Call before you dig.

No.	Description	Date	By

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:3
Horz. Scale 1:30
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

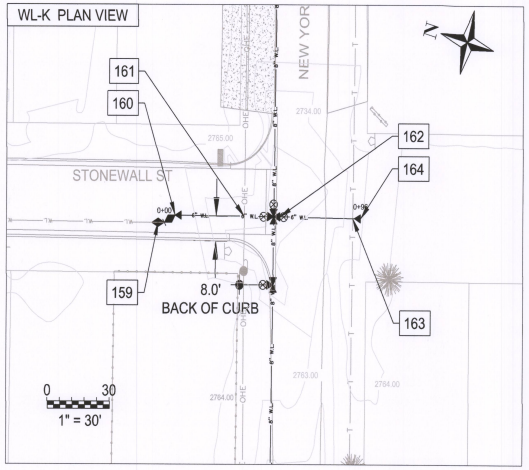
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

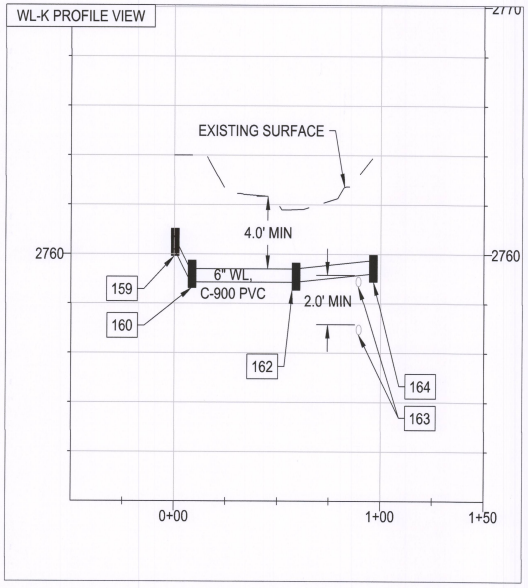
PLAN & PROFILE
WL-J

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER
Josh Ferguson

SHEET C-618
36 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-514 P&P.dwg Oct 19, 2020 - 9:57am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

159 WL-K STA: 00+00.00
N: 10693897.5762
E: 1765031.0980
WATER FITTING INV = 2760.20
1 - 6" X 4" REDUCER (MJ X MJ)
1 - 6" 45° BEND (MJ X MJ)
CONNECT TO EXISTING 4" WATER MAIN
ROTATE BEND 45° TO THE EAST
SEE DETAIL W1, SHEET C-702.

160 WL-K STA: 0+06.06
N: 10693893.2887
E: 1765035.3855
WATER FITTING INV = 2758.86
1 - 6" 45° BEND (MJ X MJ)
ROTATE BEND 45° TO THE WEST
SEE DETAIL W1, SHEET C-702.

161 WL-K STA: 0+39.49
EXISTING OVERHEAD ELECTRIC LINE CROSSING.
EXERCISE CAUTION!

162 WL-K STA: 0+53.72
WL-A STA: 31+31.00
SEE KEYED NOTE 68 ON C-606

163 WL-K STA: 0+89.27
EXISTING TELECOMMUNICATION LINE CROSSING.
MAINTAIN MINIMUM 2.0' VERTICAL SEPARATION BETWEEN
WATER MAIN AND TELECOMMUNICATION LINE.
EX. SURFACE = 2763.49
WATER MAIN INV = 2759.15 (4.3' DEPTH)
EX. TELECOMMUNICATION LINE = 2759.21 (APPROX.)
PROP. TELECOMMUNICATION LINE = 2757.15 (APPROX.)

164 WL-K STA: 0+95.84
N: 10693806.2501
E: 1765057.3939
WATER FITTING INV = 2759.21
1 - 6" CAP

Know what's below. Call before you dig.

Description	By	Date	Rev. No.

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:3
Horz. Scale 1:30
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

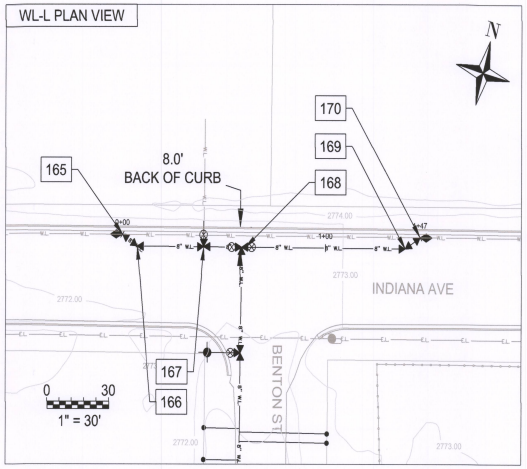
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

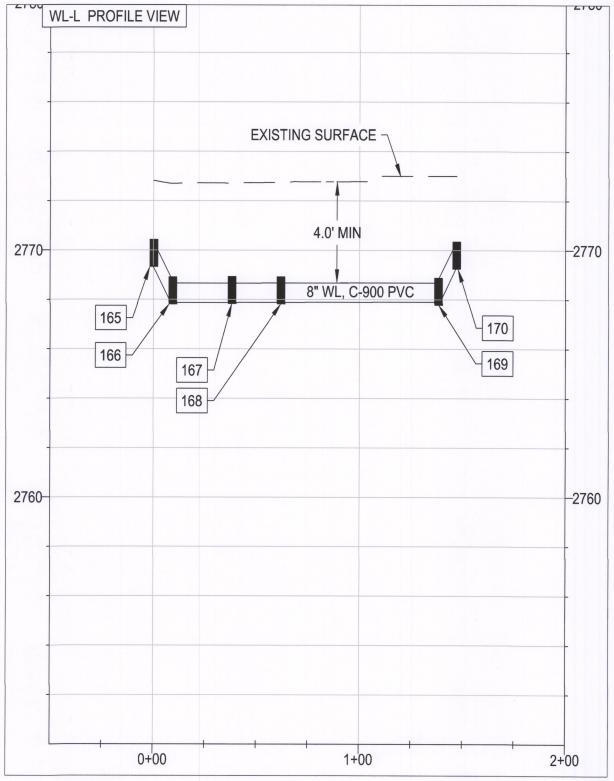
PLAN & PROFILE
WL-K

STATE OF TEXAS
JOSHUA C. FERGUSON
117892
LICENSED PROFESSIONAL ENGINEER

SHEET C-619
37 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-515 P&P.dwg Oct 19, 2020 - 10:00am pkingston





CONSTRUCTION NOTES:

I) ALL WATER LATERALS TO BE 1" UNLESS OTHERWISE NOTED.

KEYED NOTES:

165 WL-L STA: 0+00.00
N: 10694763.0515
E: 1764004.3042
WATER FITTING INV = 2769.52
1 - 8" 22.5° BEND (MJ X MJ)
CONNECT TO EXISTING 8" WATER MAIN
ROTATE BEND 45° TO THE SOUTH
SEE DETAIL W1, SHEET C-702.

166 WL-L STA: 0+08.58
N: 10694760.3030
E: 1764012.4710
WATER FITTING INV = 2767.87
1 - 8" 22.5° BEND (MJ X MJ)
ROTATE BEND 45° TO THE NORTH
SEE DETAIL W1, SHEET C-702.

167 WL-L STA: 0+40.88
RELOCATE EXISTING TEE TO ELEVATION
(INSTALLED BY OTHERS)

168 WL-L STA: 0+61.19
WL-I STA: 0+00.00
SEE KEYED NOTE 80 ON C-608

169 WL-L STA: 1+38.59
N: 1069472.9062
E: 1764138.3112
WATER FITTING INV = 2767.91
1 - 8" 22.5° BEND (MJ X MJ)
ROTATE BEND 45° TO THE NORTH
SEE DETAIL W1, SHEET C-702.

170 WL-L STA: 1+43.59
N: 10694799.2311
E: 1764144.1156
WATER FITTING INV = 2769.51
1 - 8" 22.5° BEND (MJ X MJ)
CONNECT TO EXISTING 8" WATER MAIN
ROTATE BEND 45° TO THE SOUTH
SEE DETAIL W1, SHEET C-702.

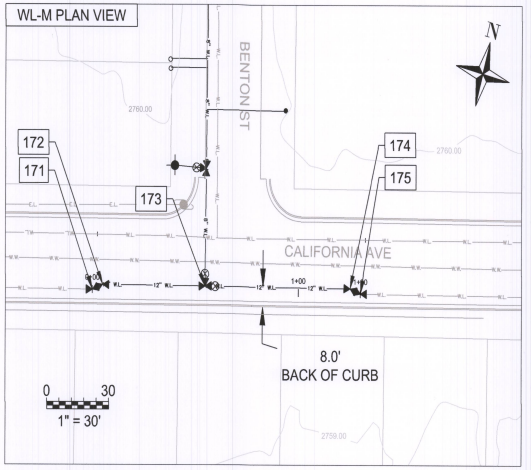
171 WL-M STA: 0+00.00
N: 10692816.1256
E: 1764503.3069
WATER FITTING INV = 2755.72
1 - 12" 22.5° BEND (MJ X MJ)
CONNECT TO EXISTING 12" WATER MAIN
ROTATE BEND 22.5° TO THE NORTH
SEE DETAIL W1, SHEET C-702.

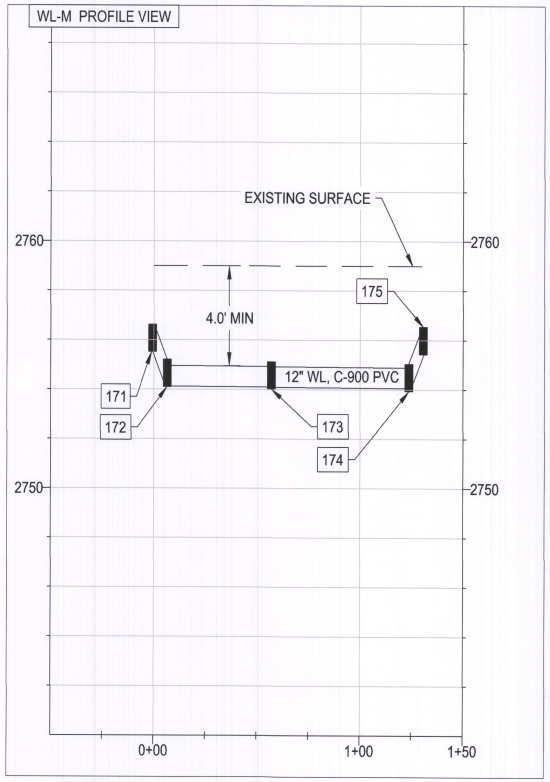
172 WL-M STA: 0+05.00
WATER FITTING INV = 2754.12
1 - 12" 22.5° BEND (MJ X MJ)
ROTATE BEND 22.5° TO THE SOUTH
SEE DETAIL W1, SHEET C-702.

173 WL-M STA: 0+54.72
WL-I STA: 20+03.34
SEE KEYED NOTE 96 ON C-610

174 WL-M STA: 1+25.00
WATER FITTING INV = 2754.06
1 - 12" 22.5° BEND (MJ X MJ)
ROTATE BEND 22.5° TO THE SOUTH
SEE DETAIL W1, SHEET C-702.

175 WL-M STA: 1+30.00
N: 10692848.2061
E: 1764629.2864
WATER FITTING INV = 2755.65
1 - 12" 22.5° BEND (MJ X MJ)
CONNECT TO EXISTING 12" WATER MAIN
ROTATE BEND 22.5° TO THE NORTH
SEE DETAIL W1, SHEET C-702.





811 Know what's below. Call before you dig.

Description	By	Date	Rev. No

Drawn By P KINGSTON
Checked By J FERGUSON
Approved By J FERGUSON
Vert. Scale 1:3
Horz. Scale 1:30
Job No. U19-04
Date OCTOBER 2020

MIDLAND Engineering Services

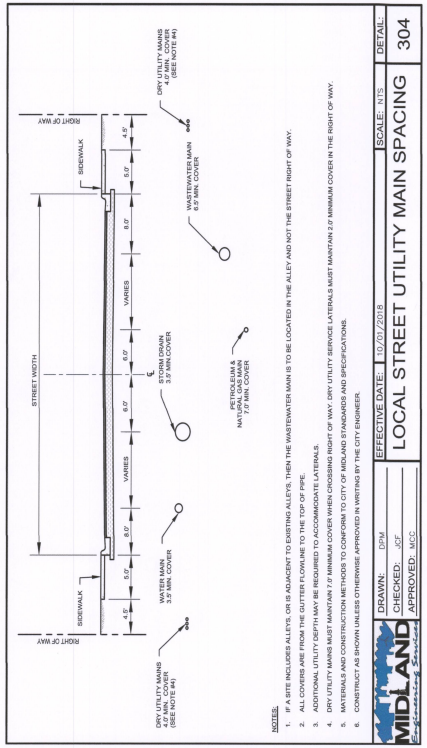
NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

PLAN & PROFILE
WL-L & WL-M

STATE OF TEXAS
OCT 31 2020
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-620
38 OF 42

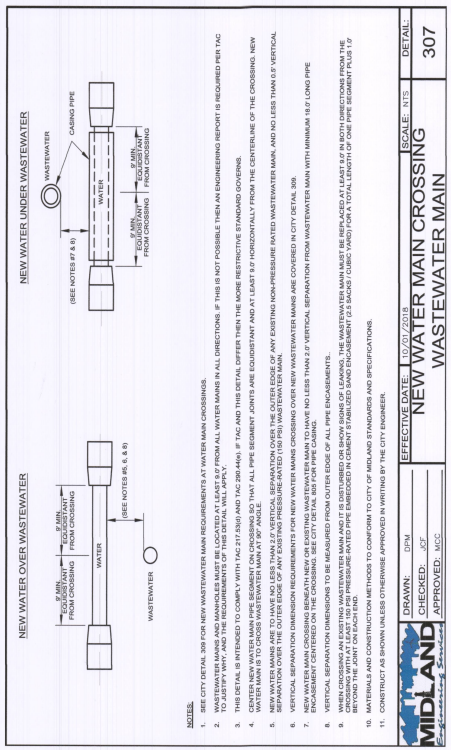
File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-516 P&P.dwg Oct 19, 2020 - 10:03am pkingston



NOTES:
1. IF A SITE INCLUDES ALLEYS, OR IS ADJACENT TO EXISTING ALLEYS, THEN THE WASTEWATER MAIN IS TO BE LOCATED IN THE ALLEY AND NOT THE STREET RIGHT OF WAY.
2. ALL COVERS ARE FROM THE GUTTER FLOWLINE TO THE TOP OF PIPE.
3. ADDITIONAL UTILITY DEPTH MAY BE REQUIRED TO ACCOMMODATE LATERALS.
4. DRY UTILITY MAINS MUST MAINTAIN 7.0' MINIMUM COVER WHEN CROSSING RIGHT OF WAY. DRY UTILITY SERVICE LATERALS MUST MAINTAIN 2.0' MINIMUM COVER IN THE RIGHT OF WAY.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	LOCAL STREET UTILITY MAIN SPACING		304
APPROVED: MCC			

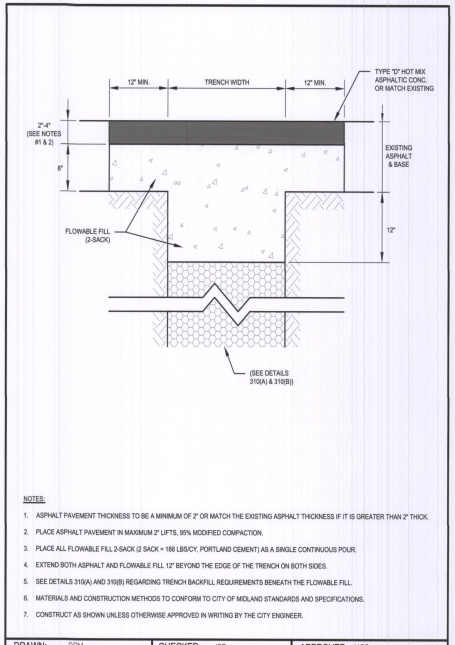
MIDLAND Engineering Services



NOTES:
1. SEE CITY DETAIL 309 FOR NEW WASTEWATER MAIN REQUIREMENTS AT WATER MAIN CROSSINGS.
2. WASTEWATER MAINS AND MANHOLES MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY.
3. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
4. WATER MAIN IS TO CROSS WASTEWATER MAIN AT 90° ANGLE.
5. NEW WATER MAINS ARE TO HAVE NO LESS THAN 2.0' VERTICAL SEPARATION OVER THE OUTER EDGE OF ANY EXISTING NON-PRESSURE RATED WASTEWATER MAIN, AND NO LESS THAN 0.5' VERTICAL SEPARATION OVER THE OUTER EDGE OF ANY EXISTING PRESSURE-RATED (150 PSI) WASTEWATER MAIN.
6. VERTICAL SEPARATION DIMENSION REQUIREMENTS FOR NEW WATER MAINS CROSSING OVER NEW WASTEWATER MAINS ARE COVERED IN CITY DETAIL 309.
7. NEW WATER MAINS CROSSING UNDER WASTEWATER MAINS ARE TO HAVE NO LESS THAN 2.0' VERTICAL SEPARATION FROM WASTEWATER MAIN WITH MINIMUM 18.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 855 FOR PIPE CASING.
8. VERTICAL SEPARATION DIMENSIONS TO BE MEASURED FROM OUTER EDGE OF ALL PIPE ENCASEMENTS.
9. WHEN CROSSING AN EXISTING WASTEWATER MAIN AND IT IS DISTURBED OR SHOW SIGNS OF LEAKING, THE WASTEWATER MAIN MUST BE REPLACED AT LEAST 9.0' IN BOTH DIRECTIONS FROM THE CROSSING WITH A SDR-26 PRESSURE-RATED PIPE EMBEDDED IN CEMENT STABILIZED SAND ENCASEMENT (2.5 SACKS / CUBIC YARD) FOR A TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 1.0'
10. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
11. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	NEW WATER MAIN CROSSING WASTEWATER MAIN		307
APPROVED: MCC			

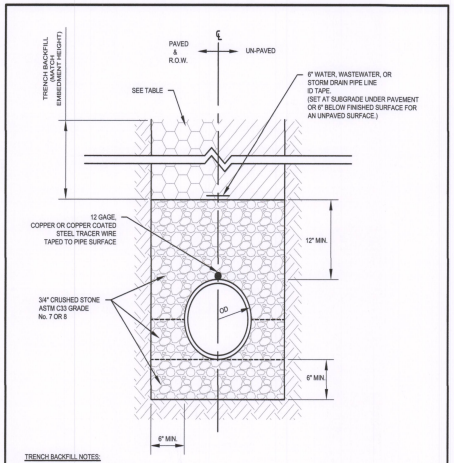
MIDLAND Engineering Services



NOTES:
1. ASPHALT PAVEMENT THICKNESS TO BE A MINIMUM OF 2" OR MATCH THE EXISTING ASPHALT THICKNESS IF IT IS GREATER THAN 2" THICK.
2. PLACE ASPHALT PAVEMENT IN MAXIMUM 2" LIFTS, 95% MODIFIED COMPACTION.
3. PLACE ALL FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT) AS A SINGLE CONTINUOUS POUR.
4. EXTEND BOTH ASPHALT AND FLOWABLE FILL 12" BEYOND THE EDGE OF THE TRENCH ON BOTH SIDES.
5. SEE DETAILS 310(A) AND 310(B) REGARDING TRENCH BACKFILL REQUIREMENTS BENEATH THE FLOWABLE FILL.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018		SCALE: NTS	DETAIL:
ASPHALT TRENCH PAVEMENT REPLACEMENT			311

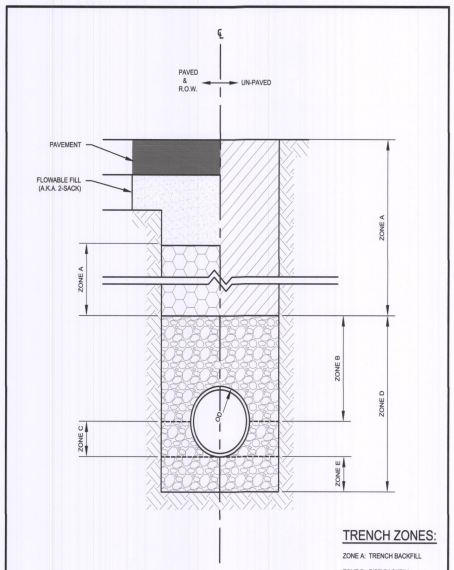
MIDLAND Engineering Services



TRENCH BACKFILL NOTES:
1. APPLIES TO ALL PIPE TYPES. (DUCTILE IRON, PVC, ETC.)
2. UTILIZE SELECT FILL BACKFILL BENEATH ALL PAVED SURFACES. NATIVE MATERIAL BACKFILL CAN ONLY BE USER FOR UNPAVED TRENCH CONDITIONS IF BACKFILL MATERIAL IS ≤ 30LL AND ≤ 15 PI.
3. NATIVE MATERIAL TO BE EXISTING EXCAVATED SOIL FROM TRENCH WITH ALL MATERIAL BROKEN DOWN ≤ 2".
4. MOISTURE CONDITION ALL BACKFILL MATERIAL PRIOR TO PLACING IN TRENCH.
5. PLACE TRENCH BACKFILL MATERIAL IN MAXIMUM 12" LOOSE LIFTS AND COMPACT TO MAXIMUM 6" COMPACTED LIFTS.
6. REFER TO CITY DETAILS 311 AND 312 FOR TRENCH PAVEMENT REPLACEMENT REQUIREMENTS.
7. PLACE LAYERS B, C, AND E FOUND ON CITY DETAIL 310(B) AS SEPARATE LAYERS.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018		SCALE: NTS	DETAIL:
TRENCHING AND BEDDING			310(A)

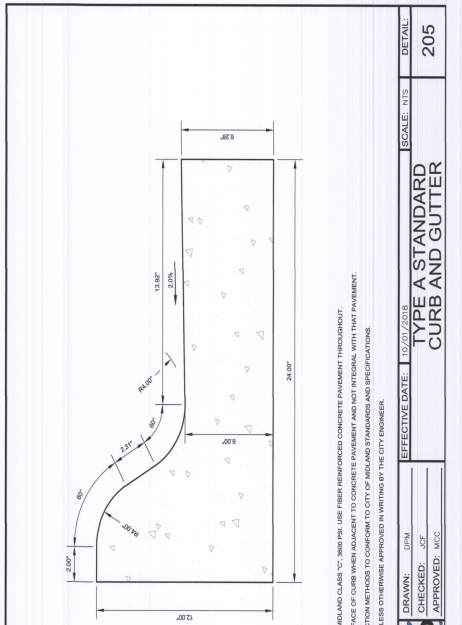
MIDLAND Engineering Services



TRENCH ZONES:
ZONE A: TRENCH BACKFILL
ZONE B: PIPE BACKFILL
ZONE C: HAUNCHING
ZONE D: PIPE EMBEDMENT
ZONE E: BEDDING

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018		SCALE: NTS	DETAIL:
TRENCHING AND BEDDING			310(B)

MIDLAND Engineering Services



NOTES:
1. CONCRETE SHALL BE CITY OF MIDLAND CLASS "C", 3600 PSI, USE FIBER REINFORCED CONCRETE PAVEMENT THROUGHOUT.
2. SEAL CONCRETE JOINT AT FACE OF CURB WHEN ADJACENT TO CONCRETE PAVEMENT AND NOT INTEGRAL WITH THAT PAVEMENT.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	TYPE A STANDARD CURB AND GUTTER		205
APPROVED: MCC			

MIDLAND Engineering Services

811 Know what's below. Call before you dig.

Drawn By	P. KINGSTON			
Checked By	J. FERGUSON			
Approved By	J. FERGUSON			
Vert. Scale	N / A			
Horz. Scale	N / A			
Job No.	U19-03			
Date	OCTOBER 2020	Rev. No.	Date	By

Description

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS
DETAILS

STATE OF TEXAS
JOSHUA C. FERGUSON
117692
LICENSED
PROFESSIONAL ENGINEER

SHEET C-701
39 OF 42

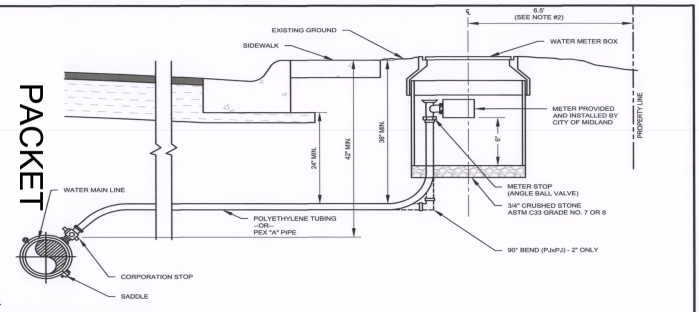
File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-601 Details.dwg Oct 05, 2020 - 11:42am pkingston

PACKET 8.942 December 5, 2020

PACKET

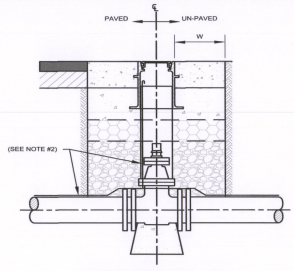
8.9.21

December 15, 2020

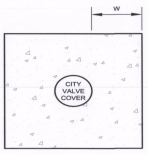


NOTES:
1. ALL WATER SERVICES TO BE 1" OR 2" DIAMETER.
2. THE DISTANCE FROM PROPERTY LINE SHOWN IS FOR 5' SIDEWALK AT THE PROPERTY LINE. WHEN 5' SIDEWALK IS PLACED AT THE BACK OF CURB, PLACE METER BOXES A MINIMUM OF 6.5' FROM THE BACK OF CURB.
3. TWO ADJACENT SERVICE LATERALS MAY BE PLACED IN THE SAME TRENCH. EACH TAP MUST BE SEPARATE AND HAVE BOTH A CORPORATION STOP AND A METER STOP. ("BULLHEAD TAPS ARE NOT PERMITTED".)
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	1" AND 2" WATER METER AND SERVICE CONNECTION		604(A)
APPROVED: MCC			



CROSS SECTION VIEW



PLAN VIEW

NOTES:
1. SEE OTHER CITY STANDARD DETAILS FOR INFORMATION REGARDING VALVES, COVERS, CONCRETE RINGS, ETC.
2. TRACER WIRE PER DETAIL 310 (A) TO BE TAPED TO SIDE OF VALVE BOX AND STOP 1.0" - 2.0" SHORT OF VALVE BOX COVER. TRACER WIRE TO REMAIN ENTIRELY WITHIN VALVE BOX.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: NEW YORK AVENUE & BENTON STREET	SCALE: NTS	DETAIL:
CHECKED: JCF	VALVE DETECTOR WIRE END		320
APPROVED: MCC			

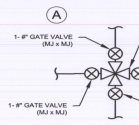
NOTES:
1. ALL COMPONENTS OF ANY WATER METER SERVICE LINE MUST COME FROM THE SAME BRAND WHEREVER POSSIBLE.
2. PLASTIC WRAP ALL SADDLES.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

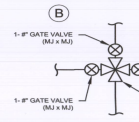
APPROVED COMPONENT LIST

1" WATER METER SERVICE	2" WATER METER SERVICE
SADDLE (OPTION 1: DUCTILE IRON MIDJAX, BAND CC THREAD STEEL STRAP)	SADDLE (OPTION 1: DUCTILE IRON MIDJAX, BAND CC THREAD STEEL STRAP)
1. FORD FC22202 SADDLE 2. MUELLER DR 2 SERIES 3. A.Y. MCDONALD SERIES 4850A OR APPROVED EQUAL	1. FORD FC22202 SADDLE 2. MUELLER DR 2 SERIES 3. A.Y. MCDONALD SERIES 4850A OR APPROVED EQUAL
SADDLE (OPTION 2: BRASS MIDJAX, BAND CC THREAD STEEL STRAP)	SADDLE (OPTION 2: BRASS MIDJAX, BAND CC THREAD STEEL STRAP)
1. FORD 202B3 SADDLE 2. MUELLER H-10276 3. A.Y. MCDONALD SERIES 3895 OR APPROVED EQUAL	1. FORD 202B3 SADDLE 2. MUELLER H-10276 3. A.Y. MCDONALD SERIES 3895 OR APPROVED EQUAL
CORPORATION STOP	CORPORATION STOP
1. FORD FB1000-4-QNL 2. MUELLER B-20172N 3. A.Y. MCDONALD SERIES 74701B-221 OR APPROVED EQUAL	1. FORD FB1000-7-QNL 2. MUELLER B-20174N 3. A.Y. MCDONALD SERIES 74701B-222 OR APPROVED EQUAL
CURB STOP METER VALVE	CURB STOP METER VALVE
1. FORD B44-444W-QNL 2. MUELLER B-20172N 3. A.Y. MCDONALD SERIES 74603B-221 OR APPROVED EQUAL	1. FORD B44-777W-QNL 2. MUELLER B-20172N 3. A.Y. MCDONALD SERIES 74603B-222 OR APPROVED EQUAL
WATER METER BOX	WATER METER BOX
1. EAST JORDAN 2370788402 OR APPROVED EQUAL	1. EAST JORDAN 2334MWAY OR APPROVED EQUAL
SERVICE LINE PIPE 1. ASTM D2737 POLYETHYLENE TUBING MUNCY PEX 'A' PIPE OR APPROVED EQUAL	SERVICE LINE PIPE 1. ASTM D2737 POLYETHYLENE TUBING MUNCY PEX 'A' PIPE OR APPROVED EQUAL

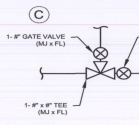
DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	1" AND 2" WATER METER AND SERVICE CONNECTION		604(B)
APPROVED: MCC			

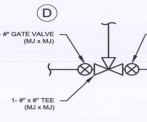
CROSS FITTING RESTRAINTS



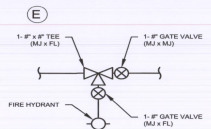


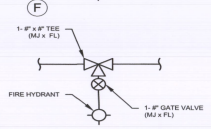
TEE FITTING RESTRAINTS





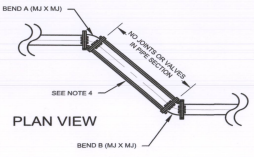
FIRE HYDRANT RESTRAINTS



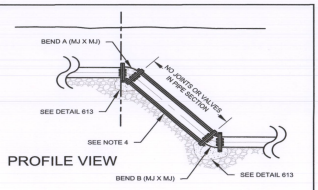


NOTES:
1. ALL MECHANICAL JOINT (MJ) FITTINGS TO BE RESTRAINED.
2. ALL FLANGES (FL) TO BE ON THE BRANCH SIDE OF TEE FITTINGS.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

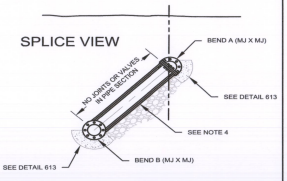
DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	TYPICAL FITTING RESTRAINT CONFIGURATIONS		601
APPROVED: MCC			



PLAN VIEW



PROFILE VIEW



SPLICE VIEW

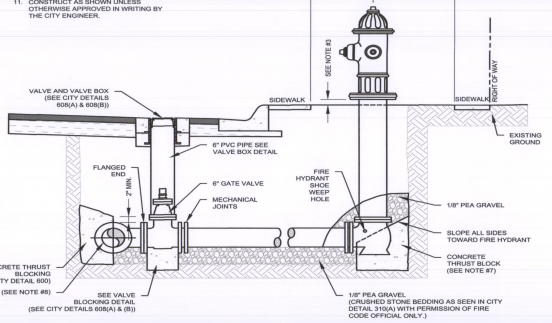
NOTES:
1. BEND ROTATION TO VERTICAL ALIGNMENT ANGLE NOTED ON PLAN & PROFILE SHEETS.
2. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING.
3. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
4. "X" DIA. STAINLESS STEEL ALL THREAD RODS, FLAT WASHERS, AND TIE-BOLTS BETWEEN FITTINGS. IF ALL THREADS ARE NOT STAINLESS STEEL THEN THEY MUST BE POLY WRAPPED.
5. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: PAK	EFFECTIVE DATE: 07/14/2020	SCALE: NTS	DETAIL:
CHECKED: JCF	WATER MAIN VERTICAL & HORIZONTAL OFFSET		W1
APPROVED:			

NOTES:
1. SET ALL VALVE BOXES IN A CONCRETE COLLAR WHEN PLACED AT THEIR FINAL GRADE. (SEE CITY DETAILS 608(A) & (B))
2. ALL CONCRETE PAVEMENT TO BE CLASS "C" CONCRETE, 3600 PSI.
3. LEAVE VALVE BOX 6" TO 10" ABOVE GRADE FOR NEW DEVELOPMENT AND OTHER STREETS AND ALLEYS SCHEDULED FOR IMMEDIATE PAVING UNTIL STREET WORK IS DONE. PAVING CONTRACTOR TO ADJUST VALVE BOX TO FINISHED GRADE BEFORE PLACING LAST COURSE OF HMAC SURFACE.
4. SET FRANGIBLE FLANGE OF FIRE HYDRANT A MINIMUM OF 2" AND A MAXIMUM OF 8" ABOVE SIDEWALK ELEVATION.
5. ON STREETS WHERE NO SIDEWALK IS TO BE CONSTRUCTED, SET CENTERLINE OF FIRE-HYDRANT AT 3' FROM PROPERTY LINE WITHIN RIGHT OF WAY.
6. PLACE FIRE HYDRANT CUT-OFF VALVE A MINIMUM OF 3' FROM THE CENTER LINE OF THE FIRE HYDRANT. THIS MAY REQUIRE THE USE OF A 90° BEND TO OFFSET THE FIRE HYDRANT.
7. SHAPE CONCRETE THRUST BLOCKS SO THAT NO WATER DRAINS ARE BLOCKED.
8. A TEE FITTING IS REQUIRED FOR A CONNECTION TO A NEW WATER MAIN, AND A TAPPING SLEEVE IS REQUIRED FOR A CONNECTION TO AN EXISTING WATER MAIN.
9. DO NOT WRAP FIRE HYDRANT SHOE IN PLASTIC.
10. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
11. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

NOTE: 18" MIN. APPLIES WHEN SIDEWALK IS LOCATED AT BACK OF CURB.

NOTE: 12" MIN. APPLIES WHEN SIDEWALK IS AT RIGHT OF WAY.



DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	FIRE HYDRANT NEW WATER MAIN		603
APPROVED: MCC			

SHEET C-702	40 OF 42

STATE OF TEXAS — JOSHUA C. FERGUSON — 117692 — LICENSED PROFESSIONAL ENGINEER

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

DETAILS

MIDLAND Engineering Services

Drawn By	P. KINGSTON
Checked By	J. FERGUSON
Approved By	J. FERGUSON
Vert. Scale	N / A
Horz. Scale	N / A
Job No.	U19-03
Date	OCTOBER 2020

Rev. No.	Date	By	Description

Know what's below. Call before you dig. 811

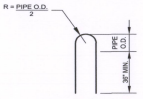
File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-602 Details.dwg Oct 05, 2020 - 11:42am pkingston

PACKET

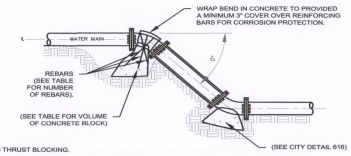
DIA. OF PIPE	DEGREE OF BEND θ							
	11 1/4°		22 1/2°		45°		90°	
	VOLUME BLOCK	REBAR NO. SIZE	VOLUME BLOCK	REBAR NO. SIZE	VOLUME BLOCK	REBAR NO. SIZE	VOLUME BLOCK	REBAR NO. SIZE
4"	3 C.F.	2-#3	6 C.F.	2-#3	12 C.F.	2-#3	22 C.F.	2-#3
6"	7 C.F.	2-#3	13 C.F.	2-#3	26 C.F.	2-#3	1.0 C.Y.	2-#3
8"	12 C.F.	2-#3	24 C.F.	2-#3	2.0 C.Y.	2-#4	3.0 C.Y.	2-#4
10"	19 C.F.	2-#3	1.5 C.Y.	2-#4	3.0 C.Y.	2-#4	5.0 C.Y.	2-#6
12"	1.0 C.Y.	2-#3	2.0 C.Y.	2-#4	4.0 C.Y.	2-#6	7.0 C.Y.	2-#8
14"	1.5 C.Y.	2-#4	3.0 C.Y.	2-#4	5.5 C.Y.	2-#6	*	*
16"	2.0 C.Y.	2-#4	3.5 C.Y.	2-#4	7.0 C.Y.	2-#7	*	*

BLOCK FOR EXTERNAL VERTICAL BENDS
DESIGN PRESSURE 180 PSI

* BLOCKING FOR 14" AND 16" 90° BENDS AND FOR ALL BENDS LARGER THAN 16" WILL BE SHOWN ON THE PLANS.

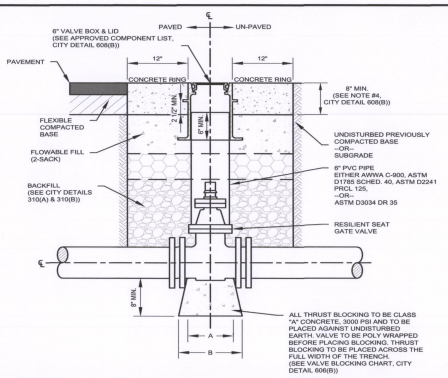


BAR BEND DETAIL



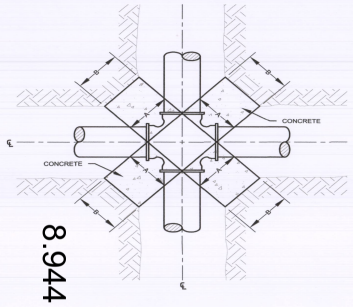
NOTES:
1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING.
2. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
3. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	BLOCKING FOR VERTICAL BEND		613
APPROVED: MCC			



DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	TYPICAL VALVE AND VALVE BOX		608(A)
APPROVED: MCC			

8.944



CROSS BLOCKING

CROSS BLOCKING
DESIGN 180 PSI LINE PRESSURE
SOIL BEARING CAP 2K/SF

CROSS DIA.	BLOCKING DIMENSIONS		
	A	B	*C
4"x 4"	0'-11"	1'-0"	1'-0"
6"x 6"	1'-2"	1'-7"	1'-0"
8"x 8"	1'-4"	2'-2"	2'-2"
10"x 10"	1'-8"	2'-8"	2'-8"
12"x 12"	1'-10"	3'-2"	3'-2"
14"x 14"	2'-2"	3'-8"	3'-8"
16"x 16"	2'-4"	4'-3"	4'-3"

*C - VERTICAL DEPTH OF CONCRETE BEARING ON UNDISTURBED EARTH

NOTES:
1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING
2. BLOCK CROSSES WITH DIFFERENT SIZE RUNS FOR THE LARGER RUN IN ALL DIRECTIONS.
3. BLOCKING FOR CROSSES LARGER THAN 16" WILL BE AS SHOWN ON THE PLANS.
4. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
5. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	BLOCKING FOR CROSS		614
APPROVED: MCC			

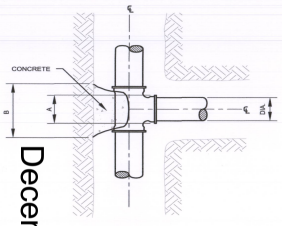
APPROVED COMPONENT LIST			
NO.	VALVES	VALVE COVERS	VALVE BOX
1	MUELLER 2360 M/J	MUELLER 2360 FL X FL	BASS & HAYS STANDARD 390-1 "SHORTY"
2	M & H 4067 M/J	M & H 4067-0	OR APPROVED EQUAL
3	CLOW 2838 M/J	CLOW 2840 FL X FL	
4	OR APPROVED EQUAL	OR APPROVED EQUAL	

VALVE BLOCKING CHART		
PIPE SIZE	A	B
4"	5.0"	10.5"
6"	6.5"	1'-.0"
8"	6.5"	1'-.0"
10"	8.0"	1'-1.0"
12"	8.5"	1'-2.0"

NOTES:
1. FOR VALVES ON WATER MAIN PIPES LARGER THAN 12" SEE CITY DETAIL 609.
2. SETTING VALVE BOX TO GRADE MAY REQUIRE ADDING PVC PIPE. IF ADDITIONAL PIPE IS REQUIRED, USE BELL SECTION WITH GASKET AND SET BELL DOWN OVER EXISTING PIPE RISER. A GASKETED SELF CENTERING COLLAR MAY BE USED IN LIEU OF THE BELL SECTION.
3. CONCRETE RING TO BE CITY OF MIDLAND CLASS "C", 3600 PSI, UNLESS OTHERWISE NOTED.
4. USE FIBER REINFORCEMENT FOR ALL CONCRETE , WHETHER PAVEMENT OR THRUST BLOCKING.
5. 12" MINIMUM FOR CONCRETE RING IN AN ARTERIAL ROADWAY.
6. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT.) REQUIRED BENEATH ALL CONCRETE RINGS.
7. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT.) REQUIRED FOR ALL OVER EXCAVATION BACKFILL.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	TYPICAL VALVE AND VALVE BOX DETAILS		608(B)
APPROVED: MCC			

December 15, 2020



TEE

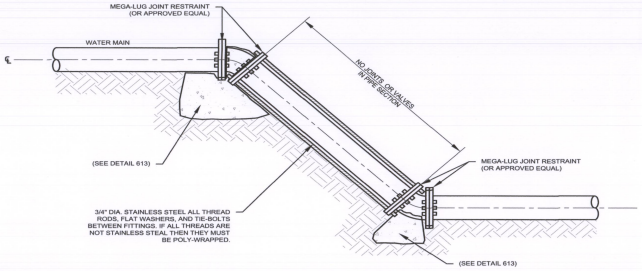
"T" BLOCKING
DESIGN 180 PSI LINE PRESSURE
SOIL BEARING CAP 2K/SF

"T" RUN DIA.	STEM DIA.	BLOCKING DIMENSIONS		
		A	B	*C
TEE				
4"	ALL	11"	1'-0"	1'-0"
6"	ALL	1'-2"	1'-7"	1'-0"
8"	ALL	1'-4"	2'-2"	2'-2"
10"	ALL	1'-8"	2'-8"	2'-8"
1'-0"	THRU 6"	1'-10"	1'-10"	1'-8"
1'-0"	OVER 6"	1'-10"	3'-2"	3'-2"
1'-2"	THRU 8"	2'-2"	2'-2"	1'-11"
1'-2"	OVER 8"	2'-2"	3'-8"	3'-8"
1'-4"	THRU 8"	2'-4"	2'-4"	2'-2"
1'-4"	OVER 8"	2'-4"	4'-3"	4'-3"

*C - VERTICAL DEPTH OF CONCRETE BEARING ON UNDISTURBED EARTH

NOTE:
1. FORM ALL CONCRETE THRUST BLOCKING. DO NO PLACE UN-FORMED THRUST BLOCKING.
2. BLOCKING FOR TEES LARGER THAN 16" RUN TO BE SHOWN ON THE PLANS.
3. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
4. FITTING TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	BLOCKING FOR TEE		615
APPROVED: MCC			



NOTES:
1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED THRUST BLOCKING.
2. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT THROUGHOUT.
3. FITTINGS TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	WATER MAIN VERTICAL OFFSET		612
APPROVED: MCC			

41 OF 42 SHEET C-703

JOSHUA C. FERGUSON LICENSED PROFESSIONAL ENGINEER 117692 STATE OF TEXAS

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

DETAILS

MIDLAND Engineering Services

Drawn By	P. KINGSTON					
Checked By	J. FERGUSON					
Approved By	J. FERGUSON					
Vert. Scale	N / A					
Horz. Scale	N / A					
Job No.	U19-03					
Date	OCTOBER 2020	Rev. No.	Date	By	Description	

811 Know what's below. Call before you dig.

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-603 Details.dwg Oct 05, 2020 - 11:43am pkingston

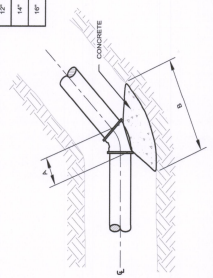
BLOCKING FOR HORIZONTAL BENDS

DESIGN 150 PSI LINE PRESSURE
SOIL BEARING CAP. 2KSF

DIA. OF PIPE	ANGLE OF BEND	11 1/4°			22 1/2°			45°			90°		
		A	B	'C'	A	B	'C'	A	B	'C'	A	B	'C'
4"		0'-4"	1'-0"	1'-0"	0'-5"	1'-0"	1'-0"	0'-8"	1'-0"	1'-0"	1'-0"	1'-3"	1'-3"
6"		0'-7"	1'-0"	1'-0"	0'-7"	1'-0"	1'-0"	0'-8"	1'-0"	1'-0"	0'-11"	1'-3"	1'-11"
8"		0'-8"	0'-10"	1'-2"	0'-8"	1'-4"	1'-4"	0'-10"	1'-4"	1'-5"	1'-5"	1'-6"	2'-6"
10"		0'-10"	0'-10"	1'-0"	0'-11"	1'-6"	1'-6"	1'-1"	1'-6"	1'-10"	1'-10"	2'-4"	3'-2"
12"		1'-0"	1'-0"	1'-3"	1'-1"	2'-0"	2'-0"	1'-3"	2'-0"	2'-4"	2'-10"	2'-10"	3'-10"
14"		0'-11"	1'-0"	1'-11"	1'-1"	2'-4"	2'-4"	1'-3"	2'-4"	2'-8"	3'-3"	3'-3"	
16"		1'-1"	1'-0"	1'-8"	1'-2"	2'-8"	2'-8"	1'-5"	2'-8"	3'-0"	3'-9"	3'-9"	

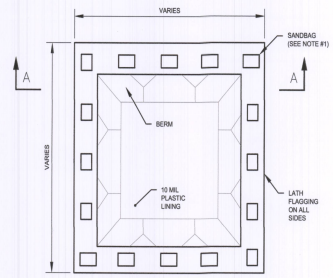
NOTES:
1. FORM ALL CONCRETE THRUST BLOCKING. DO NOT PLACE UN-FORMED BLOCKING AGAINST EARTH.
2. ALL THRUST BLOCKING TO BE CLASS "A" CONCRETE, 3000 PSI, AND TO BE PLACED AGAINST UNDISTURBED EARTH. USE FIBER REINFORCEMENT IN CONCRETE.
3. FITTING TO BE POLY WRAPPED BEFORE BLOCKING IS PLACED.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

'C' - VERTICAL DEPTH OF CONCRETE BEARING ON UNDISTURBED EARTH

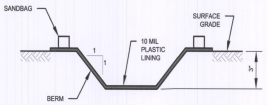


DRAWN:	DPM	CHECKED:	JCF	APPROVED:	MCC
EFFECTIVE DATE:	10/01/2018	SCALE:	NTS	DETAIL:	616

MIDLAND Engineering Services



DEPRESSED WASHOUT

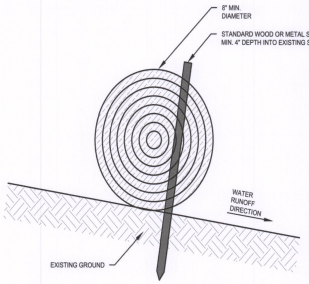


SECTION 'A-A'

NOTES:
1. SECURE WASHOUT STRUCTURES AND LININGS WITH SANDBAGS OR TWO SECURELY FASTENED STAKES AROUND ENTIRE WASHOUT PERIMETER.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN:	DPM	CHECKED:	JCF	APPROVED:	MCC
EFFECTIVE DATE:	10/01/2018	SCALE:	NTS	DETAIL:	704

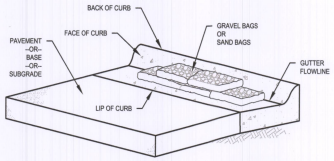
MIDLAND Engineering Services — CONCRETE WASHOUT OPTION 1



NOTES:
1. THIS DETAIL IS TO USED FOR SHEET FLOW CONDITIONS ONLY. DO NOT USE FILTER SOCK FOR POINT FLOW OR CONCENTRATED FLOW CONDITIONS.
2. DO NOT USE FILTER SOCK FOR SHEET FLOW WATERSHEDS LARGER THAN ONE (1) ACRE.
3. USE POLYPROPYLENE NETTING, BURLAP, OR JUTE FABRIC TO CONSTRUCT THE FILTER SOCK.
4. FILL FILTER SOCK WITH STRAW, HAY, COCONUT FIBER, OR COMPOSITE MATERIAL.
5. PLACE STAKING EVERY THREE (3) TO FOUR (4) FEET AT A MINIMUM.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN:	DPM	CHECKED:	JCF	APPROVED:	MCC
EFFECTIVE DATE:	10/01/2018	SCALE:	NTS	DETAIL:	707

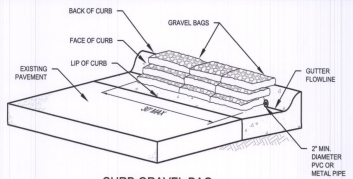
MIDLAND Engineering Services — FILTER SOCK



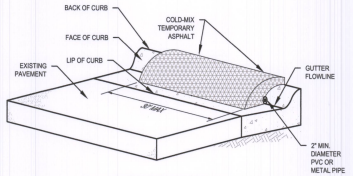
NOTES:
1. FILL BAGS TO 60% CAPACITY WITH EITHER CLEAN GRAVEL OR CLEAN SAND.
2. GRAVEL TO BE NO LESS THAN 1" DIAMETER OR GREATER THAN 2" DIAMETER.
3. PLACE BAGS WITH BAG OPENINGS SECURED AND FACE UP, AND SO THAT EACH BAG IS FLAT AND HAS THE GREATEST POSSIBLE SURFACE AREA CONTACT WITH THE CURB.
4. PLACE BAGS AGAINST THE FACE-OF-CURB AND DO NOT PLACE BAGS BEYOND THE LIP-OF-CURB.
5. DO NOT BLOCK ADA RAMPS OR WALKWAYS WITH BAGS.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN:	DPM	CHECKED:	JCF	APPROVED:	MCC
EFFECTIVE DATE:	10/01/2018	SCALE:	NTS	DETAIL:	712

MIDLAND Engineering Services — CURB GRAVEL OR SAND BAGS



CURB GRAVEL BAG



CURB COLD-MIX TEMPORARY ASPHALT

NOTES:
1. UTILIZE THIS DETAIL WHEN ACCESSING PROJECT SITE OVER EXISTING CURB ONLY IF NO USABLE CURB OPENING EXISTS.
2. FILL BAGS TO 60% CAPACITY WITH CLEAN GRAVEL NO LESS THAN 1" DIAMETER AND NO GREATER THAN 2" DIAMETER.
3. PLACE BAGS WITH BAG OPENINGS SECURED AND FACE UP, AND SO THAT EACH BAG IS FLAT AND HAS THE GREATEST POSSIBLE SURFACE AREA CONTACT WITH THE CURB.
4. PLACE BAGS AGAINST THE PIPE AND FACE-OF-CURB . DO NOT PLACE BAGS BEYOND THE LIP-OF-CURB.
5. DO NOT BLOCK ADA RAMPS OR WALKWAYS WITH BAGS.
6. DO NOT PLACE TEMPORARY ASPHALT BEYOND LIP-OF-CURB.
7. PIPE MUST EXTEND ACROSS FULL LENGTH OF TEMPORARY CURB PROTECTION AND BE COMPLETELY EXPOSED AT BOTH ENDS.
8. MINIMUM 4" THICK LAYER OF GRAVEL OR ASPHALT REQUIRED OVER ALL PARTS OF AFFECTED CURB.
9. MAXIMUM WIDTH OF CURB PROTECTION IS 30'.
10. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
11. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN:	DPM	CHECKED:	JCF	APPROVED:	MCC
EFFECTIVE DATE:	10/01/2018	SCALE:	NTS	DETAIL:	713

MIDLAND Engineering Services — TEMPORARY CURB PROTECTION

Know what's below. Call before you dig.

Drawn By	P. KINGSTON
Checked By	J. FERGUSON
Approved By	J. FERGUSON
Vert. Scale	N / A
Horz. Scale	N / A
Job No.	U19-03
Date	OCTOBER 2020

Rev. No.	Date	By	Description

MIDLAND Engineering Services

NEW YORK AVENUE & BENTON STREET
WATER IMPROVEMENTS

DETAILS

STATE OF TEXAS — JOSHUA C. FERGUSON — 117692 — LICENSED PROFESSIONAL ENGINEER — 12/31/2020

SHEET C-704

42 OF 42

File: P:\Engineering Services\Engineering Projects\2019\U19-04 New York WL\03 DWGS\3.1 DWG\WL Plans\C-604 Details.dwg Oct 05, 2020 - 11:43am pkingston

PACKET 8.945 December 15, 2020

City Council Meeting

Item Number: 9

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION AWARDING A CONTRACT TO GARNEY COMPANIES, INC., FOR THE MIDLAND NE WATER SYSTEMS IMPROVEMENTS - PUMP STATION, TRANSMISSION AND DISTRIBUTION (PACKET A) FOR A COST OF $22,063,309.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS (GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the execution of a contract for the Midland NE Water Systems Improvements-Pump Station, Transmission and Distribution Pipelines (Packet A) for the Utilities Department.

Recommended City Council Action:

Approve

Fiscal Impact:

$22,063,309 is appropriated from Funds 375 and 394 into a project in Fund 370.

Discussion:

Motion 127-2020 approved plans and specifications and authorized advertisement for bids for the Midland NE Water Systems Improvements-Pump Station, Transmission and Distribution Pipelines (Packet A). Requests for proposals were issued to one hundred seventy-eight (178) vendors and we received three (3) bids. Staff recommends awarding the contract to Garney Construction. Please see the attached memo from Carl Craigo, Utilities Director, for additional information.

Therefore, please consider a resolution awarding a contract to Garney Construction of Midland, Texas for the Midland NE Water Systems Improvements-Pump Station, Transmission and

Distribution Pipelines (Packet A) in the amount of $22,063,309.00.

Morris William Jr.

City Manager's Office

INTEROFFICE MEMORANDUM

TO: Erika Martinez, Purchasing Manager

FROM: Carl Craigo, PE, Utilities Director

SUBJECT: Consider a resolution awarding a construction contract North East pump station and water transmission/distribution mains and appropriating CO funds.

DATE: December 15, 2020

Enprotec Hibbs and Todd under the Utilities on call program prepared plans and specification for the North East pump station, transmission main and distribution lines. The project is to construct a pump station at the water purification plant and a transmission line to the new NE elevated tower with a distribution line from the elevated tower and connected to water mains at Occidental and Fairgrounds. This project along with the elevated tower project will increase water pressures in the City of Midland and allow for 10,000 more connections into the system.

Council, under motion 127-2020, approved the prepared plans and specifications to send for proposal.

Three proposals were received on November 18, 2020. The scoring committee met on November 25, 2020 to evaluate the proposals and based on the scoring criteria selected Garney Companies, Inc. The contract price for the project is $22,063,309 and is expected to be completed in 459 days. Funds will be allocated from previous CO issuance.

The contract price has changed from the bid tab price based on needed design changes on Occidental Pkwy.

RESOLUTION NO. _____

RESOLUTION AWARDING A CONTRACT TO GARNEY COMPANIES, INC., FOR THE MIDLAND NE WATER SYSTEMS IMPROVEMENTS - PUMP STATION, TRANSMISSION AND DISTRIBUTION (PACKET A) FOR A COST OF $22,063,309.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS

WHEREAS, Motion 127-2020 authorized the advertisement for bids for the Midland NE Water Systems Improvements - Pump Station, Transmission and Distribution (Packet A); and

WHEREAS, the bids were opened on November 18, 2020, with the lowest and most responsible bid being submitted by submitted by Garney Companies, Inc., as shown on the bid documents attached hereto as Exhibit A and incorporated herein for all purposes; and

WHEREAS, the City Council finds the amount proposed by Garney Companies, Inc., to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to award a contract to Garney Companies, Inc., for the Midland NE Water Systems Improvements - Pump Station, Transmission and Distribution (Packet A);

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, a contract with Garney Companies, Inc., for the Midland NE Water Systems Improvements - Pump Station, Transmission and Distribution (Packet A). Said contract to be kept on file in the office of the City Secretary, referenced by the date and number of this Resolution.

SECTION TWO. $22,063,309.00 is hereby appropriated from Funds 375 and 394 into a project in Fund 370.

SECTION THREE. That the City Comptroller is hereby authorized and directed to pay Garney Companies, Inc., pursuant to the terms of said contract from available project funds upon receipt of proper invoices or statements approved by the City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

Enprotec / Hibbs & Todd, Inc., 402 Cedar Street, Abilene, Texas 79601

TABULATION OF BIDS FOR: Northeast Water System Improvements Bid Package A Part 1 & Part 2, City of Midland, Texas

BIDS RECEIVED: 11/18/2020

PE Firm Registration No. 1151

PACKAGE A, PART 1 - GENERAL

Item No.	Quantity	Unit	Item	Garney Companies, Inc. Unit Cost	Garney Companies, Inc. Amount	PLW Waterworks Unit Cost	PLW Waterworks Amount	Resicom, Inc. Unit Cost	Resicom, Inc. Amount
1	1	LS	Mobilization, Bonds & Insurance	$ 250,000.00	$ 250,000.00	$ 300,000.00	$ 300,000.00	$ 215,000.00	$ 215,000.00
2	1	LS	Stormwater Pollution Prevention Plan	$ 34,000.00	$ 34,000.00	$ 3,000.00	$ 3,000.00	$ 25,000.00	$ 25,000.00
3	1	LS	Traffic Control Plan	$ 20,000.00	$ 20,000.00	$ 5,000.00	$ 5,000.00	$ 30,000.00	$ 30,000.00
4	1,100	LF	Trench and Excavation Safety Plan	$ 14.00	$ 15,400.00	$ 1.00	$ 1,100.00	$ 25.00	$ 27,500.00
5	1	LS	Owner's Allowance for SCADA System Integrator Contract	$ 150,000.00	$ 150,000.00	$ 150,000.00	$ 150,000.00	$ 150,000.00	$ 150,000.00
6	1	LS	Owner's Allowance for Work Directed by Owner	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00
			PART 1 - GENERAL SUB-TOTAL		**$ 719,400.00**		**$ 709,100.00**		**$ 697,500.00**

PART 1 - BASE

Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	LS	Transfer Pump Station	$ 5,430,600.00	$ 5,430,600.00	$ 7,490,000.00	$ 7,490,000.00	$ 4,560,000.00	$ 4,560,000.00
			PART 1 - BASE SUB-TOTAL		$ 5,430,600.00		$ 7,490,000.00		$ 4,560,000.00
			PART 1 - GENERAL SUB-TOTAL		$ 719,400.00		$ 709,100.00		$ 697,500.00
			PART 1 - BASE SUB-TOTAL		$ 5,430,600.00		$ 7,490,000.00		$ 4,560,000.00
			PART 1 - GENERAL + BASE TOTAL		**$ 6,150,000.00**		**$ 8,199,100.00**		**$ 5,257,500.00**

PACKAGE B, PART 2 - GENERAL

Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	LS	Mobilization, Bonds & Insurance	$ 225,000.00	$ 225,000.00	$ 500,000.00	$ 500,000.00	$ 415,000.00	$ 415,000.00
2	1	LS	Stormwater Pollution Prevention Plan	$ 17,100.00	$ 17,100.00	$ 30,000.00	$ 30,000.00	$ 125,000.00	$ 125,000.00
3	1	LS	Traffic Control Plan	$ 50,540.00	$ 50,540.00	$ 80,000.00	$ 80,000.00	$ 325,000.00	$ 325,000.00
4	66,520	LF	Trench and Excavation Safety Plan	$ 1.00	$ 66,520.00	$ 5.00	$ 332,600.00	$ 2.00	$ 133,040.00
5	66,520	LF	Pipeline Easement/ROW Preparation	$ 4.00	$ 266,080.00	$ 5.00	$ 332,600.00	$ 3.00	$ 199,560.00
6	66,520	LF	Pipeline System Commissioning	$ 2.75	$ 182,930.00	$ 2.00	$ 133,040.00	$ 3.00	$ 199,560.00
7	9,000	LF	Asphalt Trench Pavement Replacement (North Midland Drive)	$ 86.00	$ 774,000.00	$ 75.00	$ 675,000.00	$ 35.00	$ 315,000.00
8	5,300	LF	Asphalt Trench Pavement Replacement (Occidental Parkway)	$ 45.00	$ 238,500.00	$ 75.00	$ 397,500.00	$ 35.00	$ 185,500.00
9	19,000	SY	Full-Width Asphalt Pavement Replacement (Occidental Parkway)	$ 18.00	$ 342,000.00	$ 22.00	$ 418,000.00	$ 54.00	$ 1,026,000.00
10	66,460	LF	Pipeline Easement/ROW Cleanup & Restoration	$ 4.25	$ 282,455.00	$ 5.00	$ 332,300.00	$ 5.00	$ 332,300.00
11	6	EA	30" Gate Valve Assembly	$ 50,000.00	$ 300,000.00	$ 50,000.00	$ 300,000.00	$ 80,000.00	$ 480,000.00
12	14	EA	24" Gate Valve Assembly	$ 32,000.00	$ 448,000.00	$ 30,000.00	$ 420,000.00	$ 72,000.00	$ 1,008,000.00
13	6	EA	8" Blow Off Valve Assembly	$ 16,000.00	$ 96,000.00	$ 15,000.00	$ 90,000.00	$ 7,500.00	$ 45,000.00
14	33	EA	3" Combination Air Valve Assembly	$ 24,000.00	$ 792,000.00	$ 20,000.00	$ 660,000.00	$ 27,000.00	$ 891,000.00
15	1	LS	Owner's Allowance for Work Directed by Owner	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00
			PART 2 - GENERAL SUB-TOTAL		**$ 4,331,125.00**		**$ 4,951,040.00**		**$ 5,929,960.00**

PART 2 - BASE

Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	16,721	LF	30" DR-21 C-900 PVC Water Main Pipe by Open Cut	$ 250.00	$ 4,180,250.00	$ 220.00	$ 3,678,620.00	$ 215.00	$ 3,595,015.00
2	797	LF	30" DR-21 C-900 PVC Water Main Pipe in 48" Steel Casing by Open Cut	$ 550.00	$ 438,350.00	$ 490.00	$ 390,530.00	$ 1,200.00	$ 956,400.00
3	72	LF	30" DR-21 C-900 PVC Water Main Pipe in 48" Steel Casing by Jack and Bore	$ 1,212.00	$ 87,264.00	$ 2,400.00	$ 172,800.00	$ 1,700.00	$ 122,400.00
4	47,760	LF	24" DR-21 C-900 PVC Water Main Pipe by Open Cut	$ 112.00	$ 5,349,120.00	$ 125.00	$ 5,970,000.00	$ 140.00	$ 6,686,400.00
5	740	LF	24" DR-21 C-900 PVC Water Main Pipe in 36" Steel Casing by Open Cut	$ 500.00	$ 370,000.00	$ 280.00	$ 207,200.00	$ 1,100.00	$ 814,000.00
6	430	LF	24" DR-21 C-900 PVC Water Main Pipe in 36" Steel Casing by Jack and Bore	$ 635.00	$ 273,050.00	$ 1,000.00	$ 430,000.00	$ 1,500.00	$ 645,000.00
			PART 2 - BASE SUB-TOTAL		**$ 10,698,034.00**		**$ 10,849,150.00**		**$ 12,819,215.00**
			PART 2 - GENERAL SUB-TOTAL		$ 4,331,125.00		$ 4,951,040.00		$ 5,929,960.00
			PART 2 - BASE SUB-TOTAL		$ 10,698,034.00		$ 10,849,150.00		$ 12,819,215.00
			PART 2 - GENERAL + BASE TOTAL		**$ 15,029,159.00**		**$ 15,800,190.00**		**$ 18,749,175.00**

PART 2 - ALTERNATE

Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	16,721	LF	30" DR-21 C900 Fusible PVC Water Main Pipe by Open Cut	$ 298.00	$ 4,982,858.00	$ 300.00	$ 5,016,300.00	$ 246.00	$ 4,113,366.00
2	797	LF	30" DR-21 C-900 Fusible PVC Water Main Pipe in 36" Steel Casing by Open Cut	$ 550.00	$ 438,350.00	$ 500.00	$ 398,500.00	$ 1,400.00	$ 1,115,800.00
3	72	LF	30" DR-21 C-900 Fusible PVC Water Main Pipe in 36" Steel Casing by Jack and Bore	$ 1,175.00	$ 84,600.00	$ 950.00	$ 68,400.00	$ 1,895.00	$ 136,440.00
4	47,760	LF	24" DR-21 C-900 Fusible PVC Water Main Pipe by Open Cut	$ 168.00	$ 8,023,680.00	$ 180.00	$ 8,596,800.00	$ 182.00	$ 8,692,320.00
5	740	LF	24" DR-21 C-900 Fusible PVC Water Main Pipe in 30" Steel Casing by Open Cut	$ 500.00	$ 370,000.00	$ 950.00	$ 703,000.00	$ 1,300.00	$ 962,000.00
6	430	LF	24" DR-21 C-900 Fusible PVC Water Main Pipe in 30" Steel Casing by Jack and Bore	$ 632.00	$ 271,760.00	$ 950.00	$ 408,500.00	$ 1,700.00	$ 731,000.00
			PART 2 - ALTERNATE SUB-TOTAL		**$ 14,171,248.00**		**$ 15,191,500.00**		**$ 15,750,926.00**
			PART 2 - GENERAL SUB-TOTAL		**$ 4,331,125.00**		**$ 4,951,040.00**		**$ 5,929,960.00**
			PART 2 - ALTERNATE SUB-TOTAL		**$ 14,171,248.00**		**$ 15,191,500.00**		**$ 15,750,926.00**
			PART 2 - GENERAL + ALTERANTE TOTAL		**$ 18,502,373.00**		**$ 20,142,540.00**		**$ 21,680,886.00**

BASE TOTAL

			PART 1 - GENERAL + BASE TOTAL		**$ 6,150,000.00**		**$ 8,199,100.00**		**$ 5,257,500.00**
			PART 2 - GENERAL + BASE TOTAL		**$ 15,029,159.00**		**$ 15,800,190.00**		**$ 18,749,175.00**
			TOTAL		**$ 21,179,159.00**		**$ 23,999,290.00**		**$ 24,006,675.00**

ALTERNATE TOTAL

			PART 1 - GENERAL + BASE TOTAL		**$ 6,150,000.00**		**$ 8,199,100.00**		**$ 5,257,500.00**
			PART 2 - GENERAL + ALTERNATE TOTAL		**$ 18,502,373.00**		**$ 20,142,540.00**		**$ 21,680,886.00**
			TOTAL		**$ 24,652,373.00**		**$ 28,341,640.00**		**$ 26,938,386.00**

PACKAGE A, PART 1 & 2 - PROPOSAL TIME			
DESCRIPTION	**DAYS**	**DAYS**	**DAYS**
Total number of calendar days to substantially complete the Work	459	469	480

Enprotec / Hibbs & Todd, Inc., 402 Cedar Street, Abilene, Texas 79601

TABULATION OF BIDS FOR: Northeast Water System Improvements Bid Package A Part 1 & Part 2, City of Midland, Texas

BIDS RECEIVED: 11/18/2020

PE Firm Registration No. 1151

PACKAGE A, PART 1 - GENERAL

Item No.	Quantity	Unit	Item	Garney Companies, Inc. Unit Cost	Amount
1	1	LS	Mobilization, Bonds & Insurance	$ 250,000.00	$ 250,000.00
2	1	LS	Stormwater Pollution Prevention Plan	$ 34,000.00	$ 34,000.00
3	1	LS	Traffic Control Plan	$ 20,000.00	$ 20,000.00
4	1,100	LF	Trench and Excavation Safety Plan	$ 14.00	$ 15,400.00
5	1	LS	Owner's Allowance for SCADA System Integrator Contract	$ 150,000.00	$ 150,000.00
6	1	LS	Owner's Allowance for Work Directed by Owner	$ 250,000.00	$ 250,000.00
			PART 1 - GENERAL SUB-TOTAL		**$ 719,400.00**

PART 1 - BASE

Item No.	Quantity	Unit	Item	Unit Cost	Amount
1	1	LS	Transfer Pump Station	$ 5,430,600.00	$ 5,430,600.00
			PART 1 - BASE SUB-TOTAL		$ 5,430,600.00
			PART 1 - GENERAL SUB-TOTAL		$ 719,400.00
			PART 1 - BASE SUB-TOTAL		$ 5,430,600.00
			PART 1 - GENERAL + BASE TOTAL		**$ 6,150,000.00**

PACKAGE B, PART 2 - GENERAL

Item No.	Quantity	Unit	Item	Unit Cost	Amount
1	1	LS	Mobilization, Bonds & Insurance	$ 225,000.00	$ 225,000.00
2	1	LS	Stormwater Pollution Prevention Plan	$ 17,100.00	$ 17,100.00
3	1	LS	Traffic Control Plan	$ 50,540.00	$ 50,540.00
4	66,520	LF	Trench and Excavation Safety Plan	$ 1.00	$ 66,520.00
5	66,520	LF	Pipeline Easement/ROW Preparation	$ 4.00	$ 266,080.00
6	66,520	LF	Pipeline System Commissioning	$ 2.75	$ 182,930.00
7	9,000	LF	Asphalt Trench Pavement Replacement (North Midland Drive)	$ 79.00	$ 711,000.00
8	5,300	LF	Asphalt Trench Pavement Replacement (Occidental Parkway)	$ 45.00	$ 238,500.00
9	19,000	SY	Full-Width Asphalt Pavement Replacement (Occidental Parkway)	$ 57.25	$ 1,087,750.00
9B	5,300	LF	Concrete Curb and Gutter (Occidental Parkway)	$ 38.00	$ 201,400.00
10	66,460	LF	Pipeline Easement/ROW Cleanup & Restoration	$ 4.25	$ 282,455.00
11	6	EA	30" Gate Valve Assembly	$ 50,000.00	$ 300,000.00
12	14	EA	24" Gate Valve Assembly	$ 32,000.00	$ 448,000.00
13	6	EA	8" Blow Off Valve Assembly	$ 16,000.00	$ 96,000.00
14	33	EA	3" Combination Air Valve Assembly	$ 24,000.00	$ 792,000.00
15	1	LS	Owner's Allowance for Work Directed by Owner	$ 250,000.00	$ 250,000.00
			PART 2 - GENERAL SUB-TOTAL		**$ 5,215,275.00**

PART 2 - BASE

Item No.	Quantity	Unit	Item	Unit Cost	Amount
1	16,721	LF	30" DR-21 C-900 PVC Water Main Pipe by Open Cut	$ 250.00	$ 4,180,250.00
2	797	LF	30" DR-21 C-900 PVC Water Main Pipe in 48" Steel Casing by Open Cut	$ 550.00	$ 438,350.00
3	72	LF	30" DR-21 C-900 PVC Water Main Pipe in 48" Steel Casing by Jack and Bore	$ 1,212.00	$ 87,264.00
4	47,760	LF	24" DR-21 C-900 PVC Water Main Pipe by Open Cut	$ 112.00	$ 5,349,120.00
5	740	LF	24" DR-21 C-900 PVC Water Main Pipe in 36" Steel Casing by Open Cut	$ 500.00	$ 370,000.00
6	430	LF	24" DR-21 C-900 PVC Water Main Pipe in 36" Steel Casing by Jack and Bore	$ 635.00	$ 273,050.00
			PART 2 - BASE SUB-TOTAL		**$ 10,698,034.00**
			PART 2 - GENERAL SUB-TOTAL		$ 5,215,275.00
			PART 2 - BASE SUB-TOTAL		$ 10,698,034.00
			PART 2 - GENERAL + BASE TOTAL		**$ 15,913,309.00**

BASE TOTAL

PART 1 - GENERAL + BASE TOTAL	**$ 6,150,000.00**
PART 2 - GENERAL + BASE TOTAL	**$ 15,913,309.00**
TOTAL	**$ 22,063,309.00**

PACKAGE A, PART 1 & 2 - PROPOSAL TIME	
DESCRIPTION	**DAYS**
Total number of calendar days to substantially complete the Work	459

Enprotec / Hibbs & Todd, Inc., 402 Cedar Street, Abilene, Texas 79601

TABULATION OF BIDS FOR: Northeast Water System Improvements Bid Package A Part 1 & Part 2, City of Midland, Texas

BIDS RECEIVED: 11/18/2020

PE Firm Registration No. 1151

PACKAGE A, PART 1 - GENERAL

Item No.	Quantity	Unit	Item	Garney Companies, Inc. Unit Cost	Garney Companies, Inc. Amount	PLW Waterworks Unit Cost	PLW Waterworks Amount	Resicom, Inc. Unit Cost	Resicom, Inc. Amount
1	1	LS	Mobilization, Bonds & Insurance	$ 250,000.00	$ 250,000.00	$ 300,000.00	$ 300,000.00	$ 215,000.00	$ 215,000.00
2	1	LS	Stormwater Pollution Prevention Plan	$ 34,000.00	$ 34,000.00	$ 3,000.00	$ 3,000.00	$ 25,000.00	$ 25,000.00
3	1	LS	Traffic Control Plan	$ 20,000.00	$ 20,000.00	$ 5,000.00	$ 5,000.00	$ 30,000.00	$ 30,000.00
4	1,100	LF	Trench and Excavation Safety Plan	$ 14.00	$ 15,400.00	$ 1.00	$ 1,100.00	$ 25.00	$ 27,500.00
5	1	LS	Owner's Allowance for SCADA System Integrator Contract	$ 150,000.00	$ 150,000.00	$ 150,000.00	$ 150,000.00	$ 150,000.00	$ 150,000.00
6	1	LS	Owner's Allowance for Work Directed by Owner	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00
			PART 1 - GENERAL SUB-TOTAL		**$ 719,400.00**		**$ 709,100.00**		**$ 697,500.00**

PART 1 - BASE

Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	LS	Transfer Pump Station	$ 5,430,600.00	$ 5,430,600.00	$ 7,490,000.00	$ 7,490,000.00	$ 4,560,000.00	$ 4,560,000.00
			PART 1 - BASE SUB-TOTAL		$ 5,430,600.00		$ 7,490,000.00		$ 4,560,000.00
			PART 1 - GENERAL SUB-TOTAL		$ 719,400.00		$ 709,100.00		$ 697,500.00
			PART 1 - BASE SUB-TOTAL		$ 5,430,600.00		$ 7,490,000.00		$ 4,560,000.00
			PART 1 - GENERAL + BASE TOTAL		**$ 6,150,000.00**		**$ 8,199,100.00**		**$ 5,257,500.00**

PACKAGE B, PART 2 - GENERAL

Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	LS	Mobilization, Bonds & Insurance	$ 225,000.00	$ 225,000.00	$ 500,000.00	$ 500,000.00	$ 415,000.00	$ 415,000.00
2	1	LS	Stormwater Pollution Prevention Plan	$ 17,100.00	$ 17,100.00	$ 30,000.00	$ 30,000.00	$ 125,000.00	$ 125,000.00
3	1	LS	Traffic Control Plan	$ 50,540.00	$ 50,540.00	$ 80,000.00	$ 80,000.00	$ 325,000.00	$ 325,000.00
4	66,520	LF	Trench and Excavation Safety Plan	$ 1.00	$ 66,520.00	$ 5.00	$ 332,600.00	$ 2.00	$ 133,040.00
5	66,520	LF	Pipeline Easement/ROW Preparation	$ 4.00	$ 266,080.00	$ 5.00	$ 332,600.00	$ 3.00	$ 199,560.00
6	66,520	LF	Pipeline System Commissioning	$ 2.75	$ 182,930.00	$ 2.00	$ 133,040.00	$ 3.00	$ 199,560.00
7	9,000	LF	Asphalt Trench Pavement Replacement (North Midland Drive)	$ 86.00	$ 774,000.00	$ 75.00	$ 675,000.00	$ 35.00	$ 315,000.00
8	5,300	LF	Asphalt Trench Pavement Replacement (Occidental Parkway)	$ 45.00	$ 238,500.00	$ 75.00	$ 397,500.00	$ 35.00	$ 185,500.00
9	19,000	SY	Full-Width Asphalt Pavement Replacement (Occidental Parkway)	$ 18.00	$ 342,000.00	$ 22.00	$ 418,000.00	$ 54.00	$ 1,026,000.00
10	66,460	LF	Pipeline Easement/ROW Cleanup & Restoration	$ 4.25	$ 282,455.00	$ 5.00	$ 332,300.00	$ 5.00	$ 332,300.00
11	6	EA	30" Gate Valve Assembly	$ 50,000.00	$ 300,000.00	$ 50,000.00	$ 300,000.00	$ 80,000.00	$ 480,000.00
12	14	EA	24" Gate Valve Assembly	$ 32,000.00	$ 448,000.00	$ 30,000.00	$ 420,000.00	$ 72,000.00	$ 1,008,000.00
13	6	EA	8" Blow Off Valve Assembly	$ 16,000.00	$ 96,000.00	$ 15,000.00	$ 90,000.00	$ 7,500.00	$ 45,000.00
14	33	EA	3" Combination Air Valve Assembly	$ 24,000.00	$ 792,000.00	$ 20,000.00	$ 660,000.00	$ 27,000.00	$ 891,000.00
15	1	LS	Owner's Allowance for Work Directed by Owner	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00
			PART 2 - GENERAL SUB-TOTAL		**$ 4,331,125.00**		**$ 4,951,040.00**		**$ 5,929,960.00**

PART 2 - BASE

Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	16,721	LF	30" DR-21 C-900 PVC Water Main Pipe by Open Cut	$ 250.00	$ 4,180,250.00	$ 220.00	$ 3,678,620.00	$ 215.00	$ 3,595,015.00
2	797	LF	30" DR-21 C-900 PVC Water Main Pipe in 48" Steel Casing by Open Cut	$ 550.00	$ 438,350.00	$ 490.00	$ 390,530.00	$ 1,200.00	$ 956,400.00
3	72	LF	30" DR-21 C-900 PVC Water Main Pipe in 48" Steel Casing by Jack and Bore	$ 1,212.00	$ 87,264.00	$ 2,400.00	$ 172,800.00	$ 1,700.00	$ 122,400.00
4	47,760	LF	24" DR-21 C-900 PVC Water Main Pipe by Open Cut	$ 112.00	$ 5,349,120.00	$ 125.00	$ 5,970,000.00	$ 140.00	$ 6,686,400.00
5	740	LF	24" DR-21 C-900 PVC Water Main Pipe in 36" Steel Casing by Open Cut	$ 500.00	$ 370,000.00	$ 280.00	$ 207,200.00	$ 1,100.00	$ 814,000.00
6	430	LF	24" DR-21 C-900 PVC Water Main Pipe in 36" Steel Casing by Jack and Bore	$ 635.00	$ 273,050.00	$ 1,000.00	$ 430,000.00	$ 1,500.00	$ 645,000.00
			PART 2 - BASE SUB-TOTAL		**$ 10,698,034.00**		**$ 10,849,150.00**		**$ 12,819,215.00**
			PART 2 - GENERAL SUB-TOTAL		$ 4,331,125.00		$ 4,951,040.00		$ 5,929,960.00
			PART 2 - BASE SUB-TOTAL		$ 10,698,034.00		$ 10,849,150.00		$ 12,819,215.00
			PART 2 - GENERAL + BASE TOTAL		**$ 15,029,159.00**		**$ 15,800,190.00**		**$ 18,749,175.00**

PART 2 - ALTERNATE

Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	16,721	LF	30" DR-21 C900 Fusible PVC Water Main Pipe by Open Cut	$ 298.00	$ 4,982,858.00	$ 300.00	$ 5,016,300.00	$ 246.00	$ 4,113,366.00
2	797	LF	30" DR-21 C-900 Fusible PVC Water Main Pipe in 36" Steel Casing by Open Cut	$ 550.00	$ 438,350.00	$ 500.00	$ 398,500.00	$ 1,400.00	$ 1,115,800.00
3	72	LF	30" DR-21 C-900 Fusible PVC Water Main Pipe in 36" Steel Casing by Jack and Bore	$ 1,175.00	$ 84,600.00	$ 950.00	$ 68,400.00	$ 1,895.00	$ 136,440.00
4	47,760	LF	24" DR-21 C-900 Fusible PVC Water Main Pipe by Open Cut	$ 168.00	$ 8,023,680.00	$ 180.00	$ 8,596,800.00	$ 182.00	$ 8,692,320.00
5	740	LF	24" DR-21 C-900 Fusible PVC Water Main Pipe in 30" Steel Casing by Open Cut	$ 500.00	$ 370,000.00	$ 950.00	$ 703,000.00	$ 1,300.00	$ 962,000.00
6	430	LF	24" DR-21 C-900 Fusible PVC Water Main Pipe in 30" Steel Casing by Jack and Bore	$ 632.00	$ 271,760.00	$ 950.00	$ 408,500.00	$ 1,700.00	$ 731,000.00
			PART 2 - ALTERNATE SUB-TOTAL		**$ 14,171,248.00**		**$ 15,191,500.00**		**$ 15,750,926.00**
			PART 2 - GENERAL SUB-TOTAL		**$ 4,331,125.00**		**$ 4,951,040.00**		**$ 5,929,960.00**
			PART 2 - ALTERNATE SUB-TOTAL		**$ 14,171,248.00**		**$ 15,191,500.00**		**$ 15,750,926.00**
			PART 2 - GENERAL + ALTERANTE TOTAL		**$ 18,502,373.00**		**$ 20,142,540.00**		**$ 21,680,886.00**

BASE TOTAL

			PART 1 - GENERAL + BASE TOTAL		**$ 6,150,000.00**		**$ 8,199,100.00**		**$ 5,257,500.00**
			PART 2 - GENERAL + BASE TOTAL		**$ 15,029,159.00**		**$ 15,800,190.00**		**$ 18,749,175.00**
			TOTAL		**$ 21,179,159.00**		**$ 23,999,290.00**		**$ 24,006,675.00**

ALTERNATE TOTAL

			PART 1 - GENERAL + BASE TOTAL		**$ 6,150,000.00**		**$ 8,199,100.00**		**$ 5,257,500.00**
			PART 2 - GENERAL + ALTERNATE TOTAL		**$ 18,502,373.00**		**$ 20,142,540.00**		**$ 21,680,886.00**
			TOTAL		**$ 24,652,373.00**		**$ 28,341,640.00**		**$ 26,938,386.00**

PACKAGE A, PART 1 & 2 - PROPOSAL TIME			
DESCRIPTION	**DAYS**	**DAYS**	**DAYS**
Total number of calendar days to substantially complete the Work	459	469	480

Proposal Review Committee Summary Scoring Sheet

City of Midland
Northeast Water System Improvements
Package A Part 1 & 2 - Pump Statation and Pipeline
Proposal Date : November 18, 2020 - 2:00 PM
Owner Bid No.: 18003230
eHT Project No.: 7227

		Respondants					
Contractor Name:		Garney		PLW		Resicom	
Evaluation Criteria	**Weighting**	**Response**	**Score**	**Response**	**Score**	**Response**	**Score**
Proposal Pricing - BaseTotal	40%	$21,179,159	40.00	$23,999,290	34.67	$24,006,675	34.66
Proposal Pricing - AltTotal	-	$24,652,373		$28,341,640		$26,938,386	
Qualifications	30%	-	30	-	30	-	25
Proposal Time (Max 480 Days)	20%	459	20.00	469	19.56	480	19.08
Safety (EMR 3 Yr Avg)	10%	0.53	10.00	0.65	7.74	0.97	1.70
Total	100%	-	100.00	-	91.97	-	80.44
	Ranking:	1		2		3	
Acknowledgments							
Bid Bond	Y/N	Y		Y		Y	
Addendum #1	Y/N	Y		Y		Y	
Addendum #2	Y/N	Y		Y		Y	

As a member of the Proposal Evaluation Committee I acknowledge that this proposal evaluation was completed in conformance with the RFP requirements.

Committee Member Name	Position	Signature
Cory D. Moose	Asst. Util Director	
Bobby W Osc Lechausse	Construction Mgr	
Raymond	Superintendent	

CITY OF
MIDLAND, TEXAS

CONFORMED SET

PROJECT MANUAL

FOR

NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A

CONTRACT A, PART 1 – NEW TRANSFER PUMP STATION
CONTRACT A, PART 2 – NEW TRANSMISSION AND DISTRIBUTION PIPELINES

NOVEMBER 2020

Enprotec / Hibbs & Todd
402 Cedar, Abilene, Texas 79601
Phone: (325) 698-5560 Fax: (325) 690-3240
Website: e-ht.com
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A

SEAL SHEET
(1 of 3)

Design Professional Responsibility:

Bid Documents, Contract Documents and General Requirements.

Contract A, Part 1:

Civil: Divisions 1, 2 & 9.

Mechanical: Specification 05501, Divisions 11 & 15.

Contract A, Part 2:

Civil: Divisions 1, 2 & 3.

Mechanical: Division 15.

Design Professional Responsibility:

Contract A, Part 1:

Instrumentation: Division 13.

Electrical: Division 16.

_____

Joseph T. Mangrem, P.E.
Enprotec/ Hibbs & Todd, Inc.
Firm Registration No. 1151

_____

Clois W. Versyp, P.E.
Clois W. Versyp, PLLC
Firm Registration No. F-3792

Enprotec / Hibbs & Todd
402 Cedar, Abilene, Texas 79601
Phone: (325) 698-5560 Fax: (325) 690-3240
Website: e-ht.com
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A

SEAL SHEET
(2 of 3)

Design Professional Responsibility:
Contract A, Part 1:
Structural: Divisions 3 & 5 (except 05501).

_____
Michael Roland Holder, P.E.
Parkhill, Smith & Cooper, Inc.
Firm Registration No. 560

Design Professional Responsibility:
Contract A, Part 1:
HVAC.

_____
Keven Willis, P.E.
Parkhill, Smith & Cooper, Inc.
Firm Registration No. 560

In association with:
PARKHILLSMITH&COOPER

Enprotec / Hibbs & Todd
402 Cedar, Abilene, Texas 79601
Phone: (325) 698-5560 Fax: (325) 690-3240
Website: e-ht.com
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A

SEAL SHEET
(3 of 3)

Design Professional Responsibility:

Contract A, Part 1:

Architectural: Divisions 4, 7, 8 & 10.

Les F. Burke, R.A.
Parkhill, Smith & Cooper, Inc.

In association with:
PARKHILLSMITH&COOPER
PSC

Enprotec / Hibbs & Todd
402 Cedar, Abilene, Texas 79601
Phone: (325) 698-5560 Fax: (325) 690-3240
Website: e-ht.com
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A
CONTRACT A, PART 1 – NEW TRANSFER PUMP STATION
CONTRACT A, PART 2 – NEW TRANSMISSION AND DISTRIBUTION PIPELINES
TABLE OF CONTENTS

DIVISION 0 – BIDDING REQUIREMENTS, CONTRCT FORMS AND CONDITIONS OF THE CONTRACT

00030 Advertisement for Bids
Notice to Bidders
General Conditions of Bidding
00451 Qualifications Statement
Request for Proposals
Standard Purchasing Terms
00480 Non-Collusion Affidavit of Prime Bidder
Debarment/Suspension Certification
Bid Bond
Contract
Exhibit C: Bonding Requirements
Exhibit D: Heavy & Highway Wage Rates
Exhibit D: Building Wage Rates
Performance Bond
Payment Bond
00700 General Conditions of the Construction Contract
Conflict of Interest Reporting Requirements
Conflict of Interest Questionnaire
Consideration of Location of Bidder's Principal Place of Business

NOTE: Forms and documents not identified by a Section Number are Midland-specific, and have been provided by the City of Midland.

CONTRACT A, PART 1
TECHNICAL SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS

01010 Summary of Work
01019 Contract Considerations
01039 Coordination and Meetings
01090 Standard References
01300 Submittals
01400 Quality Control
01500 Construction Facilities and Temporary Controls
01564 Stormwater Pollution Prevention During Construction
01600 Material and Equipment
01650 Starting of Systems
01700 Contract Closeout

DIVISION 2 – SITE WORK

02110 Site Clearing and Grubbing
02210 Grading and Earthwork
02220 Trench and Excavation Safety System
02224 Excavation, Backfilling and Compacting for Structures

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A
CONTRACT A, PART 1 – NEW TRANSFER PUMP STATION
CONTRACT A, PART 2 – NEW TRANSMISSION AND DISTRIBUTION PIPELINES
TABLE OF CONTENTS
continued

DIVISION 2 – SITE WORK-continued
02225 Excavation, Backfilling and Compacting for Utilities
02226 Excavation, Backfilling and Compacting for Pavement
02231 Aggregate Base Course
02510 Asphaltic Concrete Paving
02665 Water Systems
02675 Water System Disinfection
02685 Cleaning of Potable Water Pipes
02723 Precast Concrete Vaults
02725 Access Covers - Hatches
02911 Topsoiling and Finished Grading
02921 Hydro Mulch Seeding

DIVISION 3 – CONCRETE
03300 Cast-in-Place Concrete
03450 Precast Architectural Concrete

DIVISION 4 – MASONRY
04200 Unit Masonry
04815 Glass Unit Masonry

DIVISION 5 – METALS
05120 Structural Steel
05500 Metal Fabrications
05501 Metal Fabrications (Applies to Civil and Mechanical Drawings Only)

DIVISION 6 – NOT USED

DIVISION 7 – THERMAL AND MOISTURE PROTECTION
07190 Water Repellents
07222 Roof Board Insulation
07545 SBS Modified Bitumen Roofing
07620 Sheet Metal Accessories
07710 Roof Specialties
07900 Joint Sealers

DIVISION 8 – DOORS AND WINDOWS
08110 Hollow Metal Doors and Frames
08331 Overhead Coiling Doors
08710 Door Hardware

DIVISION 9 – FINISHES
09800 Painting

DIVISION 10 – SPECIALTIES
10523 Fire Extinguishers

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A
CONTRACT A, PART 1 – NEW TRANSFER PUMP STATION
CONTRACT A, PART 2 – NEW TRANSMISSION AND DISTRIBUTION PIPELINES
TABLE OF CONTENTS
continued

DIVISION 11 – EQUIPMENT
11005 Equipment: Basic Requirements
11296 Surge Anticipator Valves
11297 Pump Control Valves
11311 Vertical Turbine Pumps
11313 Sump Pumps

DIVISION 12 – NOT USED

DIVISION 13 – SPECIAL CONSTRUCTION
13000 Process Control Systems – General Provisions
13320 Instrumentation System
13320A Appendix A Control Strategies
13321 Monitoring and Sensing Devices

DIVISION 14 – CONVEYING SYSTEMS
14630 Bridge Cranes

DIVISION 15 – MECHANICAL
15000 General Requirements for Mechanical
15050 Basic Mechanical Materials
15062 Ductile Iron Pipe and Fittings
15066 Pipe: Stainless Steel
15090 Pipe Support Systems
15100 Valves – Basic Requirements
15103 Butterfly Valves
15104 Ball Valves
15109 Air Valves
15112 Reduced Pressure Backflow Preventers
15114 Miscellaneous Valves

DIVISION 16 – ELECTRICAL
16000 General Requirements for Electrical Work
16110 Raceways and Fittings
16115 Underground Electrical Duct and Conduit
16120 Conductors
16140 Wiring Devices
16170 Circuit and Motor Disconnects
16195 Electrical Identification
16400 Electrical Services
16405 ARC-Flash Hazard Analysis/Short Circuit/Coordination Study
16406 Short Circuit and Coordination Study
16450 Grounding

DIVISION 16 – ELECTRICAL - continued
16460 Dye-Type Transformers
16470 Panel Boards
16481 Motor Control Centers
16491 Automatic Transfer Switch with Bypass and Service Entrance Rated
16675 Transient Voltage Surge Suppression

APPENDIX 1 – Geotechnical Investigation Report

CONTRACT A, PART 2
TECHNICAL SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS
01010 Summary of Work
01019 Contract Considerations
01039 Coordination and Meetings
01090 Standard References
01300 Submittals
01400 Quality Control
01500 Construction Facilities and Temporary Controls
01564 Stormwater Pollution Prevention During Construction
01600 Material and Equipment
01650 Starting of Systems
01700 Contract Closeout

DIVISION 2 – SITE WORK
02110 Site Clearing and Grubbing
02220 Trench and Excavation Safety System
02225 Excavation, Backfilling and Compacting for Utilities
02231 Aggregate Base Course
02280 Traffic Control
02310 Horizontal Boring for Utilities
02511 Pavement Replacement
02520 Concrete Pavement, Sidewalks, Curb and Gutter and Approaches
02665 Water Systems
02675 Water System Disinfection
02685 Cleaning of Potable Water Pipes
02750 Fusible Polyvinylchloride Pipe
02911 Topsoiling and Finished Grading
02921 Hydro Mulch Seeding

DIVISION 3 – CONCRETE
03300 Cast-in-Place Concrete
03600 Grout

DIVISION 4 THRU DIVISION 14 – NOT USED

DIVISION 15 – MECHANICAL
15100 Valves – Basic Requirements
15101 Gate Valves
15113 Combination Air Release Valves

DIVISION 16 – NOT USED

APPENDIX 1 – Geotechnical Investigation Information

BID DOCUMENTS

ADVERTISEMENT

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A
REQUEST FOR PROPOSALS

The City of Midland (Owner) has issued a Request for Proposals (RFP) in order to evaluate pricing and qualifications of a contractor to construct the following Project:

City of Midland, Texas
Northeast Water System Improvements
Bid Package A
Part 1 – New Transfer Pump Station
Part 2 – New Transmission and Distribution Pipelines

Proposers shall deliver sealed proposals to the Owner at the following address:

City of Midland
Office of the City Secretary
300 N. Loraine, 3rd Floor
Midland, Texas 79701

Proposals must be received at the designated location no later than **2:00 PM, Wednesday, November 18, 2020**.

Proposal Documents may be obtained from Civcast at www.civcastusa.com. Neither Owner nor Engineer will be responsible for full or partial sets of Proposal Documents, including addenda, if any, obtained from sources other than the Issuing Office.

A Virtual Pre-Proposal Meeting will be held at **1:00 PM, Thursday November 5, 2020**. A link to access the Virtual Pre-Proposal Meeting will be posted by Addendum prior to event. Attendance is encouraged but not required.

For all further requirements regarding submittal, qualifications, procedures, and contract award, refer to the RFP.

The City of Midland reserves the right to reject any or all proposals or to waive any informalities in the proposals.

Date Issued: October 21, 2020
By: Amy Turner
Title: City Secretary

NOTICE TO BIDDERS

IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED **CONTRACT AND INSURANCE REQUIREMENTS ARE NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/COMPANY OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/COMPANY MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.

IF THE SELECTED BIDDER/COMPANY CANNOT MEET THE ABOVE REQUIREMENTS, THEN **THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER**.

IMPORTANT NOTICE – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/COMPANY MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE, WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

COMPLIANCE: Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006,

please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

ANY VENDOR WHO FAILS TO COMPLY WITH THE TERMS OF THE AWARD **MAY BE DECLARED AN IRRESPONSIBLE VENDOR**. BIDS SUBMITTED BY SAID VENDOR SHALL NOT BE CONSIDERED AGAIN FOR A MINIMUM PERIOD OF SIX MONTHS AS DETERMINED BY THE CITY MANAGER.

IMPORTANT: READ CAREFULLY BEFORE MAKING BID
GENERAL CONDITIONS OF BIDDING

1. All bids are to be submitted as specified in the procurement document(s).

2. Each Bidder is requested to provide: Descriptive literature clearly marked to show each item on this bid. Any catalog or manufacturer's reference in this proposal is descriptive, but not restrictive, and is used only to indicate type and quality. If, however, the bidder proposes similar but not identical terms, he must furnish all particulars. If no mention is made of any exceptions, it is assumed that he is bidding on the article specified and not on an approved equal and he will be required to deliver exact article specified.

3. Prices should be itemized. (Indicate unit price and extend to show total price.) In case of discrepancy between the unit price and the extension, the unit price shall govern.

4. Unit price for each item offered shall include all discounts; e.g., trade, seasonal, etc. with net 30 days payment terms. Discounts shall not be shown as such but shall be incorporated in the base bid price. Any bid showing discounts will be considered an alternate bid. The City of Midland will not be responsible for any goods delivered without a purchase order number.

5. If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code. The City of Midland reserves the right to award by item or by total bid, or to reject any or all bids or parts of bids. Further, the City of Midland reserves all rights granted by Section 271.027 of the Texas Local Government Code. The City of Midland reserves the right to award the bid to the lowest responsible bidder.

6. Time of proposed delivery shall be stated in number of calendar days.

7. NOTE: The City of Midland, Texas is exempt from all Federal, State and City tax. Please do not include these taxes in your bid price or invoice. Taxable items must be so designated, and the City will supply vendor with a Tax Exemption Certificate, properly executed.

8. All items are to be delivered, unloaded and stacked at the location indicated on the Bid Request and Purchase Order.

9. All items are to be delivered F.O.B. to the City of Midland, Texas with freight prepaid and included in the bid.

10. Detailed specifications rule over General specifications (headings, etc.)

11. The City of Midland reserves the right to remove a company from the bid list for (1) continued failure to respond to request for bids, (2) failure to deliver merchandise within promised time, or (3) delivery of substandard merchandise.

12. No officer or employee of the City shall have a financial interest, direct or indirect, in any contract with the City, or be financially interested, directly or indirectly, in the sale to the City of any lands, materials, supplies or services except as allowed under chapter 176 of the Local Government Code. Form CIQ shall be submitted and placed on file with the City of Midland.

13. The City shall determine the most advantageous bid for the City and accept the proposal of the responsible party submitting the lowest and/or most advantageous bid or reject any and all bids.

14. The City of Midland, Texas may consider as informal any bid not prepared and submitted in accordance with the provisions hereof, and may waive, in its sole discretion, any informalities.

QUALIFICATIONS STATEMENT

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business's organizational structure:

Form of Business:	☐ Sole Proprietorship ☐ Partnership ☐ Corporation		
☐ Limited Liability Company ☐ Joint Venture comprised of the following companies:			
	1.		
	2.		
	3.		
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?	☐ Yes ☐ No ☐ Pending		

1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1.04 Provide information regarding the Business's officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

3.01 Provide information regarding Business's Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
☐ Disadvantaged Business Enterprise		
☐ Minority Business Enterprise		
☐ Woman-Owned Business Enterprise		
☐ Small Business Enterprise		
☐ Disabled Business Enterprise		
☐ Veteran-Owned Business Enterprise		
☐ Service-Disabled Veteran-Owned Business		
☐ HUBZone Business (Historically Underutilized) Business		
☐ Other		
☐ None		

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 4—SAFETY

4.01 Provide information regarding Business's safety organization and safety performance.

Name of Business's Safety Officer:		
Safety Certifications		
Certification Name	Issuing Agency	Expiration

4.02 Provide Worker's Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

ARTICLE 5—FINANCIAL

5.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:		
Business address:		
Date of Business's most recent financial statement:		☐ Attached
Date of Business's most recent audited financial statement:		☐ Attached
Financial indicators from the most recent financial statement		
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)		
Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)		

ARTICLE 6—SURETY INFORMATION

6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	☐ Yes ☐ No		
Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? ☐ Yes ☐ No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 7—INSURANCE

7.01 Provide information regarding Business's insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):			
Insurance Provider		Type of Policy (Coverage Provided)	
Are providers licensed or authorized to issue policies in the Project location?		☐ Yes ☐ No	
Does provider have an A.M. Best Rating of A-VII or better?		☐ Yes ☐ No	
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 8—CONSTRUCTION EXPERIENCE

8.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

8.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project:				
As a general contractor:		As a joint venturer:		
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:				
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No				
Been barred from contracting by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No				
Been released from a bid in the past 5 years? ☐ Yes ☐ No				
Defaulted on a project or failed to complete any contract awarded to it? ☐ Yes ☐ No				
Refused to construct or refused to provide materials defined in the contract documents or in a change order? ☐ Yes ☐ No				
Been a party to any currently pending litigation or arbitration? ☐ Yes ☐ No				
Provide full details in a separate attachment if the response to any of these questions is Yes.				

8.03 List all projects currently under contract in Schedule A and provide indicated information.

8.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's experience with projects similar in type and cost of construction.

8.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

ARTICLE 9—REQUIRED ATTACHMENTS

9.01 Provide the following information with the Statement of Qualifications:

A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.

B. Diverse Business Certifications if required by Paragraph 3.01.

C. Certification of Business's safety performance if required by Paragraph 4.02.

D. Financial statements as required by Paragraph 5.01.

E. Attachments providing additional information as required by Paragraph 8.02.

F. Schedule A (Current Projects) as required by Paragraph 8.03.

G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.

H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.

I. Additional items as pertinent.

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

This Statement of Qualifications is offered by:

Business: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(date signed)

(If Business is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

_____

_____

_____

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

_____

_____

_____

Phone: _____

Email: _____

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Schedule A—Current Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent		Safety Manager	Quality Control Manager
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent		Safety Manager	Quality Control Manager
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent		Safety Manager	Quality Control Manager
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Schedule B—Previous Experience with Similar Projects

Name of Organization				
Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Schedule B—Previous Experience with Similar Projects

Name of Organization				
Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

EJCDC® C-451, Qualifications Statement—Schedule B—Previous Experience with Similar Projects.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Schedule C—Key Individuals

Project Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Project Superintendent			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

EJCDC® C-451, Qualifications Statement—Schedule C—Key Individuals.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

REQUEST FOR PROPOSALS (RFP)

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A

The City of Midland (Owner) is now accepting proposals in order to evaluate pricing and qualifications of a contractor to construct the work identified as Package A of the Northeast Water System Improvements Project. Sealed proposals will be received until **2:00 PM, WEDNESDAY NOVEMBER 18, 2020**. Proposers shall deliver sealed proposals to the Owner at the following address:

City of Midland
Office of the City Secretary
300 N. Loraine, 3rd Floor
Midland, Texas 79701

Proposal Documents may be obtained from Civcast at www.civcastusa.com. Neither Owner nor Engineer will be responsible for full or partial sets of Proposal Documents, including addenda, if any, obtained from sources other than the Issuing Office.

A Virtual Pre-Proposal Meeting will be held at **1:00 PM, THURSDAY NOVEMBER 5, 2020**. A link to access the Virtual Pre-Proposal Meeting will be posted by Addendum prior to the event. Attendance is encouraged but not required.

GENERAL INFORMATION AND OVERVIEW

The purpose of this RFP is to contract with a firm to construct the Northeast Water System Improvements, Package A. The work consists of the following primary elements:

- Part 1 – Construction of a new Transfer Pump Station (TPS) at the existing City of Midland Water Purification Plant site, including new pump station building with electrical room and bridge crane, three vertical turbine pumps and space for two future vertical turbine pumps, valves, yard piping, vaults, site earthwork, grading and paving, surface restoration, site electrical and MCC, coordination with City's SCADA System Integrator and all other work as shown and specified for a complete and operational system.

- Part 2 – Construction of approximately 18,000 linear feet (LF) of 30" and 50,000 LF of 24" new water transmission and distribution pipeline (PIPELINES), including right-of-way preparation, traffic control, sub-surface utility investigation, excavation, installation of pipe and appurtenances, backfill, surface restoration and all other work as shown and specified for a complete and operational system.

- Work requires coordination with construction of the Northeast Elevated Storage Tank (EST) Improvements being constructed under Package B.

The City of Midland reserves the right to reject any or all proposals or to waive any informalities in the proposals.

PROPOSAL PROCESS:

1. Requests for Information/Clarification (RFI/C's) shall be submitted to the Engineer no later than 72 hours prior to the RFP Submittal Deadline. RFI/C's to be requested in writing to:

   Mr. Joe Mangrem, PE
   Enprotec/Hibbs & Todd
   402 Cedar Street
   Abilene, TX 79601
   Phone: 325-698-5560
   Email: joe.mangrem@e-ht.com

2. Written responses to RFI/C's requiring Addendum will be made available to all Proposal holders on record no later than 24 hours prior to the RFP Submittal Deadline.

3. One (1) bound copy and one (1) digital PDF version of the Proposal shall be due by the date and time indicated. Proposals received after the closing hour of the due date shall not be considered.

4. Proposal packages must be hand delivered, mailed or shipped by means of a delivery tracking system to confirm delivery time, date, and person signing for delivery.

5. Proposals will be publicly opened and read aloud after the closing hour of the due date.

6. The Owner shall exercise sole discretion as to the schedule and process of evaluating the proposals according to the requirements contained herein.

7. Criteria for award of the Project will include a weighted matrix developed by the Owner, for a maximum number of 100 points, based on the following criteria:

a.	Proposal Pricing	40%
b.	Proposer Qualifications	30%
c.	Proposal Time	20%
d.	Proposer Safety Record	10%

PROPOSAL FORMAT & REQUIREMENTS:

1. The RFP shall be the basis for each proposal.

2. Proposals shall be addressed to the Owner, as indicated, in a sealed package that shall be independent of the mailing/shipping packages. The proposal package shall be clearly marked as "City of Midland, Northeast Water System Improvements, Bid Package A" on the package label. The package label shall include the name and address of the Respondent's company.

3. Proposals shall be submitted in bound documents.

4. Proposals sent by facsimile (fax) machine or by email shall be rejected as being non-responsive to the RFP.

5. Proposal Pricing shall be for the entirety of the work shown or specified and shall be listed on the Price Proposal Sheet of this RFP.

6. All exclusions shall be listed in specific terms, quantities, and values.

7. No Respondent may withdraw its Proposal within 60 days after the actual date of the opening thereof.

8. A Proposal may be withdrawn by an appropriate document duly executed in the same manner that a Proposal must be executed and delivered to the place where Proposals are to be submitted prior to the date and time of the RFP submittal deadline. Upon receipt of such notice, the unopened Proposal will be returned to the Respondent.

    a. If a Respondent wishes to modify its Proposal prior to the RFP submittal deadline, Respondent must withdraw its initial Proposal in the manner specified and submit a new Proposal prior to the date and time of the RFP submittal deadline.

    b. If within 24 hours after Proposals are opened any Respondent files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Proposal, that Respondent may withdraw its Proposal, and the Bid Security will be returned. Thereafter, if the Work is rebid, that Proposer will be disqualified from further bidding on the Work.

9. Respondents shall satisfy themselves of the accuracy of the requirements in the RFP by examination of the sites in addition to the review of the Proposal Documents. After proposals have been submitted, the Respondent shall not assert that there was a misunderstanding concerning the quantities of work or the nature of the work to be done. The RFP contains the provisions required for the construction of the Project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Respondent or relieve them from fulfilling any of the conditions of any Contract awarded under this RFP.

10. A certificate of insurance as provided for in the Proposal Documents, naming Owner and Engineer as co-insured, shall be required for any Contract awarded under this RFP. Respondent's insurance company shall be required to give a minimum of 30 days prior notice of policy or coverage cancellation.

11. A PERFORMANCE and PAYMENT BOND, each in the amount of 100 percent (100%) of the Contract Price, issued by a corporate surety authorized to conduct business in the State of Texas under Article 7.19-1, Texas Insurance Code, will be required for the faithful performance of any Contract awarded under this RFP. Attorneys-in-fact who sign PAYMENT BONDS and PERFORMANCE BONDS must file with each bond a certified and effective dated copy of the power of attorney. The party to whom the contract is awarded will be required to execute the Agreement and obtain the PERFORMANCE AND PAYMENT BONDS within ten (10) calendar days from the date when the NOTICE OF AWARD is delivered to the Proposer. The NOTICE OF AWARD shall be accompanied by the necessary Agreement, Bond Forms, and insurance requirements. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period.

12. Respondent must provide documentation with Proposal proving that they possess a Water Operator D license, or better, in the state of Texas, and the successful Respondent will be required to maintain said license throughout duration of the project.

13. Proposals shall include, at a minimum, the following sections and documentation in response to the RFP:

    a. Request for Proposal Document – A complete copy of this RFP, including addenda, if any, shall be submitted as a Proposal Section, in its entirety, to include the Price Proposal Sheet to be completed by the Respondent.

    b. Pricing, as follows:

        i. Pricing shall be submitted by item on the attached Price Proposal Sheet. Failure to price all listed items may be considered non-responsive to the RFP.

        ii. Pricing shall include all proposal development costs, mobilization, labor, material, transportation, equipment, incidentals, appurtenances, demolition, removal, demobilization, overhead, and profit to cover the finished work specified in this RFP document, achieving a fully functional system.

        iii. Pricing shall reflect the Owner's sales tax exempt status.

        iv. Pricing shall include all freight and handling costs, F.O.B., Owner's destination.

        v. Pricing shall include insurance and bonding costs.

    c. Statement of Qualifications Section shall include the following minimum information:

        i. Company Profile with listing of principals by percent ownership and their role in the company.

        ii. Type of company – corporation, sole proprietorship, etc.

        iii. Primary field of business interest (water/wastewater, industry, oil & gas, etc.), listed by percent of revenue.

        iv. Date of Incorporation and/or start-up.

        v. Number of years under the current ownership structure and business name.

        vi. Number and location of offices and technical support centers.

        vii. Percentage of this project, based on cost, that shall be:

            - Self-performed – completed by company personnel = what percent.
            - Sub-contracted – completed by personnel of other companies = what percent.

viii. Listing of all sub-contractors proposed to be used, including a complete Statement of Qualifications as required under this section to be completed by any sub-contractor anticipated to perform over 10% of the work by cost.

ix. Number of employees (not subcontractor employees) dedicated to construction, integration, and technical support.

x. Resume and experience of each person to be assigned to this project, to include:

- The individual's technical background as it relates to this project and related field of interest.
- The individual's duration with the Proposer's company.
- The individual's proximity to the Owner's facilities as a reasonable response expectation for technical and service support.
- The individual's company of employment if different from the Respondent.
- Detailed project-specific and Owner's references for the proposed Project Manager and Field Superintendent.

xi. Areas of specialization including required licenses and certifications.

xii. Area of geographical coverage of related project and service activities.

d. Reference Section shall include:

i. A listing of previous project referenced and experience shall be provided by the Proposer, information to include:

- Name of entity.
- Project name.
- Contact person.
- Phone number.
- City of office.
- Year work completed.

ii. A list of a minimum of three (3) similar projects that include the complexity and magnitude of work to be completed in this project, and that have been completed by the Proposer. The list must include contact names, titles, addresses, email addresses, and telephone numbers for references.

e. Safety Record:

i. Include Business's safety organization and safety performance required in Qualifications Statement.

f. Project Schedule:

i. Include with proposal a detailed project schedule from the Notice to Proceed for the timetable for completing the construction of the Work within the time proposed on the Price Proposal Sheet

ii. Final Completion shall be sixty (60) calendar days from the date established for Substantial Completion.

TERMS AND CONDITIONS:

1. The Owner hereby notifies all Respondents that:

   a. The purchase contemplated by this RFP shall be procured in strict compliance with the local, state and federal laws.

   b. There is no pre-disposition of award to any particular company at the time of advertisement of this RFP.

   c. An invitation to any Respondent, verbal or otherwise, does not waive any requirement set forth in this RFP.

   d. In regard to any agreement entered into pursuant to this document, minority business enterprises will be afforded equal opportunities to submit proposals in response to this invitation and will not be discriminated against on the grounds of race, color, sex, age, religion, or national origin in consideration for an award.

2. The Owner reserves the right to reject any and/or all proposals, to waive any and all technicalities and to accept any proposal, or part thereof, which in the opinion of the Owner, is most advantageous to the Owner. In case of ambiguity or lack of clarity in stating the prices in the proposal, the Owner reserves the right to consider the most advantageous proposal thereof or to reject the proposal.

3. Respondents may modify their proposal by written addendum at any time prior to the scheduled receipt of proposals, provided such communication is received by the Owner prior to the closing hour of the proposal due date. The addendum should not reveal the proposal pricing, but should provide the addition or subtraction or other modification so that the Owner will not know the final pricing or terms until the sealed proposal, and its addendum, is opened.

4. Owner will not provide interpretation of the meaning of Proposal Documents to any Respondent orally. Such communication must be in writing in the form of an RFI/C and directed to the Engineer as stated herein. Where this RFP is ambiguous or in conflict with on-site conditions, the Respondent shall bring forth questions for clarification, and shall assume all responsibility for a fully functional system prior to submitting a proposal. The Owner and Engineer shall determine the meaning and requirements of any questionable items.

5. Requests for Information/Clarification (RFI/C's) shall be submitted to the Engineer, as previously indicated.

6. Respondents shall assume all responsibility for verifying Engineer's receipt of Requests for Information/Clarification (RFI/C). Where applicable, an addendum or written clarification shall be provided to all Respondents to clarify the meaning of questionable items.

7. Evaluation of proposals will be based on the criteria stated herein. The best-value proposal submitted by a responsible, responsive, qualified Respondent will be selected for negotiations with the Owner. If proposal amounts exceed the available funds to finance the contract, the Owner may reject all proposals or may award the contract on a negotiated proposal to produce a net amount which is within available funds. The Owner reserves the right to waive any informalities or technical errors that in its judgment will best serve its interests.

8. At the time of the opening of proposals, each Respondent will be presumed to be thoroughly familiar with the technical requirements, including any addenda, as set forth herein. The failure or omission of any Respondent to examine any site condition, form, instrument, or document shall in no way relieve any Respondent from any obligation with respect to the proposal. It is the Respondent's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the Proposal Documents and all Respondents shall be bound by such addenda, whether or not received by the Respondents.

9. The Owner may make such investigations as deemed necessary to determine the ability of the Respondent to perform the work, and the Respondent shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any proposal if the evidence submitted by, or the investigation of, such Respondent fails to satisfy the Owner that such Respondent is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional proposals will not be accepted.

10. Respondents must inform themselves fully of the conditions relating to the construction of the project and the employment of labor therein. Failure to do so will not relieve a successful Respondent of their obligation to furnish all labor and material necessary to carry out the provisions of any Contract awarded under this RFP. The conduct of required work shall not cause any interruptions of, or interfere with, the work of any other contractors.

11. The Respondent's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract as though therein written out in full.

12. The Respondent is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this contract must be identified and shall be acceptable to the Owner.

13. With respect to all work performed under this Contract, the Respondent shall meet the following requirements, where scope of work is applicable:

    a. Comply with the safety standards and provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, and the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596).

b. Exercise every precaution at all times for the prevention of accidents and the protection of persons, including employees, and property. Proposer shall conduct weekly safety meetings to insure a safe working environment. The Owner shall reserve the right to request documentation of such meetings and safety training practices.

14. **Provision of Texas Ethics Commission Form 1295 ("TEC Form 1295") by Respondents: Effective January 1, 2016, pursuant to Texas Government Code § 2252.908 (the "Interested Party Disclosure Act" or the "Act"), the Owner may not award the contract to a Respondent unless the Respondent has provided to the Owner a completed, signed and notarized TEC Form 1295 which has been assigned a certificate number by the Texas Ethics Commission (the "TEC"). Pursuant to the rules prescribed by the TEC, the TEC Form 1295 must be completed online through the TEC's website, assigned a certificate number, printed, signed and notarized, and provided to the Owner. The TEC Form 1295 may accompany the Proposal or may be submitted separately, but must be provided to the Owner prior to the award of the contract. For purposes of completing the TEC Form 1295, the entity's name is City of Midland; the contract ID number is 7227; and the description of goods and services is Northeast Water System Improvements Package A. Neither the Owner nor its consultants have the ability to verify the information included in a TEC Form 1295, and neither have an obligation nor undertake responsibility for advising any Respondent with respect to the proper completion of the TEC Form 1295.**

SELECTION OF PROPOSER:

Following the review and evaluation of the RFPs, the Owner will notify the most qualified Proposer providing the best-value proposal for the project in writing. Negotiations will be conducted with the selected Proposer to achieve a contract for the Project. If negotiations are unsuccessful, negotiations will be terminated with the Proposer and the Owner will enter into negotiations with the second most qualified, best-value Proposer.

A "Notice of Award" will be issued upon approval of the selected Proposer's contract. A "Notice-to-Proceed" may be issued by the Owner to initiate each work element of the project. The selected Proposer shall be prepared to arrive on site to initiate construction of the proposed improvements upon immediate readiness demanded by the proposed completion date. The selected Proposer shall coordinate its proposed construction schedule with the Owner and Engineer prior to mobilization.

PAYMENT:

Upon notice to proceed, the selected Proposer shall submit a schedule of values to the Engineer for approval as a basis of partial payment requests throughout the project. The selected Proposer may submit monthly invoices for work completed and materials purchased during the previous 30-day period based on the schedule of values. Piping material is not eligible for materials-on-hand. All invoices shall reflect a five percent (5%) retention from the amount of the draw request.

Owner shall remit the net amount of the invoice within 30 days of receipt of the invoice. All retained amounts shall be remitted upon final completion of the project as approved by the Owner and release of a Certificate of Completion.

CONDITIONS OF AWARD:

The Proposals will be considered and evaluated for award based upon the criteria set forth in this RFP.

The Price Proposal Sheet shall be completed with pricing of all items as required by the Proposal Documents of this RFP, and meet the terms thereof. All blank spaces for priced items must be filled in, in ink or typewritten, and the pricing form must be fully completed and executed when submitted. The Owner may waive any informalities or minor defects or reject any or all proposals. The Owner reserves the right to reject any and all proposals, in whole or in part; to waive any informality in any proposal, and to accept the proposal which, in its discretion, is in the best interest of the Owner. In case of ambiguity or lack of completeness in stating the prices in any proposal, the Owner reserves the right to consider the most advantageous thereof.

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE A
PRICE PROPOSAL SHEET

Proposer must completely fill out and provide pricing for all items and sections of the Price Proposal Sheet below.

PACKAGE A, PART 1 – TRANSFER PUMP STATION					
PART 1 – GENERAL					
ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
1	LS	-	**Mobilization, Bonds and Insurance** (not to exceed 5 percent of Part 1 Total) for _____ _____ _____ Dollars and _____Cents per lump sum.	-	$_____
2	LS	-	Prepare and implement **Stormwater Pollution Prevention Plan** in accordance with Section 01564 for _____ _____ Dollars and _____Cents per lump sum.	-	$_____
3	LS	-	Prepare and implement **Traffic Control Plan** in accordance with Section 02280 for _____ _____ _____ Dollars and _____Cents per lump sum.	-	$_____
4	LF	1,100	Prepare and implement **Trench and Excavation Safety Plan** in accordance with Section 02220 for _ _____ _____ Dollars and _____Cents per linear foot.	$_____/LF	$_____
5	LS	-	**Owner's Allowance for SCADA System Integrator Contract**, at lump sum amount of _____ One Hundred Fifty Thousand Dollars and No Cents per lump sum.	-	$ 150,000.00
6	LS	-	**Owner's Allowance for Work Directed by Owner**, at lump sum amount of _____ Two Hundred Fifty Thousand Dollars and No Cents per lump sum.	-	$ 250,000.00
			PART 1 – GENERAL SUB-TOTAL	$_____	

PART 1 – BASE					
ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
1	LS	-	Construction of **Transfer Pump Station**, including, but not limited to: new pump station building with electrical room and bridge crane; three vertical turbine pumps and space for two future vertical turbine pumps; valves; yard piping; vaults; site earthwork, grading and paving; site electrical and MCC; coordination with City's SCADA System Integrator; and all related work shown on the Drawings and Specified in the Project Manual for a complete and operable system for _____ _____ _____ Dollars and _____ Cents per lump sum.	-	$_____
			PART 1 – BASE SUB-TOTAL		$_____
			PART 1 – GENERAL SUB-TOTAL		$_____
			PART 1 – BASE SUB-TOTAL		$_____
			PART 1 – GENERAL + BASE TOTAL		$_____

PACKAGE A, PART 2 – TRANSMISSION & DISTRIBUTION PIPELINES					
PART 2 – GENERAL					
ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
1	LS	-	**Mobilization, Bonds and Insurance** (not to exceed 5 percent of Part 2 Total) for _____ _____ _____ Dollars and _____Cents per lump sum.	-	$_____
2	LS	-	Prepare and implement **Stormwater Pollution Prevention Plan** in accordance with Section 01564 for _____ _____ Dollars and _____Cents per lump sum.	-	$_____
3	LS	-	Prepare and implement **Traffic Control Plan** in accordance with Section 02280 for _____ _____ _____ Dollars and _____Cents per lump sum.	-	$_____

ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
4	LF	66,520	Prepare and implement **Trench and Excavation Safety Plan** in accordance with Section 02220 for __ _____ _____ Dollars and _____ Cents per linear foot.	$_____/LF	$_____
5	LF	66,520	Furnish and install **Pipeline Easement/ROW Preparation**, including initial saw-cutting, milling, clearing and grubbing, stripping and stockpiling topsoil over pipe trench, and all related work as shown and as specified for _____ _____ _____ Dollars and _____ Cents per linear foot.	$_____/LF	$_____
6	LF	66,520	Furnish and install **Pipeline System Commissioning**, including filling and purging, hydrostatic testing, disinfection, flushing, bacteriological testing, and all related work as shown and as specified for _____ _____ _____ Dollars and _____Cents per linear foot.	$_____/LF	$_____
7	LF	9,000	Furnish and install **Asphalt Trench Pavement Replacement (North Midland Drive),** including final saw-cutting, milling, flowable fill, tack coat, HMAC placement, complete and in place as shown and as specified for _____ _____ Dollars and _____Cents per square yard.	$_____/LF	$_____
8	LF	5,300	Furnish and install **Asphalt Trench Pavement Replacement (Occidental Parkway),** including final saw-cutting, milling, flowable fill, EXCLUDING HMAC, complete and in place as shown and as specified for _____ _____ Dollars and _____Cents per square yard.	$_____/LF	$_____
9	SY	19,000	Furnish and install **Full-Width Asphalt Pavement Replacement (Occidental Parkway),** including milling, tack coat, HMAC placement, complete and in place as shown and as specified for _____ _____ _____ Dollars and _____Cents per square yard.	$_____/SY	$_____

ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
10	LF	66,460	Furnish and install **Pipeline Easement/ROW Cleanup & Restoration,** including final topsoil grading and revegetation, complete and in place as shown and as specified for _____ _____ _____ Dollars and _____Cents per square yard.	$_____/SY	$_____
11	EA	6	Furnish and install **30" Gate Valve Assembly**, including manhole vault, complete and in place as shown and as specified for _____ _____ _____ Dollars and _____ Cents per each.	$_____/EA	$_____
12	EA	14	Furnish and install **24" Gate Valve Assembly**, including manhole vault, complete and in place as shown and as specified for _____ _____ _____ Dollars and _____ Cents per each.	$_____/EA	$_____
13	EA	6	Furnish and install **8" Blow Off Valve Assembly**, including valve, pipe and fittings, complete and in place as shown and as specified for _____ _____ _____ Dollars and _____ Cents per each.	$_____/EA	$_____
14	EA	33	Furnish and install **3" Combination Air Valve Assembly**, including fittings, valve and vented manhole vault, complete and in place as shown and as specified for _____ _____ _____ Dollars and _____Cents per each.	$_____/EA	$_____
15	LS	-	**Owner's Allowance for Work Directed by Owner**, at lump sum amount of _____ Two Hundred Fifty Thousand Dollars and No Cents per lump sum.	-	$ 250,000.00
			PART 2 – GENERAL SUB-TOTAL	$_____	

PART 2 – BASE					
ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
1	LF	16,721	Furnish and install **30" DR-21 C-900 PVC Water Main Pipe by Open Cut**, including all unclassified excavation, embedment, backfill, fittings, restraint systems, tracer wire, marking tape, and line markers, complete and in place as specified, for _____ _____ _____ Dollars and _____ Cents per linear foot.	$_____/LF	$_____
2	LF	797	Furnish and install **30" DR-21 C-900 PVC Water Main Pipe in 48" Steel Casing by Open Cut**, including all unclassified excavation, embedment, backfill, restraint systems, tracer wire, spacers, end-seals, marking tape, and line markers, complete and in place as specified, for _____ _____ _____ Dollars and _____ Cents per linear foot.	$_____/LF	$_____
3	LF	72	Furnish and install **30" DR-21 C-900 PVC Water Main Pipe in 48" Steel Casing by Jack and Bore**, including all unclassified excavation, backfill, restraint systems, tracer wire, spacers, end-seals, and line markers, complete and in place as specified, for _____ _____ Dollars and _____ Cents per linear foot.	$_____/LF	$_____
4	LF	47,760	Furnish and install **24" DR-21 C-900 PVC Water Main Pipe by Open Cut**, including all unclassified excavation, embedment, backfill, fittings, restraint systems, tracer wire, marking tape, and line markers, complete and in place as specified, for _ _____ _____ Dollars and _____ Cents per linear foot.	$_____/LF	$_____
5	LF	740	Furnish and install **24" DR-21 C-900 PVC Water Main Pipe in 36" Steel Casing by Open Cut**, including all unclassified excavation, embedment, backfill, restraint systems, tracer wire, spacers, end-seals, marking tape, and line markers, complete and in place as specified, for _____ _____ _____ Dollars and _____ Cents per linear foot.	$_____/LF	$_____

ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
6	LF	430	Furnish and install **24" DR-21 C-900 PVC Water Main Pipe in 36" Steel Casing by Jack and Bore**, including all unclassified excavation, backfill, restraint systems, tracer wire, spacers, end-seals, and line markers, complete and in place as specified, for _____ _____ _____ Dollars and _____ Cents per linear foot.	$_____/LF	$_____
			PART 2 – BASE SUB-TOTAL	$_____	
			PART 2 – GENERAL SUB-TOTAL	$_____	
			PART 2 – BASE SUB-TOTAL	$_____	
			PART 2 – GENERAL + BASE TOTAL	$_____	

PART 2 – ALTERNATE					
ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
1	LF	16,721	Furnish and install **30" DR-21 C-900 Fusible PVC Water Main Pipe by Open Cut**, including all unclassified excavation, embedment, backfill, fittings, restraint systems, tracer wire, marking tape, and line markers, complete and in place as specified, for _____ _____ Dollars and _____Cents per linear foot.	$_____/LF	$_____
2	LF	797	Furnish and install **30" DR-21 C-900 Fusible PVC Water Main Pipe in 36" Steel Casing by Open Cut**, including all unclassified excavation, embedment, backfill, restraint systems, tracer wire, spacers, end-seals, marking tape, and line markers, complete and in place as specified, for _ _____ _____ Dollars and _____Cents per linear foot.	$_____/LF	$_____
3	LF	72	Furnish and install **30" DR-21 C-900 Fusible PVC Water Main Pipe in 36" Steel Casing by Jack and Bore**, including all unclassified excavation, backfill, restraint systems, tracer wire, spacers, end-seals, and line markers, complete and in place as specified, for _____ _____ _____ Dollars and _____Cents per linear foot.	$_____/LF	$_____

ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
4	LF	47,760	Furnish and install **24" DR-21 C-900 Fusible PVC Water Main Pipe by Open Cut**, including all unclassified excavation, embedment, backfill, fittings, restraint systems, tracer wire, marking tape, and line markers, complete and in place as specified, for _____ _____ Dollars and _____Cents per linear foot.	$_____/LF	$_____
5	LF	740	Furnish and install **24" DR-21 C-900 Fusible PVC Water Main Pipe in 30" Steel Casing by Open Cut**, including all unclassified excavation, embedment, backfill, restraint systems, tracer wire, spacers, end-seals, marking tape, and line markers, complete and in place as specified, for _ _____ _____ Dollars and _____Cents per linear foot.	$_____/LF	$_____
6	LF	430	Furnish and install **24" DR-21 C-900 Fusible PVC Water Main Pipe in 30" Steel Casing by Jack and Bore**, including all unclassified excavation, backfill, restraint systems, tracer wire, spacers, end-seals, and line markers, complete and in place as specified, for _____ _____ _____ Dollars and _____Cents per linear foot.	$_____/LF	$_____
			PART 2 – ALTERNATE SUB-TOTAL	$_____	
			PART 2 – GENERAL SUB-TOTAL	$_____	
			PART 2 – ALTERNATE SUB-TOTAL	$_____	
			PART 2 – GENERAL + ALTERNATE TOTAL	$_____	

BASE TOTAL	
PART 1 – GENERAL + BASE TOTAL	$_____
PART 2 – GENERAL + BASE TOTAL	$_____
TOTAL	$_____

ALTERNATE TOTAL	
PART 1 – GENERAL + BASE TOTAL	$_____
PART 2 – GENERAL + ALTERNATE TOTAL	$_____
TOTAL	$_____

PACKAGE A, PART 1 & 2 – PROPOSAL TIME	
DESCRIPTION	**DAYS**
Total number of calendar days to substantially complete the Work*	_____

***Maximum allowable Proposal Time for substantial completion is 480 calendar days.**

Proposer agrees that the Work will be substantially complete, as provided in the General Conditions, within the number of calendar days shown above and completed and ready for final payment in accordance with the General Conditions within 60 calendar days after the date that substantial completion is reached.

Respectfully Submitted (Respondent):_____

SUBMITTED on _____, 20___.

State Contractor License No. _____. (If applicable

1. The undersigned Proposer proposes and agrees, if this Proposal is accepted, to enter into an Agreement with Owner in the form included in the Proposal Documents to perform and furnish all Work as specified or indicated in the Proposal Documents in accordance with the other terms and conditions of this RFP.

2. Proposer accepts all of the terms and conditions of the RFP, including without limitation those dealing with the disposition of pricing security. The Proposal will remain subject to acceptance for 45 days after the Proposal opening, or for such longer period of time that Proposer may agree to in writing upon request of Owner.

3. In submitting this Proposal, Proposer represents, as set forth in the Agreement, that:

   A. Proposer has examined and carefully studied the Proposal Documents, the other related data identified in the Proposal Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.	**Addendum Date**
_____	_____
_____	_____
_____	_____

   B. Proposer certifies Proposer is qualified to do business in the state where the Project is located as required by laws, rules, and regulations or, if allowed by stature, covenants to obtain such qualification prior to contract award.

   C. Proposer understands and agrees that this Proposal shall form the basis for an agreement with the Owner. Therefore, the undersigned agrees to enter into an agreement to perform and furnish all Work as specified or indicated in the Proposal Documents for the amounts indicated in this Proposal and in accordance with the other terms and conditions of the Proposal Documents.

D. Proposer accepts all of the terms and conditions of these Proposal Documents including, without limitation, those dealing with the disposition of Bid security, required bonds, and the liquidated damages that may be imposed. This Proposal shall remain subject to acceptance for a period of 45 days after the day of Proposal opening. The Proposer shall sign and submit the Agreement with the bonds and other required documents within 10 days after the receipt of Notice of Award from the Owner.

E. Proposer has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Proposer has discovered in the Proposal Documents, and the written resolution thereof by Engineer is acceptable to Proposer.

F. The Proposal Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Proposal is submitted.

5. Proposer further represents that this Proposal is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Proposer has not directly or indirectly induced or solicited any other Proposer to submit a false or sham Proposal; Proposer has not solicited or induced any individual or entity to refrain from proposing; and Proposer has not sought by collusion to obtain for itself any advantage over any other Proposer or over Owner.

6. Proposer will complete the Work in accordance with the Proposal Documents for the prices proposed in the Price Proposal Sheet or as modified during negotiations with the Owner.

7. Proposer accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times specified.

8. The following documents are attached to and made a condition of this Proposal:

A. Advertisement
B. Notice to Bidders
C. General Conditions of Bidding
D. Qualifications Statement
E. Standard Purchase Terms and Conditions
F. Non-Collusion Affidavit of Prime Proposer
G. Debarment / Suspension Certification
H. Bid Bond
I. Contract
J. Exhibit C – Bonding Requirements
K. Exhibit D – Heavy & Highway Wage Rates rev. 01/03/2020
L. Exhibit D – Building Water Rates rev. 01/03/2020
M. Performance Bond
N. Payment Bond
O. Standard General Conditions of the Construction Contract
P. Conflict of Interest Reporting Requirements
Q. Conflict of Interest Questionnaire
R. Consideration of Location of Bidder's Principal Place of Business

9. The Proposer is required to include their proposed construction schedule.

STANDARD PURCHASE TERMS AND CONDITIONS
PURCHASING DIVISION, CITY OF MIDLAND, TEXAS

"Seller", as used herein, has the same meaning as "Company". "Buyer", as used herein, has the same meaning as "City".

Seller and Buyer agree as follows:

1. SELLER TO PACKAGE GOODS - Seller will package goods in accordance with good commercial practice. Each shipping container shall be clearly and permanently marked as follows; (a) Seller's name and address, (b) Consignee's name, and address, and purchase order number, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing slip. Seller shall bear cost of packaging unless otherwise provided. Goods shall be suitably packed to secure lowest transportation costs and to conform with requirements of common carriers and any applicable specifications. Buyer's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

2. SHIPMENT UNDER RESERVATION PROHIBITED - Seller is not authorized to ship the goods under reservation and no tender of a bill of lading will serve as a tender of goods.

3. TITLE & RISK OF LOSS - The title and risk of loss of the goods shall not pass to Buyer until Buyer actually receives and takes possession of the goods at the point or points of delivery in Midland, Texas.

4. NO REPLACEMENT OF DEFECTIVE TENDER - Every tender or delivery of goods must fully comply with all provisions of this contract as to time of delivery, quality and the like. If a tender is made which does not fully conform, this shall constitute a breach and Seller shall not have the right to substitute a conforming tender, provided, where the time for performance has yet expired, the Seller may reasonably notify Buyer of his intention to cure and may then make a conforming tender within the contract time but not afterward.

5. PLACE OF DELIVERY - The place of delivery shall be that set forth in the block of the purchase order entitled "deliver to".

6. INVOICES - Seller shall submit separate ORIGINAL invoices, on each purchase order. Invoices shall indicate the purchase order number. All invoices must be mailed to City of Midland, Accounts Payable, P.O. Box 1152, Midland, TX 79702-1152. Payment will be made within 30 days from the date the invoice and properly executed receiving documents are received by City of Midland, Accounts Payable at the above address. Invoices sent to any other address will delay payment.

7. GRATUITIES - The buyer may, by written notice to the seller, cancel this contract without liability to Seller, if it is determined by Buyer that gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by the seller, or any agent or representative of the Seller, to any officer or employee of the City of Midland with a view toward securing a contract or securing favorable treatment with respect to performing of such a contract. In the event this contract is cancelled by Buyer pursuant to this provision, Buyer shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by Seller in providing such gratuities.

8. WARRANTY - PRICE -

a. The price to be paid by the Buyer shall be that contained in Seller's bid which Seller warrants to be no higher than Seller's current prices on order by others for products of the kind and specifications covered by this agreement for similar quantities under similar or like conditions and methods of purchase. In the event Seller breaches this warranty, the prices of the items shall be reduced to the Seller's current prices on order by others, or in the alternative, Buyer may cancel this contract without liability to Seller for breach or Seller's actual expense.

b. The Seller warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for commission, percentage, brokerage, or contingent fee excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Seller for the purpose of securing business. For breach or violation of this warranty the Buyer shall have the right or rights to cancel this contract without liability and to deduct from the contract price, or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee.

9. WARRANTY - PRODUCT - Seller shall not limit or exclude any implied warranties and any attempt to do so shall render this contract voidable at the option of the Buyer. Seller warrants that the goods furnished will conform to the specification, drawings, and description listed in the bid invitation, and to the sample(s) furnished by Seller, if any. In the event of a conflict between the specifications, drawings and descriptions, the specifications shall govern.

10. SAFETY WARRANTY - Seller warrants that the product sold to Buyer shall conform to the standards promulgated by the U.S. Department of Labor under the Occupational Safety and Health Act of 1970. In the event the product does not conform to OSHA standards, Buyer may return the product for correction or replacement at the Seller's expense. In the event Seller fails to make the appropriate correction within a reasonable time, correction made by buyer will be at Seller's expense.

11. RIGHT OF INSPECTION - Buyer shall have the right to inspect the goods at delivery before accepting them.

12. CANCELLATION - Buyer shall have the right to cancel for default all or any part of the undelivered portion of this order if Seller breached any of the terms hereof including warranties of Seller if the Seller becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any other remedies which Buyer may have in law or equity.

13. TERMINATION - The performance of work under this order may be terminated in whole, or in part by the Buyer in accordance with this provision. Termination of work hereunder shall be effected by the delivery to Seller of a "Notice of Termination" specifying the extent to which performance of work under the order is terminated and the date upon which such termination becomes effective. Such right of termination is in addition to and not in lieu of the rights of Buyer set forth in Clause 13, herein.

14. FORCE MAJEURE - Neither party shall be held responsible for losses, resulting if the fulfillment of any terms or provisions of this contract is delayed or prevented by any cause not within the control of the party whose performance is interfered with, and which by the exercise of reasonable diligence said party is unable to prevent.

15. ASSIGNMENT - DELEGATION - No right or interest in this contract shall be assigned or delegation of any obligation made by Seller without the written permission of the Buyer. Any attempted assignment or delegation by the Seller shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph.

16. MODIFICATIONS - This contract can be modified or rescinded only by a writing signed by both of the parties or their duly authorized agents.

17. INTERPRETATION - PAROL EVIDENCE - This writing, plus any specifications for bids and performance provided by Buyer in its advertisement for bids, is intended by the parties as a final expression of this agreement. No course of prior dealings between the parties and no usage of the trade shall be relevant to supplement or explain any term used in this agreement. Acceptance or acquiescence in a course of performance rendered under this agreement shall not be relevant to determine the meaning of this agreement even though the accepting or acquiescing party has knowledge of the performance and opportunity for objection. Whenever a term defined by the Uniform Commercial Code is used in this agreement, the definition contained in the Code is to control.

18. ADVERTISING - Seller shall not advertise or publish without Buyer's prior consent the fact that Buyer has entered into the contract, except to the extent necessary to comply with proper requests for information from an authorized representative of the federal, state or local government.

19. RIGHT TO ASSURANCE - Whenever one party to the contract in good faith has reason to question the other party's intent to perform he may demand that the other party give written assurance of this intent to perform. In the event that a demand is made and no assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the contract.

20. PROTECTION AGAINST ROYALTIES OR PATENT INFRINGEMENT - The Seller shall pay all royalties and license fees, and shall provide for the use of any design, device, material or process covered by letters patent or copyright by suitable legal agreement with Patentee or Owner thereof. The Seller shall defend all suits or claims for infringement of any patent or copyrights and shall indemnify and save the Buyer harmless from any loss on account thereof, except that Buyer shall defend all such suits and claims and shall be responsible for all such loss when a particular design, device, material or process is allowed to the Seller, the Seller shall indemnify and save Buyer harmless from any loss on account thereof. If the material or process specified or required by Buyer is an infringement, the Seller shall be responsible for such loss unless he promptly gives written notice to the buyer of such infringement.

21. TIME - It is hereby expressly agreed and understood that time is of the essence for the performance of this contract, and any failure by contract to meet the time specifications of this agreement will cause Seller to be in default of this agreement.

22. TAX - The City of Midland is exempt from all Federal, State and City tax. Please do not include these taxes in your bid price or invoice. Taxable items must be so designated, and the City will supply vendor with a Tax Exemption Certificate, properly executed.

23. **INSURANCE –**

The following provisions apply unless the agreement is for the supply of goods only:

Seller shall at all times during the term of this agreement maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Worker's Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project or policy aggregate, including completed operations, and shall be on an occurrence basis.

The Workers' Compensation coverage provided by Seller shall inure to the benefit of employees injured during the course and scope of their employment by Seller pursuant to this agreement.

The Business Automobile Liability insurance provided by Seller shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-owner vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this agreement.

All insurance required pursuant to this agreement, except for Worker's Compensation Insurance, shall name the Buyer as an additional insured on a claims occurred basis. All insurance required pursuant to this agreement, including Worker's Compensation Insurance, shall provide for a waiver of subrogation as to the Buyer.

The parties agree that, prior to the execution of the agreement, Seller shall provide one or more certificates of insurance showing that the requirements of this article have been met, and specifically containing, without limitations, the following endorsement:

"The City of Midland is included as an additional insured, on a claims occurred basis, on all policies except for Worker's Compensation. The Seller and Insurer hereby waive all rights of subrogation with respect to claims against the City of Midland, its agents, employees and officers, on all policies of insurance."
Buyer shall be provided the notice by Seller's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage. Buyer shall not be required to provide any insurance whatsoever pursuant to this agreement.

Seller shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this agreement to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers compensation).

24. ASSIGNMENT - Seller shall not, either directly or indirectly, assign all or any part of this agreement or any interest, right or privilege herein, without the prior written consent of the Buyer. The issue on whether or not to grant consent to an assignment is in the sole discretion of the Buyer.

25. RELEASE - NOTWITHSTANDING ANY OTHER PROVISIONS, SELLER HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES BUYER, BUYER'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH SELLER HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR BUYER'S NEGLIGENCE.

26. GOVERNING LAW AND VENUE - This agreement shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this agreement or the performance of this agreement shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this agreement shall be deemed to have occurred in Midland County, Texas.

27. INDEPENDENT CONTRACTOR - It is expressly understood and agreed that Seller shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the Buyer; that Seller shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between Buyer and Seller, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between Buyer and Seller. No person performing any of the work and services described hereunder by Seller shall be considered an officer, agent, servant or employee of the Buyer. Further, it is specifically understood and agreed that nothing in this agreement is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Seller shall be an independent contractor under this agreement and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The Buyer does not have the power to direct the order in which the work is done. The Buyer shall not have the right to control the means, methods or details of the Seller's work. Seller shall assume exclusive responsibility for the work. Seller is entirely free to do the work in its own way.

28. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES - As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this agreement, Seller or his legal representative, shall give the City Manager, or any other reasonable official of the Buyer, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one-hundred-twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Seller will settle, the physical and mailing addresses of Seller at the time and date the claim was presented and the physical and mailing addresses of Seller for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Seller relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the Buyer from any liability whatsoever. The Buyer is under no obligation to provide notice to Seller that Seller's notice is insufficient. Buyer reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Seller's failure to comply with the requirements herein shall perpetually bar Seller's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if Buyer has actual or constructive notice or knowledge of said claim or alleged damages. Seller agrees that the requirements of this entire agreement are reasonable.

29. INDEMNITY (NOT APPLICABLE TO PURCHASE AGREEMENTS) - SELLER WILL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING REASONABLE ATTORNEY'S FEES,

BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF SELLER, its agents or employees, or any subcontractor, arising out of, or resulting from, Seller's use of, or activities on, the agreement premises, and Seller will be required to pay any judgment with costs which may be obtained against Buyer or any of its officers, agents or employees, including reasonable attorney's fees.

SELLER SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, ACCIDENTAL DEATH, PERSONAL INJURIES, PROPERTY DAMAGE, LOSSES, AND EXPENSE OF ANY CHARACTER WHATSOEVER INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF BUYER, BUYER'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH SELLER OR SELLER'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS AGREEMENT AND SELLER WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST BUYER OR ANY OF BUYER'S OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

30. SOVEREIGN IMMUNITY - By executing this agreement the Buyer is not waiving its right of sovereign immunity. The Buyer is retaining its immunity from suit. The Buyer is not granting consent to be sued by legislative resolution or action. **THERE IS NO WAIVER OF SOVEREIGN IMMUNITY**.

31. THIRD PARTY BENEFICIARY - The Buyer's approval of this agreement does not create a third party beneficiary. There is no third party beneficiary to this agreement. No person or entity who is not a party to this agreement shall have any third party beneficiary or other rights hereunder.

32. <u>ATTORNEY FEES</u> - BY EXECUTING THIS AGREEMENT, SELLER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE BUYER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT. THE SELLER SPECIFICALLY AGREES THAT IF THE SELLER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE SELLER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH SELLER MIGHT OTHERWISE BE ENTITLED.

SELLER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. SELLER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. THE SELLER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BUYER AND THE SELLER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE SELLER AND BUYER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

33. CONSIDERATION - The terms of this agreement are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

34. CERTIFICATION - In accordance with the Texas Local Government Code, the City of Midland Department of Facilities and Fleet Management does hereby certify that the City of Midland is in compliance with Sections 252, 271 and all applicable sections of the Texas Local Government Code and other state law as it applies to procurement and contracting issues.

35. FEDERAL WAGE REQUIREMENTS - If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this agreement and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this agreement, to which the parties to this agreement have agreed to be bound.

36. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS - Seller shall at all times during the term of this agreement comply with applicable federal, state, and local laws regarding Seller's activities pursuant to this agreement, including but not limited to all applicable sections of the Municipal Code of Midland, Texas, as may be amended, said sections being hereby incorporated by reference and made a part of this agreement for all legal purposes. Failure to abide by any such law mentioned herein constitutes grounds for the immediate termination of this agreement.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____ §

County of _____ §

_____ , being first duly sworn, deposes and says that:

(1) He is _____ of _____ the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other bidder, or to fix an overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any advantage against the City of Midland or any person interested in the proposed contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees or parties in interest, including this affiant.

(signed) _____

_____
Title

Subscribed and sworn to before me

this _____ day of _____ ,20___.

_____
My commission expires _____, 20___.

Debarment / Suspension Certification

I, _____, hereby certify that I have checked on the federal
(Authorized Representative of Recipient)
System for Award Management (www.sam.gov) website and determined that
_____ is not shown as an "excluded party" that is debarred,
(Name of entity)
suspended or otherwise excluded from or ineligible for participation in federal assistance programs under Executive Order 12549. (See 2 CFR Part 180 and 2 CFR Part 1532 for additional information on the federal governmentwide debarment and suspension system for nonprocurement programs and activities.)

I understand that a false statement herein may subject me to penalties under federal and state laws relating to filing false statements and other relevant statutes.

_____ _____
Signature Date

_____
Title

_____
Name of Recipient

Verifying prime contractors and subcontractors for construction, equipment, supplies and services: Using the www.sam.gov website, the recipient must verify prior to awarding the contract that the prime contractor is not listed as an "excluded party" that is debarred, suspended or otherwise excluded from or ineligible. Once any subcontractors are known, they also must be verified as not listed as an "excluded party" prior to award of a subcontract. The recipient must print a dated record of the verification from the www.sam.gov website and retain a copy that is available for review by TWDB. The prime contractors and subcontractors must be verified prior to the contract award or the costs may be disallowed.

BID BOND

THE STATE OF TEXAS §

SURETY NO. _____

COUNTY OF MIDLAND §

KNOW ALL MEN BY THESE PRESENTS, THAT _____

_____

_____

(hereinafter called the Principal), as Principal, and _____

_____

_____

(hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____

_____ DOLLARS

($_____), for the payment whereof the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid or Proposal to enter into a certain written Contract with the obligee to_____

_____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully enter into such written Contract, then this obligation shall be void; otherwise to remain in full force and effect.

IT IS EXPRESSLY UNDERSTOOD AND AGREED that if said Principal should withdraw its Bid anytime after such Bid is opened and before official rejection to such Bid or, if successful in securing the award thereof, said Principal should fail to enter into the Contract and furnish satisfactory Performance Bond and Payment Bond, the Obligee, in either such events, shall be entitled and is hereby given the right to collect the full amount of this Bid Bond as liquidated damages.

PROVIDED, further that if any legal action be filed upon this Bond venue shall lie in Midland County, Texas

IN WITNESS THEREOF, THE SAID PRINCIPAL AND SURETY do sign and seal this instrument, this _____ day of _____, 20____.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: ATTACH POWER OF ATTORNEY

CONTRACT DOCUMENTS

THE CITY OF MIDLAND

CONTRACT

Contract No. 210000526

THIS CONTRACT, effective the 16th day of December, 2020, by and between the City of Midland, hereinafter referred to as "City", and Garney Companies, Inc., hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 22,063,309.00 DOLLARS

2. **Scope of Work:** Company shall perform all work described for Northeast Water System Improvements, Bid Package A, Part 1 – New Transfer Pump Station and Part 2 – New Pipelines in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Carl Craigo or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than 459 calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise available in any fiscal period for payment payments due under the contract, then this contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment; Retainage:** After all work is completed by Company, including all Change Orders altering the original scope and amount of the contract are completed, and the City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, the City may thereafter issue payment to Company in the amount of the contract and all Change Orders. The City shall be the final judge of when the work is completed by Company. The City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to the City's requirements.

16.1. The City may make periodic payments to Company; provided, however, such periodic payments may only be made pursuant to this section, and only after all work and all Change Orders are completed by Company and approved by the City. The approval shall be in the City's sole discretion. Requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the City or the City's representative, the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **Late Completion; Liquidated Damages:** It is hereby understood and mutually agreed, by and between Company and the City, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "Notice to Proceed." Company agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof

within the time specified. It is expressly understood and agreed, by and between Company and the City, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

17.1. In the event Company shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the City, then Company and Company's surety, if any, shall be liable for and does hereby agree, as a part consideration for the awarding of this contract, to pay to the City $500.00, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every day that Company shall be in default after the time stipulated in the contract for completing the work. Further, the City shall have the right to cancel this contract for such delay. In the event the City cancels this contract pursuant to the terms of this section, the City shall pay to Company only those monies deemed appropriate by the City, in its sole discretion, to compensate Company for any work actually performed, less any liquidated damages Company owes the City.

17.2. The said amount is fixed and agreed upon by and between Company and the City because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would in such event sustain, and said amount is agreed to be the amount of damages which the City would sustain and said amount shall be retained from time to time by the City from current periodical estimates.

17.3. It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that Company shall not be charged with liquidated damages or any excess cost when the City determines, in its sole discretion, that Company is without fault and Company's reasons for the time extension are acceptable to the City. Provided, further, that Company shall not be charged with liquidated damages of any excess cost when the delay in completion of the work is due:

a. To any preference, priority or allocation order duly issued by the Government;

b. To unforeseeable cause beyond the control and without the fault or negligence of Company, including, but not restricted to, acts of God, or of the public enemy, acts of the City, acts of another contractor in the performance of a contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

c. To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article.

17.4. Provided, further, that Company shall, within ten (10) days from the beginning of such

delay, unless the City shall, in its sole discretion grant a further period of time prior to the date of final settlement of the contract, notify the City, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify Company within a reasonable time of its decision in the matter.

17.5. **COMPANY AGREES THAT THE PAYMENT OF SUCH LIQUIDATED DAMAGES MAY BE RECOVERED BY THE CITY FROM RETAINAGE HELD BY THE CITY. NOTWITHSTANDING ANY OTHER PROVISION HEREOF, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER ARISING FROM THE CITY WITHHOLDING PAYMENT FROM COMPANY AS LIQUIDATED DAMAGES FOR COMPANY'S FAILURE TO COMPLETE THE WORK WITHIN THE TIME SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE.**

17.6. **COMPANY SHALL RECEIVE NO FINANCIAL COMPENSATION FOR DELAY OR HINDRANCE TO THE WORK. IN NO EVENT SHALL THE CITY BE LIABLE TO COMPANY OR ANY SUBCONTRACTOR OR SUPPLIER, ANY OTHER PERSON OR ANY SURETY FOR OR ANY EMPLOYEE OR AGENT OF ANY OF THEM, FOR ANY DAMAGES ARISING OUT OF OR ASSOCIATED WITH ANY DELAY OR HINDRANCE TO THE WORK, REGARDLESS OF THE SOURCE OF THE DELAY OR HINDRANCE, INCLUDING EVENTS OF FORCE MAJEURE, AND EVEN IF SUCH DELAY OR HINDRANCE RESULTS FROM, ARISES OUT OF OR IS DUE, IN WHOLE OR IN PART, TO THE NEGLIGENCE OF THE CITY. COMPANY'S SOLE REMEDY IN ANY SUCH CASE SHALL BE AN EXTENSION OF TIME.**

18. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

19. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

20. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

21. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

22. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

23. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

24. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

25. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

26. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

27. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

28. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

29. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

30. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

31. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

32. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

33. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____

Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____

John Ohnemiller, City Attorney

COMPANY: GARNEY COMPANIES, INC.

By:

_____

Name:_____

Title: _____

COUNTY OF_____ §
STATE OF _____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, ._____ , an officer of Garney Companies,Inc. known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

General Decision Number: TX20200002 01/03/2020

Superseded General Decision Number: TX20190002

State: Texas

Construction Types: Heavy and Highway

Counties: Armstrong, Carson, Crosby, Ector, Irion, Lubbock, Midland, Potter, Randall, Taylor and Tom Green Counties in Texas.

HEAVY & HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020

* SUTX2011-002 08/02/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving & Structures)	$ 13.55	
ELECTRICIAN	$ 20.96	
FORM BUILDER/FORM SETTER		

Paving & Curb	$ 12.36
Structures	$ 13.52

LABORER

Asphalt Raker	$ 12.28
Flagger	$ 9.30
Laborer, Common	$ 10.30
Laborer, Utility	$ 11.80
Work Zone Barricade Servicer	$ 10.30

POWER EQUIPMENT OPERATOR:

Asphalt Distributer	$ 14.87
Asphalt Paving Machine	$ 13.40
Broom and Sweeper	$ 11.21
Crane, Lattice Boom 80 Tons or Less	$ 16.82
Crawler Tractor Operator	$ 13.96
Excavator, 50,000 lbs or less	$ 13.46
Front End Loader Operator, Over 3 CY	$ 12.77
Front End Loader, 3CY or less	$ 12.28
Loader/Backhoe	$ 14.18
Mechanic	$ 20.14
Milling Machine	$ 15.54
Motor Grader, Rough	$ 16.15
Motor Grader, Fine	$ 17.49
Pavement Marking Machine	$ 16.42
Reclaimer/Pulverizer	$ 12.85
Roller, Asphalt	$ 10.95
Roller, Other	$ 10.36
Scraper	$ 10.61
Spreader Box	$ 12.60

Servicer	$ 13.98
Steel Worker (Reinforcing)	$ 13.50

TRUCK DRIVER

Lowboy-Float	$ 14.46
Single Axle	$ 12.74
Single or Tandem Axle Dump…	$ 11.33

Exhibit D - Heavy & Highway Wage Rates rev. 01/03/2020

Tandem Axle Tractor with Semi	$ 12.49

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).
Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were

prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number

where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

EXHIBIT D - BUILDING WAGE RATES rev. 09/11/2020

"General Decision Number: TX20200261 09/11/2020

Superseded General Decision Number: TX20190261

State: Texas

Construction Type: Building

County: Midland County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	08/28/2020
2	09/11/2020

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

ENGI0178-005 06/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane	$ 32.85	13.10
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above	$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under	$ 32.35	13.10

* IRON0084-011 06/01/2020

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 25.26	7.13

* PLUM0404-001 09/01/2020

	Rates	Fringes
PLUMBER	$ 26.05	8.81

SUTX2014-037 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER	$ 13.82	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.76	0.00
ELECTRICIAN	$ 23.18	6.31
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 19.77	7.13
IRONWORKER, REINFORCING	$ 12.27	0.00
IRONWORKER, STRUCTURAL	$ 22.16	5.26
LABORER: Common or General	$ 11.80	0.00
LABORER: Mason Tender - Brick	$ 11.38	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.58	0.00
LABORER: Pipelayer	$ 12.49	2.13
LABORER: Roof Tearoff	$ 11.28	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.25	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 18.29	1.31
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 14.83	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00
OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00

OPERATOR: Roller	$ 12.70	0.00
PAINTER (Brush, Roller, and Spray)	$ 15.00	0.73
PIPEFITTER	$ 25.80	8.55
ROOFER	$ 14.75	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 22.73	7.52
SHEET METAL WORKER, Excludes HVAC Duct Installation	$ 19.50	0.00
TILE FINISHER	$ 11.22	0.00
TILE SETTER	$ 14.74	0.00
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage

determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION"

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of _____ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for _____, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

Page

Article 1—Definitions and Terminology 1
1.01 Defined Terms 1
1.02 Terminology 6
Article 2—Preliminary Matters 7
2.01 Delivery of Performance and Payment Bonds; Evidence of Insurance 7
2.02 Copies of Documents 7
2.03 Before Starting Construction 7
2.04 Preconstruction Conference; Designation of Authorized Representatives 8
2.05 Acceptance of Schedules 8
2.06 Electronic Transmittals 8
Article 3—Contract Documents: Intent, Requirements, Reuse 9
3.01 Intent 9
3.02 Reference Standards 9
3.03 Reporting and Resolving Discrepancies 10
3.04 Requirements of the Contract Documents 10
3.05 Reuse of Documents 11
Article 4—Commencement and Progress of the Work 11
4.01 Commencement of Contract Times; Notice to Proceed 11
4.02 Starting the Work 11
4.03 Reference Points 11
4.04 Progress Schedule 12
4.05 Delays in Contractor's Progress 12
Article 5—Site; Subsurface and Physical Conditions; Hazardous Environmental Conditions 14
5.01 Availability of Lands 14
5.02 Use of Site and Other Areas 14
5.03 Subsurface and Physical Conditions 15
5.04 Differing Subsurface or Physical Conditions 17
5.05 Underground Facilities 18

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5.06 Hazardous Environmental Conditions at Site 20
Article 6—Bonds and Insurance 23
6.01 Performance, Payment, and Other Bonds 23
6.02 Insurance—General Provisions 23
6.03 Contractor's Insurance 25
6.04 Builder's Risk and Other Property Insurance 26
6.05 Property Losses; Subrogation 27
6.06 Receipt and Application of Property Insurance Proceeds 28
Article 7—Contractor's Responsibilities 28
7.01 Contractor's Means and Methods of Construction 28
7.02 Supervision and Superintendence 29
7.03 Labor; Working Hours 29
7.04 Services, Materials, and Equipment 29
7.05 "Or Equals" 30
7.06 Substitutes 31
7.07 Concerning Subcontractors and Suppliers 32
7.08 Patent Fees and Royalties 33
7.09 Permits 34
7.10 Taxes 34
7.11 Laws and Regulations 35
7.12 Record Documents 35
7.13 Safety and Protection 35
7.14 Hazard Communication Programs 36
7.15 Emergencies 37
7.16 Submittals 37
7.17 Contractor's General Warranty and Guarantee 39
7.18 Indemnification 40
7.19 Delegation of Professional Design Services 41
Article 8—Other Work at the Site 42
8.01 Other Work 42
8.02 Coordination 43
8.03 Legal Relationships 43
Article 9—Owner's Responsibilities 44

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

9.01 Communications to Contractor 44
9.02 Replacement of Engineer 44
9.03 Furnish Data 44
9.04 Pay When Due 44
9.05 Lands and Easements; Reports, Tests, and Drawings 44
9.06 Insurance 44
9.07 Change Orders 45
9.08 Inspections, Tests, and Approvals 45
9.09 Limitations on Owner's Responsibilities 45
9.10 Undisclosed Hazardous Environmental Condition 45
9.11 Evidence of Financial Arrangements 45
9.12 Safety Programs 45
Article 10—Engineer's Status During Construction 45
10.01 Owner's Representative 45
10.02 Visits to Site 45
10.03 Resident Project Representative 46
10.04 Engineer's Authority 47
10.05 Determinations for Unit Price Work 48
10.06 Decisions on Requirements of Contract Documents and Acceptability of Work 48
10.07 Limitations on Engineer's Authority and Responsibilities 48
10.08 Compliance with Safety Program 48
Article 11—Changes to the Contract 49
11.01 Amending and Supplementing the Contract 49
11.02 Change Orders 49
11.03 Work Change Directives 49
11.04 Field Orders 50
11.05 Owner-Authorized Changes in the Work 50
11.06 Unauthorized Changes in the Work 50
11.07 Change of Contract Price 50
11.08 Change of Contract Times 52
11.09 Change Proposals 52
11.10 Notification to Surety 53
Article 12—Claims 53

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

12.01 Claims 53
Article 13—Cost of the Work; Allowances; Unit Price Work 54
13.01 Cost of the Work 54
13.02 Allowances 58
13.03 Unit Price Work 58
Article 14—Tests and Inspections; Correction, Removal, or Acceptance of Defective Work 60
14.01 Access to Work 60
14.02 Tests, Inspections, and Approvals 60
14.03 Defective Work 61
14.04 Acceptance of Defective Work 61
14.05 Uncovering Work 61
14.06 Owner May Stop the Work 62
14.07 Owner May Correct Defective Work 62
Article 15—Payments to Contractor; Set-Offs; Completion; Correction Period 63
15.01 Progress Payments 63
15.02 Contractor's Warranty of Title 66
15.03 Substantial Completion 66
15.04 Partial Use or Occupancy 67
15.05 Final Inspection 68
15.06 Final Payment 68
15.07 Waiver of Claims 69
15.08 Correction Period 69
Article 16—Suspension of Work and Termination 70
16.01 Owner May Suspend Work 70
16.02 Owner May Terminate for Cause 70
16.03 Owner May Terminate for Convenience 72
16.04 Contractor May Stop Work or Terminate 72
Article 17—Final Resolution of Disputes 72
17.01 Methods and Procedures 72
Article 18—Miscellaneous 73
18.01 Giving Notice 73
18.02 Computation of Times 73
18.03 Cumulative Remedies 73

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

18.04 Limitation of Damages 73
18.05 No Waiver 74
18.06 Survival of Obligations 74
18.07 Controlling Law 74
18.08 Assignment of Contract 74
18.09 Successors and Assigns 74
18.10 Headings 74

Exhibit A – Foreseeable Bad Weather Days

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

PACKET 9.1041 December 15, 2020

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions. Supplementary Conditions are established by redline edits to these Standard General Conditions of the Construction Contract.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. Abnormal weather conditions;

3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5. Weather-Related Delays

   a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

   b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:

      1) Every workday on which one or more of the following conditions exist will be considered a "bad weather day":

         i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds 2 inches of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.

         ii) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: 20 degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: 110 degrees Fahrenheit.

      2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by National Weather Service weather monitoring station at Midland International Air and Space Port.

      3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the table in Exhibit A—Foreseeable Bad Weather Days.

      4) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the table in Exhibit A—Foreseeable Bad Weather Days will be considered as "abnormal weather conditions." The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor's then-current Progress Schedule's critical path for the Project.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

   1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

   2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Appendix 1 – Geotechnical Investigation Report	April 26, 2019	Geotechnical Investigation for the Northeast High Service Pump Station
Appendix 2 – Geotechnical Bore Logs	March 5, 2019	Log of boring for Pipelines

F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Drawings Title	Date of Drawings	Technical Data
None.		

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;

b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
None		

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Drawings Title	Date of Drawings	Technical Data
None		

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

D. Reference Item 23 of the City of Midland Standard Purchasing Terms and Conditions.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.

2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners,

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

    a. in the exercise of reasonable judgment Engineer determines that the proposed item:

        1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

        2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

        3) has a proven record of performance and availability of responsive service; and

        4) is not objectionable to Owner.

    b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

        1) there will be no increase in cost to the Owner or increase in Contract Times; and

        2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

   a. will certify that the proposed substitute item will:

      1) perform adequately the functions and achieve the results called for by the general design;

      2) be similar in substance to the item specified; and

      3) be suited to the same use as the item specified.

   b. will state:

      1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

      2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

      3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

   c. will identify:

      1) all variations of the proposed substitute item from the item specified; and

      2) available engineering, sales, maintenance, repair, and replacement services.

   d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

B. Owner is exempt from payment of sales and compensating use taxes of the State of Texas and of cities and counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.

2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

a. Contractor shall submit the number of copies required in the Specifications.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

2. Recommendation by Engineer or payment by Owner of any progress or final payment;

3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. Use or occupancy of the Work or any part thereof by Owner;

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers,

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:

1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.

2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.

3. *Liaison*

   a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

   b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

   c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.

4. *Review of Work; Defective Work*

   a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

b. Observe whether any Work in place appears to be defective.

c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.

5. *Inspections and Tests*

a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.

b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.

6. *Payment Requests:* Review Applications for Payment with Contractor.

7. *Completion*

a. Participate in Engineer's visits regarding Substantial Completion.

b. Assist in the preparation of a punch list of items to be completed or corrected.

c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.

d. Observe whether items on the final punch list have been completed or corrected.

D. The RPR will not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.

5 Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Authorize Owner to occupy the Project in whole or in part.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:

1. A mutually acceptable fixed fee; or

2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;

c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

    a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

    b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

    The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.

5. Other costs consisting of the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

~~2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.~~

2) The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of the Rental Rate Blue Book for Construction Equipment.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than $500.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

~~E. *Adjustments in Unit Price*~~

~~1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:~~

~~a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and~~

~~b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.~~

~~2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.~~

~~3. Adjusted unit prices will apply to all units of that item.~~

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

   a. the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and

   b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

    a. the Work has progressed to the point indicated;

    b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

    c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

    a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

    b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work;

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents;

b. consent of the surety, if any, to final payment;

c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

d. a list of all duly pending Change Proposals and Claims; and

e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;

2. correct such defective Work;

3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
2. agree with the other party to submit the dispute to another dispute resolution process; or
3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

EXHIBIT A— FORESEEABLE BAD WEATHER DAYS

Month	Number of Foreseeable Bad Weather Days in Month Based on Precipitation as Rain Equivalent (inches) (1)	Ambient Outdoor Air Temperature (degrees F)	
		Number of Foreseeable Bad Weather Days in Month Based on Low Temperature (at 11:00 a.m.)	Number of Foreseeable Bad Weather Days in Month Based on High Temperature (at 3:00 p.m.)
January	0	4	0
February	0	2	0
March	1	1	0
April	1	0	0
May	1	0	0
June	1	0	0
July	0	0	0
August	0	0	0
September	1	0	0
October	1	0	0
November	0	1	0
December	0	3	0

Notes:
1. Two inches of sleet equal one inch of rain. Five inches of wet, heavy snow equal one inch of rain. Fifteen inches of “dry” powder snow equals one inch of rain.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

IMPORTANT NOTICE

Conflict Of Interest Reporting Requirements

Compliance with LOCAL GOVERNMENT CODE TITLE 5. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES SUBTITLE C. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES OF MORE THAN ONE TYPE OF LOCAL GOVERNMENT CHAPTER 176. DISCLOSURE OF CERTAIN RELATIONSHIPS WITH LOCAL GOVERNMENT OFFICERS; PROVIDING PUBLIC ACCESS TO CERTAIN INFORMATION.

Form CIQ: This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. This questionnaire shall be filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code. A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

Bidders are responsible for filing Conflict of Interest form "CIQ" in accordance with the above referenced statute. Failure to do so is a class C Misdemeanor. Contracts or Purchase Orders awarded to a vendor that has violated this law is subject to termination at such time that the violation is discovered with no recourse to the City of Midland. The bidder will be subsequently removed from the bidders list for a minimum of one year.

When there is no known conflict of interest as defined by the statute, it is not necessary to file/submit the Form CIQ. The form must be submitted if a conflict is subsequently discovered.

By submitting a response to this request, vendor represents that it complies with the requirements of Chapter 176 of the Texas Local Government Code.

For a current list of the local government officers go to: http://www.midlandtexas.gov/

Upon completion of the form, sign and submit with bid or mail to:

City of Midland
Attn: City Secretary
PO Box 1152
Midland, Texas 79702

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Signature of vendor doing business with the governmental entity

Date

PACKET 9:1118 December 15, 2020

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

Consideration of Location of Bidder's Principal Place of Business
For Bids of $50,000 up to $100,000 for Services and $500,000 for Commodities
Affidavit of Eligibility

Pursuant to Texas Local Government Code 271.9051, in purchasing real property, personal property that is not affixed to real property, or services, if the City receives one or more bids from a bidder whose principal place of business is in the City of Midland and whose bid is within five percent (5%) of the lowest bid price received by the City from a bidder who is not a resident of the City of Midland, the City may enter into a contract with:

(1) the lowest bidder; or

(2) the bidder whose principal place of business is in the City of Midland if the City Council determines, in writing, that the local bidder offers the City the best combination of contract price and additional economic development opportunities for the City of Midland created by the contract award, including the employment of residents of the City of Midland and increased tax revenues to the City of Midland.

In order to receive consideration, bidders must submit this affidavit to:

Regina Stephenson
Purchasing Manager
City of Midland
300 N. Loraine St.,
PO BOX 1152
Midland, TX 79702-1152

Complete all areas below. Incomplete affidavits may be rejected.

Local Business Name: _____

Local Address (must be within the City limits): _____

1. Is the above address the principal place of business for the business named above? ☐ Yes ☐ No
2. How many residents of the City of Midland are employed at the above business location? _____
3. Year your business was established in the City of Midland: _____
4. If you collect sales tax for ANY class of customer, provide the following Reseller information:

   Reseller Permit Number: _____

   Company Name and Address (as it appears on permit):

   _____

   _____

   _____

5. Does your business have more than one office in the State of Texas? ☐ Yes ☐ No
   If Yes, identify the office location considered as the point-of sale for the purpose of sales tax calculation:

   _____

   _____

6. Was the local business required to pay business and/or real property tax for the most recent tax year?

   ☐ Yes ☐ No

   If Yes, did the local business pay any of this tax to the City of Midland? ☐ Yes ☐ No

Under penalty of perjury, the undersigned states that the foregoing statements are true and correct. It is further acknowledged that any person, firm, corporation or entity intentionally submitting false information to the City in an attempt to qualify for eligibility shall be prohibited from bidding on City of Midland products and services for a period of one (1) year.

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

PART 1
TECHNICAL SPECIFICATIONS

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Contract Description:

1. Construction of a new transfer pump station, pump station building, and site piping at the existing Water Purification Plant.

2. Coordination with contractor(s) constructing the associated Transmission/Distribution Mains and Elevated Storage Tank for completion and startup of interdependent components of the work.

3. Scope includes:

a. Pump station building with electrical room and bridge crane.

b. Three (3) vertical turbine pumps and space for two (2) future vertical turbine pumps. Five (5) pump cans for new and future pumps are included in this contract.

c. Three (3) 12-inch pump control valves, one (1) 12-inch surge anticipator valve, one (1) 2" motorized ball valve, one (1) backflow preventer, pressure reducing valves, manual AWWA butterfly valves, and other miscellaneous valves. The surge anticipator valve shall be installed in a vault in the pump station floor that includes a sump pump for dewatering.

d. Pump station and yard piping that includes ductile, PVC and stainless steel.

e. Concrete vaults for manual 42-inch butterfly valve and 30" mag-meter, including motorized ventilation fan at the valve vault, a sump pump in each vault for dewatering, and miscellaneous electrical.

f. HVAC at transfer pump station building and electrical room.

g. Site work including earthwork, grading, hydro-mulch and new asphalt driveway connecting the existing Water Purification Plant driveway.

h. Instrumentation including one (1) 30-inch mag-meter, one (1) pressure indicating analyzer, two (2) total chlorine analyzers with common controller, one (1) ammonia chloramine analyzer, two (2) turbidimeters with common controller, pressure gauges and switches.

i. Site electrical and MCC.

j. Contractor's control system integrator shall be responsible for supplying, installing, and configuring all instrumentation, control equipment, panels and associated conduit/wiring.

k. Per Contract A Part 1 SCADA allowance, the City of Midland's SCADA integrator (Signature Automation) shall be responsible for all RTU, PLC, HMI/OIT software installation, programming and subsequent testing.

1.2 CONTRACTOR USE OF SITE:

A. WPP Site may be used as follows:

1. Site is available for Contractor's use; ample space is available.

2. Contractor shall keep all construction activities on Owner's property or within Owner's easements and/or rights of ways.

B. Comply with Owner's Security protocols.

1. Provide names and photographs of any Contractor or Sub-Contractor personnel who will be at the project site.

2. Administration and maintenance buildings are OFF LIMITS unless accompanied by the Owner.

3. Contractor and its sub-contractor(s) / vendor(s) shall use the back gate for site access. Provide and maintain access security.

4. Contractor's personnel, including sub-contractors and vendors, shall attend the Owner's chlorine and ammonia safety awareness class prior to working on-site.

C. Limit use of existing facilities to allow:

1. Uninterrupted delivery of potable water from the Midland WPP and existing water distribution system. Short interruptions necessary for tie-ins of the new pipeline(s) shall be coordinated a minimum of 48 hours in advance with Owner and Engineer.

END OF SECTION

SECTION 01019

CONTRACT CONSIDERATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Materials Testing.

B. Schedule of Values.

C. Order of Construction and Construction Schedule

D. Application for Payment.

E. Change Procedures.

F. Measurement and Payment.

1.2 MATERIALS TESTING:

A. Engineer will engage a recognized construction materials testing firm.

B. Contractor shall be responsible for:

1. Costs of incidental labor and facilities required to assist testing firm.

2. Costs of testing laboratory services used by Contractor separate from Contract Document or Owner requirements.

3. Costs of retesting upon failure of previous tests as determined by Engineer.

1.3 SCHEDULE OF VALUES:

A. Where a Contract includes items bid on a lump sum basis, the Contractor shall file with the Engineer a balanced price segregation of his lump sum bid into items similar to the various subdivisions of the general and detailed specifications, the sum of which shall equal the lump sum bid. Provide in accordance with Article 2, Paragraph 2.05 of the General Conditions.

1. The cost of various materials shall be furnished upon request of the Engineer, and such data will then be used as a basis for making progress estimates.

2. Breakdown cost itemized Specification Section by trade, and distribute cost to individual applicable units and structures.

3. Where structures, units, equipment or other components are identified by a specific series or, identification number, utilize said designation throughout cost breakdown.

4. Provide detailed breakdown for individual yard piping or conduit runs and identify approximate quantities involved to satisfaction of the Engineer.

5. Provide separate breakdown for change order items requested.

6. The detail and format of cost breakdown and stored materials tabulation sheet shall be fully approved by Engineer.

7. Use EJCDC 1910-8-E, or equivalent.

B. A reasonable allocation of the Contract Price to the component parts of the Work will be approved if component parts of the Work have values assigned to them that are well-balanced with respect to relative values for similar work established by published estimating guides.

1. Unless otherwise agreed to at the Preconstruction Conference, Means Estimator Guide or other similar nationally recognized estimating guide shall be used for resolving differences between Engineer's and Contractor's opinions of allocation of values.

2. Consent of Surety: If Contractor and Engineer cannot mutually agree on a Schedule of Values, Engineer will approve a Schedule of Values approved by the Surety providing the Performance Bond.

C. Contractor's costs shall not govern the allocation of values when application of Contractor's costs to a component part of the Work results in any other component part or combination of component parts being under-valued in relation to conventional estimating guides.

D. Schedule of Values shall be agreed upon prior to first Application for Payment.

1.4 ORDER OF CONSTRUCTION AND CONSTRUCTION SCHEDULE:

A. In accordance with Article 2, Paragraph 2.05 of the General Conditions, submit for approval a critical path type baseline schedule.

1. Account for schedule of Subcontracts.

2. Include proper sequence of construction, various crafts, purchasing time, Shop Drawing approval, material delivery, equipment fabrication, start-up, demonstration, and similar time consuming factors.

3. Show on schedule as a minimum, earliest starting, earliest completion, latest starting, latest finish, and free and total float for each task or item.

4. Critical Path Method Network Analysis:

a. Application software: Microsoft Project or Primavera.

b. Do not utilize or incorporate date or time constraints or other constraints that corrupt the CPM mathematical model.

i The following CPM schedule outputs will be rejected without further review:

- Schedules indicating the start of the critical path at a date point beyond the "Start Date."
- Schedules with multiple critical paths.
- Schedules indicating a completion date beyond the contractual completion date.

c. Show the order and interdependence of activities.

i The start of an activity shall be dependent on the completion of a preceding activity(ies), with Notice to Proceed being the initial activity.

ii Limit activities to a maximum of 20 days.

iii Network analysis diagram shall flow left to right.

d. Critical (path) activities are defined to have zero (0) total float.

e. Do not use leads and lags in lieu of an activity description such as "concrete cure time."

i When lags are necessary, they shall not have a negative value.

5. Provide the electronic native file on compact disc along with two (2) paper copies printed in color.

B. Evaluate schedule no less than monthly.

1. Update, correct, and rerun schedule and submit to Engineer with pay application to show rescheduling necessary to reflect true job conditions.

2. When shortening of various time intervals is necessary to correct for behind schedule conditions, indicate actions to implement to accomplish work in shorter duration.

3. Information shall be submitted to Engineer in writing with revised schedule.

4. Default progress data disallowed:

a. Actual start and finish dates shall not be automatically updated by default mechanisms that may be included in the CPM scheduling software system.

i Actual start and actual finish dates on the CPM schedule shall be reported.

b. Work activities will be updated by actual work progression rather than being cash flow driven.

i The updating of the percent complete and the remaining duration of any activity shall be independent functions:

- Program features that calculate one of these parameters from the other shall be disabled.

- Out-of-sequence progress (if applicable) shall be handled through retained logic, not the default option of progress override.

5. Submit electronic native files on compact disc along with two (2) paper copies printed in color.

C. If Contractor does not take necessary action to accomplish work according to schedule, Contractor may be ordered by Owner in writing to take necessary and timely action to improve work progress.

1. Owner may require increased work forces, extra equipment, extra shifts or other action as necessary.

2. Should Contractor refuse or neglect to take such action authorized, under provisions of this contract, Owner may take necessary actions including, but not necessarily limited to, withholding of payment and termination of Contract.

D. Upon receipt of approved "Work Schedule," within 10 days, submit to Engineer a cost-loaded schedule (electronically) and an estimated payment schedule by each month of project duration.

1. Include a composite curve to show estimated value of work complete and stored materials less specified retainage.

2. Establish key months when work will be 50, 80, 90, and 100 percent complete.

3. During the course of work, update with new composite curves at key months or whenever variation is expected to be more than plus or minus 10 percent.

4. Retain original or previous composite curves as dashed curves on all updates.

5. Include a heavy plotted curve to show ACTUAL payment curve on all updates.

E. Provide four-week look-ahead schedules every four (4) weeks.

1.5 APPLICATIONS FOR PAYMENT:

A. Contractor's electronic media driven form or EJCDC 1910-8-E.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Period: Submit by end of each month.

D. Include executed Contractor Affidavit for Partial Payment with each Application for Payment.

E. Submit certification by Contractor of Labor Standards compliance with each Application for Payment.

1.6 CHANGE PROCEDURES:

A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions in writing.

B. The Engineer may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in contract time for executing the change and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 10 days.

C. The Contractor may propose changes by submitting a request for change to the Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01600.

D. Stipulated Sum/Price Change Order: Based on Notice of Change and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Engineer.

E. Work Directive Change: Engineer may issue a directive, on EJCDC 1910-8-F Work Directive Change signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.

F. Change Order Forms: EJCDC 1910-8-B or Engineer’s standard electronic media driven form.

G. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract, including a TWDB representative.

1.7 MEASUREMENT AND PAYMENT:

A. Authority: Work under this Contract shall be measured by the Item Unit or Lump Sum Price as indicated on the Bid Schedule or Schedule of Values. Where the Item Lump Sum Price applies, the work will be considered as a complete installation as shown and specified.

Unit Quantities: Quantities and measurements indicated in the Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment. The bid price for any Unit Price method item shall be in effect for any actual quantity encountered within plus or minus 25 percent of the estimated quantity. Payment or adjustment for quantities greater than plus or minus 25 percent will be subject to negotiation.

B. Payment Includes: Full compensation for required labor, Products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

C. Defect Assessment: Replace the Work, or portions of the Work, not conforming to specified requirements. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01039

COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Coordination.

B. Field Engineering.

C. Preconstruction Meeting.

D. Progress Meetings.

1.2 COORDINATION:

A. Coordinate scheduling, submittal, and Work of the various sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion.

C. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD ENGINEERING:

A. Engineer will locate survey control and reference points; refer to Drawings.

B. Control datum for survey is that shown on Drawings.

C. Contractor to verify set-backs and easements, confirm drawing dimensions and elevations. Notify Engineer in writing immediately upon identification of potential conflict.

D. Contractor to provide field engineering services as required to support his work. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

1.4 PRECONSTRUCTION MEETING:

A. Engineer will schedule a meeting after Notice of Award.

B. Attendance Required: Owner, Engineer, and Contractor.

C. Agenda:

1. Distribution of Owner-Contractor Agreement / Contract Document.

2. Submission of executed bonds and insurance certificates.

3. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.

4. Designation of personnel representing the parties in Contract, and the Engineer.

5. Procedures and processing of field decisions, submittal, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.

6. Scheduling.

7. Coordination with other agencies/organizations.

D. Engineer to record minutes and distribute copies after meeting to participants.

1.5 PROGRESS MEETINGS:

A. The Engineer will arrange and conduct monthly Progress Meetings (Construction Status Meetings). The Engineer will prepare an agenda for these meetings and will conduct the meetings.

B. The purpose of these meetings will be to facilitate the work of the Contractor and any subcontractors, resolve conflicts, identify and resolve any potential delays or necessary changes in the work, and in general coordinate and facilitate the execution of the work.

C. The Construction schedule is required to be updated and presented at these meetings.

D. The Contractor shall bring up-to-date record drawings to each meeting.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01090

STANDARD REFERENCES

Whenever used in the Project Manual, the following abbreviations will have the meanings listed:

When documents are referenced, they are a part of the Specification as specified and modified. In case of conflict between the requirements of these Specifications and those on the referenced documents, these Specifications shall prevail.

AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, Ste. 249 Washington, DC 20001
ACI	American Concrete Institute 38800 Country Club Drive Farmington Hills, MI 48331
AISC	American Institute of Steel Construction One East Wacker Drive, Ste. 700 Chicago, IL 60601-1802
AISI	American Iron and Steel Institute 1140 Connecticut Ave., Ste. 705 Washington, DC 20036
AITC	American Institute of Timber Construction 7012 S. Revere Parkway, Ste. 140 Centennial, CO 80112
ANSI	American National Standards Institute, Inc. 1899 L Street, NW, 11th Floor Washington, DC 20036
APA	American Plywood Association 7011 S. 19th Street Tacoma, WA 98466-5333
API	American Petroleum Institute 1220 L Street, NW Washington, DC 20005-4070
APSP	Association of Pool and Spa Professionals 2111 Eisenhower Ave., Ste. 500 Alexandria, VA 22314
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191

ASCII	American Standard Code for Information Interchange United States of American Standards Institute 25 West 43rd Street, 4th Floor New York, NY 10036
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers United Engineering Center 1791 Tullie Circle, NE Atlanta, GA 30329
ASME	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016
ASTM	American Society for Testing and Materials 100 Bar Harbor Drive West Conshohocken, PA 19428 (http://www.astm.org)
AWPA	American Wood Preservers Association 100 Chase Park South, Ste. 116 Birmingham, AL 35244
AWS	American Welding Society 550 LeJeane Road Miami, FL 33126
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
CRSI	Concrete Reinforcing Steel Institute 933 North Plum Grove Road Schaumburg, IL 60173
EEI	Edison Electric Institute 701 Pennsylvania Ave., NW Washington, DC 20004
ENGINEER	Enprotec / Hibbs & Todd, Inc. 402 Cedar Street Abilene, Texas 79601
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch 1275 First Street, NE Washington, DC 20417

FEDSTDS	Federal Standards (see FEDSPECS)
HI	Hydraulic Institute 6 Campus Drive, First Floor North Parsippany, NJ 07054
IBC	International Building Code (Published by ICC)
ICC	International Code Council 500 New Jersey Ave., NW, 6th Floor Washington, DC 20001
ICEA	Insulated Cable Engineers Association P.O. Box 1568 Carrolton, GA 30112
IEEE	Institute of Electrical and Electronic Engineers, Inc. 3 Park Avenue, 17th Floor New York, NY 10016
IES	Illuminating Engineering Society c/o United Engineering Center 120 Wall Street, Floor 17 New York, NY 10005
IMC	International Mechanical Code (Published by ICC)
IPC	International Plumbing Code (Published by ICC)
ISA	Instrument Society of America 67 Alexander Drive Research Triangle Park, NC 27709
MILSPEC	Military Specifications Navy Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Rd., Bldg. C, Ste 312 Glen Ellyn, IL 60137
NACE	National Association of Corrosion Engineers 1440 South Creek Drive Houston, Texas 77084

NEC	National Electrical Code National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169
NEMA	National Electrical Manufacturer's Association 1300 North 17th Street, Ste. 1752 Rosslyn, VA 22209
NFPA	National Forest Products Association 1111 19th Street, NW, Ste. 800 Washington, DC 20036
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169
NSF	National Sanitation Foundation 789 N. Dixboro Road Ann Arbor, MI 48113
OSHA	Occupational Safety and Health Act Occupational/Safety and Health Administration Lubbock Area Office 1205 Texas Avenue Lubbock, TX 79401
OWNER	City of Midland 300 North Loraine Midland, Texas 79701
SBCC	Southern Building Code Congress 900 Montclair Road Birmingham, AL 35213
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association 4201 Lafayette Center Drive Chantilly, VA 20151-1209
SSPC	Steel Structures Painting Council 4516 Henry Street, Suite 301 Pittsburgh, PA 15123-3728
SSPWC-NCT	Standard Specifications for Public Works Construction-- North Central Texas North Central Texas Council of Governments P O Box 5888 Arlington, Texas 76005-5888
TCA	Tile Council of America, Inc. 100 Clemson Research Blvd. Anderson, SC 29625

TCEQ	Texas Commission on Environmental Quality P O Box 13087 Austin, TX 78711-3087
TDSHS	Texas Department of State Health Services 1100 West 49th Street Austin, Texas 78756-3199
TWDB	Texas Water Development Board 1700 North Congress Avenue Austin, Texas 78711
TXDOT	Texas Department of Transportation 125 E. 11th Street Austin, TX 78701
UBC	Uniform Building Code Published by ICB
UL	Underwriters Laboratories, Inc. 2600 NW Lake Road Camas, WA 98607
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WWPA	Western Wood Products Association 522 SW Fifth Ave, Ste. 500 Portland, OR 97204

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Submittal Procedures.

B. Construction Progress Schedules.

C. Shop Drawings.

D. Product Data.

E. Manufacturer's Installation Instructions.

F. Manufacturers' Certificates.

1.2 SUBMITTAL PROCEDURES:

A. Transmit each submittal with Engineer accepted form.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

C. Each submittal shall be limited to a single specification section or material topic. Where equipment packages, assemblies, and the like are interrelated, the submittals should be provided together facilitating review of the Contractor’s purposed offering. When related portions of an equipment package or system are not provided, the submittals may be returned without review.

D. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing and detail number, and Specification section number, as appropriate.

E. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

F. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.

G. For each submittal for review, allow 20 days excluding delivery time to and from the Contractor.

H. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

I. Provide space for Contractor and Engineer review stamps.

J. Revise and resubmit, identify all changes made since previous submission.

K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.

L. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES:

A. Submit initial schedule in duplicate within 20 days after date established in Notice to Proceed.

B. Revise and resubmit as required.

C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

D. Submit a horizontal bar chart with separate line for each major section of Work or operation, identifying first work day of each week.

E. Indicate estimated percentage of completion for each item of Work on each Application for Payment submission.

1.4 SHOP DRAWINGS:

A. Submit the number of reproductions which Contractor requires, plus three copies which will be retained by Engineer.

B. Shop Drawings: Submit for review. After review, produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700--CONTRACT CLOSEOUT.

1.5 PRODUCT DATA:

A. Submit the number of copies which the Contractor requires, plus three copies which will be retained by the Engineer.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

C. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 - CONTRACT CLOSEOUT.

1.6 MANUFACTURER INSTALLATION INSTRUCTIONS:

A. When specified in individual Specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and operating, to Engineer in quantities specified for Product Data.

1.7 MANUFACTURER OPERATION AND MAINTENANCE INSTRUCTIONS:

A. When specified in individual specification sections, submit printed instructions for operations and maintenance (O&M), to Engineer, in quantities specified for Product Data.

B. O&M information shall include but not necessarily be limited to parts lists, disassembly drawings, electrical schematics, and other information required for proper operation and maintenance.

1.8 MANUFACTURER CERTIFICATES:

A. When specified in individual Specification sections, submit certification by manufacturer to Engineer, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Quality Assurance--Control of Installation.

B. Tolerances.

C. References.

D. Testing Laboratory Services.

E. Manufacturers' Field Services and Reports.

1.2 QUALITY ASSURANCE--CONTROL OF INSTALLATION:

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES:

A. Monitor tolerance control of installed Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.4 REFERENCES:

A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product Specification sections.

D. The contractual relationship, duties, and responsibilities of the parties in Contract and of the Engineer, shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 TESTING LABORATORY SERVICES:

A. Engineer will appoint and employ services of a material testing firm to perform testing.

B. The testing firm will perform tests, and other services specified in individual Specification sections and as required by the Engineer or the Owner.

C. Inspecting, testing, and source quality control may occur on or off the project site. Perform off-site inspecting or testing as required by the Engineer or the Owner.

D. Reports will be submitted by the testing firm to the Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

E. Cooperate with testing firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.

1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.

2. Make arrangements with testing firm and pay for additional samples and tests required for Contractor's use.

F. Testing or inspecting does not relieve the Contractor of his responsibility to perform Work to contract requirements.

G. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer. Payment for retesting shall be the Contractor's responsibility.

H. Contractor shall provide all testing services in connection with the following:

1. Concrete materials and design mixtures.

2. Masonry units, masonry grout and mortar materials and design mixtures.

1.6 MANUFACTURERS' FIELD SERVICES AND REPORTS:

A. When specified, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturers' written instructions.

C. Submit report in duplicate within 30 days of observation to Engineer for information.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Contractor Provided Field Office

B. Temporary Utilities: Electricity, water, and sanitary facilities.

C. Temporary Controls: Barriers, protection of the work, and water control.

D. Construction Facilities: Access roads, parking, progress cleaning, and material storage areas.

1.2 CONTRACTOR PROVIDED FIELD OFFICE:

A. Contractor to provide separate Field Office for Contractor's use and Owner/Engineer's use for this project.

B. Establish field offices on the north fence line of the WPP as directed by the Owner.

C. Connect to Owner-provided electrical and water hook-ups.

D. At this office, maintain complete field file of Shop Drawings, posted Contract Drawings and Specifications, and other files of field operations including provisions for maintaining "As Recorded Drawings."

E. Remove field offices from site upon acceptance of the entire work by the Owner.

F. General Construction:

1. New or reconditioned mobile office trailer.

2. Interior paneling.

3. Vinyl tile flooring.

4. 8 FT high acoustic tile ceiling.

5. At least one (1) private office area at one end of the trailer, one (1) reception-conference room area, and private washroom.

6. Windows:

a. Minimum two (2) per room, excepting washroom, with one (1) each on opposing walls.
b. Combination screen-storm windows.
c. Provide horizontal louver blinds on each window.

7. Nominal 60 FT long and 12 FT wide.

8. Two (2) exterior doors (with cylinder deadbolt locks) with outer screens, exterior lights and exterior stairs and railings.

9. Water system to provide water service for restroom fixtures and sinks.

10. Waste holding tank for restroom and other field office drains.

G. Electrical System:

1. All fixtures, outlets, and wiring of Underwriters Laboratories, Inc. (UL) approved devices.

2. All circuits protected by circuit breakers; fuses are not acceptable.

3. Electrical system shall meet requirements of the latest National Electric Code.

4. System suitable for temporary power supplied by Owner.

5. Any transformers or other devices required to match this supply to the mobile office shall be provided and connected.

6. Provide a circuit breaker for the incoming service.

7. Each interior room except the washroom shall have at least four (4) 110 V duplex electrical convenience outlets.

H. Central Combination Electric Heating, Air-Conditioning System:

1. Fan-forced air.
2. Thermostatically controlled.
3. Individual room units are acceptable.
4. Freeze protect and insulate all piping.
5. System sized to maintain 75 Deg F constant temperature in each room.

I. Lighting System:

1. Fluorescent type producing 100 footcandles at desk top height.

2. Ample ceiling fixtures provided to ensure adequate lighting throughout.

J. Standard Washroom:

1. Flush toilet, sink, hot and cold running water.
2. Electric water heater.
3. Mirror.
4. Electric ceiling or wall vent.
5. Sound insulated partitions.

K. Furnishings:

1. Full width built-in desk at end in the office, with a nominal depth of 30 IN and overhead book shelves 12 IN deep.

2. One (1) plan table 39 x 84 IN x 36 IN wide, with one (1) locking equipment drawer.

3. One (1) L-shaped secretary desk with main desk 36 x 72 x 36 IN high with locking lap drawer, side drawer, and hanging file drawer.

   a. The desk shall have a typewriter leaf with a typing paper filing cabinet.

4. Two (2) 30 x 72 IN folding tables.

5. One (1) 48 x 60 IN liquid marking board with minimum four-color set of compatible markers.

6. One (1) 48 x 60 cork bulletin board.

7. Two (2) four-drawer legal size filing cabinets.

8. Two (2) cushioned swivel arm chairs.

9. Two (2) conference chairs.

10. Fourteen (14) folding chairs.

11. Two (2) sets of bookcases, each composed of three (3) shelves 36 IN long and 12 IN wide.

    a. The units shall be a minimum of 3 FT high.

12. Three (3) standard size waste paper baskets.

13. One (1) 2.7 CF refrigerator.

14. Hot and cold electric water cooler.

L. Maintenance:

1. Contractor shall provide all maintenance and upkeep of trailers and equipment.

a. Equipment breakdowns shall be repaired promptly by Contractor.

2. Janitorial service.

a. Weekly:

i. Floor sweeping using dust suppressing compound.
ii. Wet mopping with floor detergent.

b. Inclement weather: Conduct weekly requirements on daily basis.

c. Monthly: Wash windows and clean window blinds.

3. Utility costs by Owner.

4. Maintain at least until acceptance of the entire work by the Owner or until otherwise suspended by the Engineer.

5. Provide and pay for waste removal/disposal from waste holding tank.

6. Provide and pay for 5 gallon bottles of drinking water for electric water cooler.

1.3 TEMPORARY ELECTRICITY:

A. Contractor to arrange for temporary construction power. Owner is responsible for paying for temporary electrical service during construction.

B. Complement existing power service capacity and characteristics as required.

C. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.

1.4 TEMPORARY WATER SERVICE:

A. Connect to existing water source for construction operations using Owner provided fire hydrant meter.

B. Owner will pay cost of water used. Exercise measures to conserve water.

1.5 TEMPORARY SANITARY FACILITIES:

A. Provide and maintain required facilities and enclosures.

1.6 BARRIERS:

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.7 WATER CONTROL:

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddles or running water. Provide water barriers as required to protect site from soil erosion.

1.8 PROTECTION OF INSTALLED WORK:

A. Protect installed work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

1.9 ACCESS ROADS:

A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.

B. Extend and relocate as work progress requires. Provide detours necessary for unimpeded traffic flow.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide means of removing mud from vehicle wheels before entering streets.

1.10 PARKING:

A. Arrange for temporary surface parking areas to accommodate construction personnel.

B. When site space is not adequate, provide additional off-site parking.

1.11 PROGRESS CLEANING AND WASTE REMOVAL:

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

1.12 REMOVAL OF UTILITES, FACILITIES, AND CONTROLS:

A. Remove temporary utilities, equipment, facilities, and materials prior to final inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01564

STORM WATER POLLUTION PREVENTION DURING CONSTRUCTION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Shared Storm Water Pollution Prevention Plan (SWP3)

B. Notice of Intent (NOI).

C. Termination of General Permit Coverage.

1.2 REFERENCES:

A. Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR150000, administered by the Texas Commission of Environmental Quality (TCEQ).

1.3 DEFINITIONS:

A. All definitions per Part I, Section B, Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR150000 (TPDES General Permit).

B. CONTRACTOR: Primary Operator, as defined in the TPDES General Permit.

C. OWNER: Primary Operator, as defined in the TPDES General Permit.

D. Shared SWP3: as described in TPDES General Permit, Part III, Section A.

E. NOI – Notice of Intent.

F. NOT – Notice of Termination.

1.4 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Submit Shared SWP3 for signature by CONTRACTOR and OWNER at Pre-Construction Meeting.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 SHARED STORM WATER POLLUTION PREVENTION PLAN (SWP3):

A. A Shared SWP3 is required for this project. The CONTRACTOR and OWNER shall share one SWP3.

B. CONTRACTOR shall prepare and implement a single, comprehensive SWP3 for the entire construction site in accordance with TPDES General Permit at CONTRACTOR's expense.

1. CONTRACTOR shall clearly list all Operators in the Shared SWP3, including themselves and the OWNER as Primary Operators, and any other Operators participating in the shared SWP3.

2. In the Shared SWP3, the CONTRACTOR must clearly state the following:

a. The CONTRACTOR has day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with the shared SWP3;

b. The OWNER has the ability to make modifications to the construction plans and specifications; and

c. The OWNER has no responsibilities regarding implementation of the SWP3 unless CONTRACTOR fails to perform and complete contractual obligations.

3. The CONTRACTOR shall provide a signature page, in accordance with TPDES General Permit Part III, Section A.1, for the Shared SWP3 to the OWNER at the Pre-Construction Meeting.

4. CONTRACTOR shall prepare, certify, and post the Construction Site Notice in accordance with the applicable section of the TPDES General Permit.

5. If applicable, the CONTRATOR shall submit the Construction Site Notice to operator(s) of any municipal separate sewer system (MS4), in accordance with TPDES General Permit, Part II, Section E.2(c). CONTRACTOR shall determine applicability of this Section.

1.1 NOTICE OF INTENT (NOI):

A. CONTRACTOR shall submit a copy of CONTRACTOR's Notice of Intent (NOI) to OWNER at the Pre-Construction Meeting.

B. CONTRACTOR shall submit CONTRACTOR's NOI to TCEQ in accordance with TPDES General Permit, Part II, Section E.3(b), at least seven (7) days prior to commencing construction activities, or if utilizing electronic submittal, prior to commencing construction, at CONTRACTOR's expense.

1.2 TERMINATION OF GENERAL PERMIT COVERAGE:

A. Within 30 days of meeting any of the conditions in TPDES General Permit, Part II, Section F.3(b), the CONTRACTOR shall:

1. Remove the Construction Site Notices;

2. Complete the applicable portion of the Construction Site Notices related to removal; and

3. Submit the completed Construction Site Notices to the operator(s) if any MS4 receiving the discharge.

B. CONTRACTOR shall submit CONTRACTOR's NOT as required by the TPDES General Permit.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Transportation and Handling.

B. Storage and Protection.

C. Product Options.

D. Substitutions.

E. Storage Facilities.

F. Field Quality Control

1.2 TRANSPORTATION AND HANDLING:

A. Schedule delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

D. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

E. Pipe to be transported with exposed ends tarped to prevent accumulation of airborne contaminates during transport.

1.3 STORAGE AND PROTECTION:

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible.

B. Store sensitive products in weather tight, climate controlled enclosures.

C. For exterior storage of fabricated products, place on sloped supports, above ground.

D. Provide off-site storage and protection when site does not permit on-site storage or protection.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.

F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.4 PRODUCT OPTIONS:

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by naming one or more Manufacturers: Products of manufacturers named and meeting Specifications, no options or substitutions allowed.

C. Products Specified by naming one or more Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article. Where terms such as "or equal," "or equivalent" are used in this Contract, they shall be taken to mean "or approved equivalent." Proposed equivalents shall be offered as substitutions.

1.5 SUBSTITUTIONS:

A. Engineer will consider requests for Substitutions only within 45 days after date established in Notice to proceed.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Will provide the same warranty for the Substitution as for the specified product.

3. Will coordinate installation and make changes to other work which may be required for the work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension which may subsequently become apparent as a result of the Substitution.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit copies of request for Substitution for consideration. Number of copies as specified in Sub-Section 01300-1.5. Limit each request to one proposed Substitution.

2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.

3. The Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 STORAGE FACILITIES:

A. Material staging area is located at the WPP site as shown.

1. Provide weatherproof temporary storage containers as necessary, specifically for the purpose of providing for protection of products and equipment.

a. Size containers to accommodate anticipated storage items.
b. Equip containers with lockable doors.

2. Provide methods of storage of products and equipment off the ground.

3. Return area to natural condition prior to final inspection.

3.2 FIELD QUALITY CONTROL:

A. Inspect Deliveries:

1. Inspect all products or equipment delivered to the site prior to unloading.

a. Reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.

B. Monitor Storage Area: Monitor storage area to ensure suitable conditions are maintained as required by manufacturer or as appropriate for particular items.

END OF SECTION

SECTION 01650

STARTING OF SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Starting Equipment Systems.

B. Demonstration and Instructions.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 STARTING EQUIPMENT SYSTEMS:

A. Coordinate schedule for start-up of various equipment with other portions of the work that are interdependent to the start-up of this contract.

B. Notify Engineer seven days prior to start-up of each item.

C. Verify that each piece of equipment has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions which may cause damage.

D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment in operation.

H. Submit a written report in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

3.2 DEMONSTRATION AND INSTRUCTIONS:

A. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment during equipment start-up services.

C. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

D. As a minimum, the amount of time required for instruction on each item of equipment and system is that specified in individual sections.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Closeout procedures.

B. Adjusting.

C. Final Cleaning.

D. Project record documents.

E. Warranty.

F. Spare Parts and Maintenance Materials.

1.2 CLOSEOUT PROCEDURES:

A. Submit written certification that contract documents have been reviewed, work has been inspected, and that work is complete in accordance with contract documents and ready for Engineer's review.

B. Provide submittals to Engineer that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted Contract sum, previous payments, and sum remaining due.

D. Submit executed Affidavit of Bills paid with final Application for payment. Affidavit shall state all bills for labor, materials, and incidentals incurred in the construction of the project have been paid in full, and that there are no claims pending of which the Contractor has been notified.

1.3 ADJUSTING:

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

1.4 FINAL CLEANING:

A. Execute final cleaning prior to final project assessment.

B. Clean debris from roofs, and drainage systems.

C. Clean site; sweep paved areas, rake clean landscaped surfaces.

D. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 PROJECT RECORD DOCUMENTS:

A. Maintain on site, one set of the following record documents; record actual revisions to the work:

1. Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other modifications to the Contract.

5. Reviewed Shop Drawings, Product Data, and Samples.

6. Manufacturer's instruction for assembly, installation, and start-up of products and equipment.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.

2. Product substitutions or alternates utilized.

3. Changes made by Addenda and modifications.

F. Record Documents and shop drawings: Legibly mark each item to record actual construction including:

1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.

3. Field changes of dimension and detail.

4. Details not on original contract drawings.

G. Remove Engineer title block and seal from all documents.

H. Submit documents to Engineer with claim for final Application for Payment.

1.6 WARRANTY:

A. The Contractor shall guarantee the work performed under this contract against defective materials and workmanship for a period of one year from the date of Substantial Completion or acceptance of individual work elements. The Contractor shall arrange to have his performance bond remain in effect for a period of one year after this date to cover his guarantee as stipulated under this item and in the General Conditions.

B. If defective materials and/or workmanship are discovered which require repairs made under this guarantee, all such repairs shall be done by the Contractor at his own expense within ten days after written notice of such defect. Should the Contractor fail to repair of correct such deficiency within ten days after notification, the Owner may make the necessary repairs and charge the Contractor with the applicable costs of all labor and materials required to correct the deficiency.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS:

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.

B. Deliver to project site and place in location as directed; obtain receipt prior to final payment.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 02110

SITE CLEARING AND GRUBBING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. General

B. Preparation for Work.

C. Protection of Existing Features.

D. Clearing and Grubbing.

E. Debris Removal.

F. Erosion Control.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL:

A. Site clearing and grubbing shall consist of the removal and disposal of trees, stumps, brush, roots, vegetation, logs, rubbish and other objectionable matter from the construction area.

B. Contractor shall take care to preserve and protect all existing trees on the project site. At no time shall Contractor park vehicles or equipment or store materials within 10' of the drip-line of any existing trees.

3.2 PREPARATION FOR WORK:

A. Verify that existing plant life designated to remain, if any, is tagged or identified and protected.

B. Verify and protect survey control.

3.3 PROTECTION OF EXISTING FEATURES:

A. Locate, identify and protect the utilities to remain from damage.

B. Protect trees, plant growth and features designated to remain.

C. Protect benchmarks and survey control from damage or displacement.

3.4 CLEARING AND GRUBBING:

A. The designated construction area shall be cleared of all trees, brush, shrubbery and plants, not indicated to be preserved. Trees and brush designated to be left in place shall be carefully trimmed as directed and shall be protected from scarring, barking, or other injuries during construction operations. Pruned limbs over two inches in diameter shall be treated by painting the exposed ends with an approved asphaltic material. Stumps, roots and other objectionable materials sources are to be removed to the complete extent necessary to prevent objectionable matter from becoming mixed with the material to be used in construction.

B. Unless otherwise provided, all merchantable timber removed as previously specified shall become the property of the Contractor. It is the intent of this Specification to provide for the removal and disposal of all obstructions and objectionable materials not designated to remain.

C. Remove existing concrete and asphalt paving, curb, gutter, walks and other items shown, or described to be removed.

D. Remove trees, shrubs and other plant life within the site shown, or described to be removed. Remove trees and shrub stumps and root system to a depth of 24 inches below existing grades. Remove grass and ground cover root system to a depth of 6 inches.

3.5 DEBRIS REMOVAL:

A. Removed material shall become the property of the Contractor. Contractor shall remove debris, rock and extracted plant life from site and legally dispose.

3.6 EROSION CONTROL:

A. Provide erosion control measures necessary to maintain site. Protect against both wind and rainfall erosion.

B. Provide erosion control as specified in Section 01564.

END OF SECTION

SECTION 02210

GRADING AND EARTHWORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Grading and earthwork which occur in areas other than under structures, under paving, or trenching for utilities.

B. Earthwork consists of operations required for the excavation of materials on-site; excavation of borrow material from designated areas; compaction of natural or improved sub-grades; finish grading; disposal of excess or unsuitable materials; and other required operations. Earthwork shall conform with dimensions and typical sections shown, and with lines and grades established.

1.2 REFERENCES:

A. ASTM D698 — Test for Moisture-Density Relations of Soils (Standard).

B. ASTM D1557 — Test for Moisture-Density Relations of Soils (Modified).

C. ASTM D2487 — Classification of Soils for Engineering Purposes.

D. ASTM D2922 — Density of Soil and Soil Aggregate In-Place by Nuclear Methods.

E. ASTM D3017 — Moisture Content of Soil and Soil Aggregate In-Place by Nuclear Methods.

1.3 DEFINITIONS:

A. Classification: Earthwork materials are classified in accordance with definitions in this Article.

B. Topsoil: Top 6 inches of natural surface soil possessing the characteristics of representative soils on the site that produce growths of grass or other vegetation. Topsoil includes roots and other vegetation.

C. General Site Fill: Suitable, clean material excavated on-site or imported borrow material meeting specified characteristics.

D. Select Fill: Imported borrow material as required for construction, and as defined.

E. Subgrade: Natural soil at the established lines and grades.

F. Borrow: Material taken from designated areas to make up any deficit of excavated material and used for general site or select fill. Obtain from area that is normally dry and well drained. Borrow does not include top soil.

G. Finish Grading: Operations required for smoothing disturbed areas that are not overlaid with pavement.

H. Excavation: Excavation of every description and of whatever substances encountered within the limits of the project to the lines and grades indicated.

I. Compaction: Compaction of soil materials shall be measured as a percent of Standard Proctor density as determined by ASTM D698.

1.4 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Samples: Adequate samples of material as required by the testing laboratory.

C. Quality Control Submittals: For information only.

1. Test Reports: Laboratory analysis of each soil material, including on-site and borrow materials proposed for use on project.

a. General Site Fill: Soil type, liquid limit and plasticity index. Moisture-density relations; identify maximum density optimum moisture.

b. Select Fill: Soil type, liquid limit, plasticity index and gradation. Moisture-density relations; identify maximum density/optimum moisture.

c. Topsoil: Soil type, liquid limit, and plasticity index.

1.5 EXISTING UTILITIES:

A. Where pipes, ducts, and structures are encountered in the excavation but are not shown, immediately notify the Engineer.

PART 2 PRODUCTS

2.1 SELECT FILL:

A. Source: Select fill shall be imported borrow material from borrow areas approved by the Engineer. Material from source shall be tested for compliance with project requirements and approved by the Engineer.

B. Suitability: Use the best material available, suitability of select fill is subject to the Engineer's approval.

C. Quality: Select fill material must be free of clay lumps larger than 1 inch, rocks larger than ½-inch, and/or excessive silts. Do not use soil containing brush, roots, sod, or similar organic materials.

D. Characteristics: Materials shall conform to ASTM D2487 Class II or Class III and shall have a liquid limit less than 35 with a plasticity index less than 15 but greater than 4.

2.2 GENERAL SITE FILL:

A. Source: Obtain general site fill from required excavation or, if excavated material is not sufficient, from borrow areas approved by the Engineer.

B. Suitability: Use the best material available from excavation or borrow. Suitability of general site fill material is subject to the Engineer's approval.

C. Quality: Fill material shall be free of lumps larger than 3 inches, rock larger than 2 inches, and excessive silts. Do not use soil containing brush, roots, sod, or similar organic materials.

D. Characteristics: General site fill material shall conform to ASTM D2487 Class II or Class III Soils.

2.3 TOP SOIL:

A. Source: Obtain top soil from the required excavation, or if sufficient material is not available, from borrow areas approved by the Engineer.

B. Suitability: Use the best material available. Suitability of material is subject to the Engineer's approval.

C. Quality: Material shall be free of large roots or branches, stumps, brush, rubbish, or other objectionable matter.

D. Characteristics: Soils possessing the characteristics that produce growth of grasses or other vegetation.

2.4 SOURCE QUALITY CONTROL:

A. Provide materials of each type from same source throughout the project.

B. A change in source requires sampling, testing, and approval by Engineer.

PART 3 EXECUTION

3.1 STRIP AND STOCKPILE:

A. Remove topsoil at all non-paved areas where excavation of topsoil is required or where fill material will be added for site grading.

B. Remove top 6 inches of topsoil where necessary and stockpile on the Owner's property. Protect stockpiled topsoil from other excavated materials, dumping of unwanted material, dumping by the public, and erosion. Upon completion of rough grading, replace topsoil in 4-inch minimum layer to finish grade elevations as shown on the Grading Plan.

C. Removal of topsoil in building areas and paving areas is further described in Sections 02224.

3.2 EXCAVATION:

A. Objective: Excavate to lines, grades, and elevations as shown or required for subsequent construction. All excavation shall be made in such manner as to permit all surfaces to be brought to final line and grade within ±0.1 foot. Over-excavation shall be restored by the Contractor at his own expense. Finish grades consistently high or low will not be acceptable and shall be corrected by the Contractor at his expense and no additional cost to the Owner.

B. Drainage: During excavation, maintain grades as required to maintain drainage; or, as directed by the Owner or Engineer, install temporary drains or drainage ditches to intercept or divert surface water and prevent interference or delay of the work.

C. Stockpiling: If at time of excavation it is not possible to place material in the proper section of permanent construction, stockpile the material in Owner or Engineer approved areas for later use.

D. Stone or Rock: Stones or rock fragments larger than 2 inches in their greatest dimension will not be permitted in top 6 inches of subgrade.

E. Dressing: Uniformly dress-cut and fill slopes to slope, cross section, and alignment, as shown.

F. Rock: Break with hydraulic ram to obtain near neat line excavation. Blasting will not be allowed.

G. Classification: Excavation is unclassified.

3.3 TREATMENT OF SUBGRADES:

A. Topsoil and vegetation in excavation, or fill areas, shall be stripped from the ground surface and stockpiled, exposing sound undisturbed subgrade soils.

B. Fill Areas: Scarify subgrade to a depth of 6 inches and recompact to a density of 95% of maximum density per ASTM D698 at a moisture content of ±2% of optimum.

C. Cut Areas: Scarify exposed subgrade to a depth of 6 inches and recompact to a density of 95% of the maximum density per ASTM D698 at a Moisture content of ±2% of optimum.

D. Undercut any soft or compressible areas detected during the recompaction process to sound subgrade soils and recompact. General or select fill shall be used to bring the soft or compressive areas to grade. Work shall precede placement of topsoil, walks, drives, or structure foundations. Allow for placement of minimum 4-inch layer of topsoil in areas not covered by structures or pavement.

3.4 PLACING FILL:

A. Examination of Subgrade: Do not place fill until the subgrade preparation has been accepted by the Engineer.

B. Removing Debris: Remove all roots, stone, and debris that are uncovered in the fill material.

C. Spreading Fill and Backfill: Spread the material in horizontal layers over the entire fill area. The thickness of each layer before compaction shall not exceed 8 inches unless otherwise directed by the Engineer.

D. Attaining Proper Bond: If the compacted surface of a layer is too smooth to bond with succeeding layers, loosen the surface before continuing the work.

E. Place materials to lines and grades shown allowing for depth of topsoil.

F. Maintain aggregate drainage throughout construction.

G. The material shall be blended sufficiently to secure the best degree of compaction.

3.5 DISTRIBUTION OF TOPSOIL:

A. Perform rough grading and topsoil/finish grading work.

B. Preparation:

1. Prior to placing topsoil, scarify the subgrade to a depth of 2 inches to provide effective bonding.

2. Shape areas designated, including cut and fill areas, to receive a minimum of 4 inches of topsoil.

C. Placement:

1. Do not haul or place wet topsoil. Also prohibited is placement of topsoil on a subgrade that is excessively wet, extremely dry, or in a condition otherwise detrimental to proper grading or planting.

2. Distribute topsoil uniformly and spread evenly. Correct irregularities in the surface to prevent formation of depressions where water could stand.

3. Perform the spreading operation so that planting can proceed with little additional tillage or soil preparation. Leave the area smooth and suitable for planting.

4. Lightly compact topsoil to obtain proper bond with previously placed or prepared material.

D. Maintenance: Where any portion of the surface becomes eroded or otherwise damaged, repair the affected area to establish the condition and grade prior to topsoil placement; then replace topsoil.

3.6 MATERIAL DISPOSAL:

A. Remove waste and excess excavated material from the construction site before Pre-final Inspection. Legally dispose of material at a licensed site or with written and notarized permission from the property owner for a private disposal site. All costs associated with waste material removal and disposal shall be paid for by the Contractor.

END OF SECTION

SECTION 02220

TRENCH AND EXCAVATION SAFETY SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Requirements for a Trench and Excavation Safety System to be designed and furnished by the Contractor for the safety and health of personnel.

B. Submission of a written Plan describing the System in detail.

1.2 PAYMENT:

A. Payment will be as stipulated on the Bid Form.

1. If no individual line item is identified, include in appropriate Lump Sum bid item(s). Provide as a Schedule of Values project element in accordance with Section 01019.

2. If individual line item is identified on the Bid Form and is presented as unit cost per linear foot, the Trench Safety Plan shall include appropriate trench safety for excavation that may be required for any relevant lines, structures, etc. Include associated costs in unit cost presented on bid.

1.3 REFERENCES:

A. 29CFR1926 - Occupational Safety and Health Standards - Excavations, United States Department of Labor, latest edition.

B. Others - Other applicable Federal, State, and local rules for Trench Construction or Excavations.

1.4 REQUIREMENTS:

A. The Contractor shall develop, design, and implement a System. The Contractor shall bear the sole responsibility for the adequacy of the System.

B. The requirements of 29CFR1926 shall be the minimum requirements for this specification and is adopted as a part of this specification. Other regulations relating to trench and excavation safety shall also be considered a part of this specification as if referenced directly.

C. Should the System require wider trenches than shown, the Contractor shall be responsible for the costs associated with determining adequacy of pipe bedding and class, as well as, purchase and installation of alternate materials.

1.5 SUBMITTALS:

A. Submit copies of the System Plan for information only. The Engineer will not review the System Plan for sufficiency, adequacy, or other engineering aspects. Submission is only to record the presence or absence of the System Plan.

1.6 QUALITY ASSURANCE:

A. The Trench Safety System shall be designed by an Engineer registered as a Professional Engineer in the State of Texas. The System Plan shall be sampled with the Engineer's seal, signed, and dated.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL:

A. Implement the system in accordance with the written System Plan and conduct affected work in accordance with the same.

END OF SECTION

SECTION 02224

EXCAVATION, BACKFILLING and COMPACTING FOR STRUCTURES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Excavating, Backfilling and Compacting for Structures.

1.2 REFERENCES:

A. ASTM C136 — Sieve Analysis of fine and course aggregates.

B. ASTM D698 — Standard Methods of Test for Moisture-Density Relations of Soil (Standard).

C. ASTM D1557 — Test for Moisture-Density Relations of Soil (Modified).

D. ASTM D2992 — Density of Soil and Soil Aggregate In-Place by Nuclear Methods.

E. ASTM D3017 — Moisture Content of Soil and Soil Aggregate In-Place by Nuclear Methods.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Samples: Aggregate samples of material as required by the testing laboratory.

C. Quality Control Submittals: For information only.

1.4 PROJECT CONDITIONS:

A. Protection:

1. Erect sheeting, shoring and bracing as necessary for protection of person, improvements and excavations.

2. Provide dewatering and drainage necessary to keep excavations free of water.

B. Coordination: Coordinate backfill operations with installation of utilities.

PART 2 PRODUCTS

2.1 EXCAVATED MATERIAL:

A. Source: Select fill shall be imported borrow material from borrow areas and/or on-site materials approved by the Engineer. Material from source shall

be tested for compliance with project requirements and approved by the Engineer.

B. Suitability: Use the best material available, suitability of select fill is subject to the Engineer's approval.

C. Quality: Select fill material must be free of clay lumps larger than 1 inch, rocks larger than 2-inches and/or excessive silts. Do not use soil containing brush, roots, sod, or similar organic materials.

D. Characteristics: Materials shall conform to ASTM D2487 Class II or Class III and shall have a liquid limit less than 35 with a plasticity index less than 15 but greater than 4.

2.2 GENERAL SITE FILL:

A. Source: Obtain general site fill from required excavation or, if excavated material is not sufficient, from borrow areas approved by the Engineer.

B. Suitability: Use the best material available from excavation or borrow. Suitability of general site fill material is subject to the Engineer's approval.

C. Quality: Fill material shall be free of lumps larger than 3 inches, rock larger than 2 inches and excessive silts. Do not use soil containing brush, roots, sod, or similar organic materials.

D. Characteristics: General site fill material shall conform to ASTM D2487 Class II or Class III Soils.

2.3 AGGREGATE:

A. Free-draining, well-grade crushed rock, gravel, or sand per ASTM 136, Coarse Aggregate Section.

2.4 TOP SOIL:

A. Source: Obtain top soil from the required excavation, or if sufficient material is not available, from borrow areas approved by the Engineer.

B. Suitability: Use the best material available. Suitability of material is subject to the Engineer's approval.

C. Quality: Material shall be free of large roots or branches, stumps, brush, rubbish, or other objectionable matter.

D. Characteristics: Soils possessing the characteristics that produce growth of grasses or other vegetation.

2.5 SOURCE QUALITY CONTROL:

A. Provide materials of each type from same source throughout the project.

B. A change in source requires sampling, testing and approval by Engineer.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION:

A. Examine project site and investigate existing subsurface conditions to determine nature, kind and character of materials and conditions to be encountered.

B. Prior to commencing excavation operations, disconnect and cap or protect existing utility services, if any, in accordance with the requirements of the owning companies and applicable ordinances and regulations.

C. Provide for surface drainage.

D. Keep excavations free of water during entire progress of the work.

E. Prior to backfilling against grade beams and below grade walls, verify that beams, walls and footings have properly cured.

F. Verify that forms, trash, debris and applicable temporary shoring have been removed.

G. Verify that walls are supported at top and bottom.

3.2 EXCAVATION:

A. Excavate beneath structures to lines, grades and elevations as shown. Over-excavation shall be restored by the Contractor at his own expense.

B. Scarify exposed surfaces to a depth of 8 inches and recompact to a density of 95% of the maximum dry density when tested by the Standard Proctor Compaction Test (ASTM D698), at or above optimum moisture content.

C. Remove weak or highly organic soils noted by probing and replace with general site fill. Place fill in 8-inch lifts and compact to 95% of maximum dry density (ASTM D698) at or above optimum moisture content.

D. Do not extend structure fill beyond structure lines or as shown.

E. Excavation is unclassified. Break rock with hydraulic ram to obtain near neat line excavation. Blasting is not allowed.

3.3 BACKFILL:

A. Schedule backfilling to expedite construction progress.

B. Backfill in manner to prevent excessive pressure against previously completed work and to prevent damage or displacement to utility systems.

C. Place backfill materials for grade beams as follows:

1. Exterior Face of Grade Beams: Where required, backfill with select fill. Place backfill in layers of approximately 8 inches loose lifts and compact to minimum 95% of maximum dry density percent at or above optimum moisture content. Standard Proctor Density (ASTM D698).

2. Place backfill at grade beams as soon as forms are removed. Keep grade beam excavations dry at all times. If rain occurs before backfill is placed, remove water for excavations immediately.

D. Backfill structure walls with free-draining coarse aggregate backfill. Consolidate by tamping to uniform density to prevent settling. Do not over compact.

E. Exercise care to prevent over compaction of backfills.

F. Where top of below grade structure backfill is not covered with paving or other impervious barrier, the final two feet of backfill shall be general site fill. Place fill in 8-inch thick lifts and compact to minimum 95% of maximum dry density at or above optimum moisture content. Allow for 4 inches of top soil placement.

G. Undercut any soft or compressible areas detected during the recompacting process to sound subgrade soils and recompact. General or select fill shall be used to bring the soft or compressive areas to grade. Work shall precede placement of topsoil, walks, drives, or structure foundations. Allow for placement of minimum 4-inch layer of topsoil in areas not covered by structures or pavement.

3.4 MATERIAL DISPOSAL:

A. Remove waste and excess excavated material from the construction site before final inspection. Legally dispose of material at a licensed site or with written and notarized permission from the property Owner for a private disposal site. All costs associated with waste material removal and disposal shall be paid for by the Contractor.

3.5 TESTING:

A. Laboratory Testing and Inspection Services: As specified in Section 01400-1.5, Testing Laboratory Services.

B. Soil Moisture and Density: Perform a minimum of 3 tests per lift.

END OF SECTION

SECTION 02225

EXCAVATION, BACKFILLING AND COMPACTING FOR UTILITIES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Unclassified excavation, trenching, bedding, backfilling and compacting for potable water mains, gravity-flow sanitary sewers, manholes, valves, and other utility systems and appurtenances, and the disposal of excess excavated material.

1.2 REFERENCES:

A. ASTM C33 – Coarse Aggregates.

B. ASTM D698 – Moisture-Density Relations of Soil (Standard).

C. ASTM D1557 – Test for Moisture-Density Relations of Soil (Modified).

D. ASTM D2321 – Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity – Flow Applications.

E. ASTM D2487 – Classification of Soils for Engineering Purposes.

F. ASTM D4254 – Minimum Index Density and Unit Weight of Soils and Calculations of Relative Density.

G. ASTM D4318 – Test for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

H. OSHA – Occupational Safety and Health Administration and Related Regulations.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Submit sample(s) of material(s) proposed to be used for bedding in the pipe zone and backfill of fiberglass structures.

1. One (1) set to materials testing lab for classification.
2. One (1) set to Engineer for approval.

1.4 PROTECTION OR REMOVAL OF EXISTING UTILITIES:

A. The Contractor shall anticipate all underground obstructions, such as but not limited to, water mains, gas lines, storm and sanitary sewers, telephone or electric light or power ducts, concrete and debris. Any such lines or obstructions indicated on the Drawings show only the approximate locations and shall be verified in the field by the Contractor. The Owner and Engineer

will endeavor to familiarize the Contractor with all known utilities and obstructions, but this shall not relieve the Contractor from full responsibility in anticipating all underground obstructions whether or not shown on the Drawings.

B. The Contractor shall, at his own expense, maintain in proper working order and without interruption of service all existing utilities and services which may be encountered in the work. With the consent of the Engineer and utility owner such service connections may be temporarily interrupted to permit the Contractor to remove designated lines or to make temporary changes in the locations of services. The cost of making any temporary changes shall be the responsibility of the Contractor.

C. Notify all utility companies involved to have their utilities located and marked in the field. All underground utilities in a particular segment of the project shall then be uncovered to verify location and elevation before construction begins in that segment of the project.

D. The Contractor shall obtain necessary permits, except County right-of-way permits, required for completion of the project.

1.5 DEFINITIONS:

A. All excavation associated with the project is unclassified.

B. Bedding: Includes the area from the trench bottom to the bottom of the pipe where material is placed to bring the trench bottom up to grade. A compacted depth of approximately 4 to 6 inches is generally sufficient bedding thickness.

C. Haunching: Includes the area from the bottom of the pipe to the spring line of the pipe. Material in this area must be placed and consolidated to provide adequate side support while avoiding both vertical and lateral displacement of the pipe. **The type and density of the material in this area are the most important factors affecting the performance and deflection of the pipe.**

D. Initial Backfill: Includes the area from the spring line of the pipe to a point at least 6 inches over the top of the pipe.

E. Final Backfill: Includes the area above the initial backfill, up to final grade or the bottom of the flexible base material in the pavement section.

F. Pipe Zone: Includes areas of bedding, haunching and initial backfill as defined above.

PART 2 PRODUCTS

2.1 PIPE ZONE:

A. Unless otherwise indicated on the drawings, materials for use within the pipe zone and within 24 inches of fiberglass structures shall be in accordance with following Table 2.1:

TABLE 2.1
DESCRIPTION OF MATERIAL CLASSIFICATION
(as defined in ASTM D2321)

Class	Type	Soil Group Symbol	Description ASTM D2487	% Passing Sieve Sizes			Atterberg Limits		Coefficients	
				1½ in (40 mm)	#4 (4.75 mm)	#200 (0.075 mm)	LL[b]	PI[c]	Uniformity C_u	Curvature C_c
I	Manufactured, Processed Aggregate; dense-graded, clean	None	Angular, granular, crushed stone or rock, crushed gravel, and stone/sand mixtures with gradations selected to minimize migration of adjacent soils; contain little or no fines	100%	≤50%	<5%	Non Plastic			
II	Coarse-Grained Soils, clean	GW	Well-graded gravels and gravel-sand mixtures; little or no fines	100%	<50% of Coarse Fraction	<5%	Non-Plastic		>4	1 to 3
		GP	Poorly-graded gravels and gravel-sand mixtures; little or no fines						<4	<1 or >3
		SW	Well-graded sands and gravelly sands; little or no fines		>50% of Coarse Fraction				>6	1 to 3
		SP	Poorly-graded sands and gravelly sands; little or no fines						<6	<1 or >3
	Coarse-Grained Soils, borderline clean to w/fines	e.g. GW-GC, SP-SM.	Sands and gravels which are borderline between clean and with fines	100%	Varies	5% to 12%			Same as for GW, GP, SW and SP	
III	Coarse-Grained Soils with Fines	GM	Silty gravels, gravel-sand-silt mixtures	100%	<50% of Coarse Fraction	>12% to <50%		<4 or <"A" Line		
		GC	Clayey gravels, gravel-sand-clay mixtures					<7 and >"A" Line		
		SM	Silty sands, sand-silt mixtures	>50% of Coarse Fraction				>4 or <"A" Line		
		SC	Clayey sands, sand-clay mixtures					>7 and >"A" Line		
IV[a]	Fine-Grained Soils (inorganic)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity	100%	100%	>50%	<50	<4 or <"A" Line		
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					>7 and >"A" Line		

[a] Includes Test Method ASTM D2487 borderline classifications and dual symbols depending on plasticity and liquid limits.

[b] LL = Liquid Limit.

[c] PI = Plasticity Index.

B. Unless otherwise indicated on the drawings, Class I or II materials as described in Table 2.1 above are approved for the pipe zone or within 24 inches of fiberglass structures. In addition to these materials the following

materials are approved for the pipe zone or within 24 inches of fiberglass structures:

1. Lean Concrete/Flowable Fill: Free-flowing grout, mixed one (1) sack of cement per cubic yard of sand.

2. Structural Concrete: Concrete for encasement shall be 3000 psi compressive strength as specified in Division 3.

2.2 FINAL BACKFILL MATERIALS:

A. Earth Backfill: Earth backfill may be excavated and reused from trench or obtained from an approved borrow area. Material shall be processed to ensure that only select material is used for backfilling operations. Material shall be free of lumps, clods, large rocks, debris, trash, organic, spongy or otherwise objectionable material. The presence of such material in the backfill may preclude uniform compaction and result in excessive localized point loads on or deflections in the piping system or fiberglass structure.

B. Open Areas:

1. All materials included in Table 2.1 above are approved for final backfill in open areas, including earth backfill from excavated material.

C. Pavement Section or within limits of service roads regardless of surface condition:

1. Class I or II materials as described in Table 2.1 above are approved for final backfill above the pipe zone to below the road base material, or

2. Flexible base material as specified in SECTION 02231.

PART 3 EXECUTION:

3.1 EXAMINATION AND PREPARTATION:

A. Examine utility routes and coordinate excavation work to eliminate installation conflicts.

B. Allow room for stockpiling excavated material and utility construction material during utility construction.

C. Contractor shall provide erosion controls as necessary to prevent stockpiled material from washing into adjacent water courses or streets in the event of rain. Maintain controls in place until applicable area has been restored to original or final grade. Refer to the Site SWPPP.

3.2 TRENCH EXCAVATION:

A. Procedure: Excavated to indicated or specified depths.

1. Excavate by open cut method.

2. During excavation, stockpile material suitable for backfilling in an orderly manner far enough from the bank of the trench to avoid overloading, slides, or cave-ins.

3. Grade as necessary to prevent surface water from flowing into trenches or other excavations.

4. Cut walls of trench as close to vertical as the stability of the material and trench safety will allow. Remove stones as necessary to avoid point-bearing. Over-excavate wet or unstable soil from the trench bottom to permit construction of a more stable bed for pipe. Over excavation shall be filled and tamped with clean dry sand, pea gravel, or other approved material to the required grade.

5. Excavate the trench the proper width as shown, or as required by the Contractor's Trench Safety Program. If the trench width below the top of pipe is wider than specified in this section or shown, install additional backfill. No additional payment will be made for additional material or work required for installation.

6. Accurately grade the trench bottom to provide proper bedding as required for pipe installation.

7. If any excavation is carried beyond the lines and grades required or authorized, the Contractor shall, at his own expense, fill such space with suitable material and properly compact the material as directed by the Engineer. No additional payment will be made.

B. Sheeting and Bracing: If trench safety methods do not include sloping of trench walls, install sheeting and bracing; or use appropriate trench box necessary to support the sides of trenches and other excavations with vertical sides, as required by current OSHA regulations.

C. Water in Excavation: Keep work free from ground or surface water at all times. Provide pumps of adequate capacity or other approved method to remove water from the excavation in such a manner that it will not interfere with the progress of the work or the proper placing of other work.

D. Existing Lawns and Shrubbery: The Contractor shall take particular care to preserve existing lawns and shrubbery. Make minor pipe alignment as may be necessary.

E. Existing Pavement: Existing pavement over trenches shall be removed to a width of 6 inches outside of the trench on each side. Remove to a neat line by sawing method. Take appropriate measures to prevent damage to existing pavement adjacent to the trench by wheels, tracks and/or stabilizers of excavating equipment. Remove brick pavement by hand, deliver and stack as directed by the Owner.

3.3 PIPE BEDDING:

A. Concrete Encasement:

1. Where shown, the Contractor shall install the pipe in concrete encasement.

2. Concrete for encasement shall be 3000 psi compressive strength as specified in Section 03300.

3. Precautions shall be used to prevent pipe floating, movement or deflection during construction.

4. Concrete for encasement, shall be included in the unit price bid per linear foot in place.

B. Within the Pipe Zone (unless otherwise indicated on the drawings):

1. Accurately grade the bottom of the trench 4 inches below the bottom of the pipe and to the limits of the clear space on either side of the pipe.

2. Install Class I or II materials which comply with Table 2.1 above accordance with "Pipe Bedding Detail" shown on the Drawings.

3. The initial layer of embedment material placed to receive the pipe shall be brought up to a grade slightly higher than that required for the bottom of the pipe and the pipe shall be placed thereon and brought to grade by tamping, or by removal of the slight excess amount of embedment under the pipe.

4. Adjustment to grade line shall be made by scraping away or filling with embedment materials. Wedging or blocking up of pipe will not be permitted.

5. Each pipe section shall have a uniform bearing on the embedment for the full length of the pipe, except immediately at the joint.

6. After each pipe has been graded, aligned, placed in final position on the bedding material and joint made, sufficient embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to hold the pipe in proper position and alignment during subsequent pipe jointing and embedment operations.

7. Sheeting and shoring will not be allowed in the pipe zone during or after installation of the pipe or embedment material, unless special provisions are made to ensure the specified compaction of bedding and pipe alignment is maintained after removal of sheeting and shoring.

8. Minimum compaction effort within the pipe zone and adjacent to fiberglass structures shall be in accordance with the following Table 3.3 based on the classification of bedding material used:

TABLE 3.3
MINIMUM REQUIRED COMPACTION
FOR MATERIAL USED WITHIN PIPE ZONE

Classification of Bedding Material	Standard Proctor Density[a] (Relative Density[b] shown in parentheses)
Class I	Dumped
Class II	≥85% standard (≥40% relative)
Class III	Not approved
Class IV	Not approved
Class V	Not approved

[a] Standard Proctor Density per ASTM D698, moisture content shall be ± 2% of optimum.
[b] Relative Density per ASTM D4254.

3.4 UTILITY INSTALLATION:

A. Water Mains: Provide a minimum of 36 inches of cover over the top of the pipe. Avoid interference of water lines with other utilities. Provide class of bedding as shown. Install piping and appurtenances as specified.

B. Sanitary Sewers: Install piping to the lines and grades as shown on the Drawings. Limit clear space on either side of the pipe to 12 inches. Above the pipe, cut as wide as necessary to sheet and brace and properly perform the work. Provide class of bedding as shown. Install piping and appurtenances as specified.

C. Excavation for Appurtenances: Excavate sufficiently for valves, fittings, manholes, valve vaults, utility pull boxes and similar structures to leave at least 18 inches clear between the outer surfaces and the embankment or shoring that may be used to hold and protect the embankment wall. Install valves, fittings, manholes or valve vault structure, piping and appurtenances as specified. Any other-depth excavation will be refilled with lean concrete or other suitable compacted material approved by the Engineer, at no additional cost to the Owner.

3.5 FINAL BACKFILL:

A. Criteria: Backfill trenches to ground surface with material as specified. Reopen trenches improperly backfilled to depth required for proper compaction. Refill and compact as specified, or otherwise correct the condition in an approved manner.

B. Take care to avoid contacting pipe or structure to be backfilled with compaction equipment. Do not use compaction equipment directly over the pipe until sufficient initial backfill has been placed to assure such equipment will not be damage or disturb the pipe.

C. All forms, lumber, trash and debris shall be removed from trenches, manholes and other utility structures prior to backfilling.

D. Dispose of unacceptable backfill material and provide suitable material for backfill at no additional cost to the Owner.

E. Open Areas:

1. Above the pipe zone, deposit backfill material in 6 to 8 inch lifts, compact to minimum of 85 percent of maximum density per ASTM D698, while maintaining moisture within ± 2 percent of optimum. Excavated material placed shall be free of rock greater than two (2) inches in any direction.

2. Backfill for valves, fittings, manholes, utility pull boxes and other utility structures shall be placed in accordance with applicable Specification Sections.

F. Pavement Section or within limits of service roads regardless of surface condition:

1. Above the pipe zone to below the flexible base material, deposit backfill material in 6-inch lifts, compact to minimum of 95 percent of maximum density per ASTM D698, while maintaining moisture within ± 2 percent of optimum; or deposit ASTM D2487 Class I or II material in 6-inch lifts, compact to 40 percent relative density according to ASTM D4254.

2. For valves, fittings, manholes, valve vaults or boxes in pavement sections, backfill with Class I or II material to bottom of proposed pavement. Backfill material shall be deposited in 6-inch lifts. Class I or II material must be compacted to 40 percent relative density according to ASTM D4254.

3.6 TESTING:

A. Testing Laboratory Services: In-place moisture-density testing may be ordered by Engineer to insure that all trench backfill complies with the requirements of the Specification. Tests will be performed by a recognized independent laboratory, and all costs of tests showing proper compaction will be paid for by the Owner. Testing showing improper compaction shall be paid for by the Contractor. Copies of all test results will be furnished to the Contractor. If improper compaction is identified, Contractor shall repair the area to meet the specification. All costs associated with repair and re-testing to prove the repaired installation meets the specification will be the responsibility of the Contractor.

B. See Section 01400.

3.7 DISPOSAL OF EXCESS MATERIAL:

A. Remove waste and excess excavated material from the construction site before final inspection. Legally dispose of material:

1. At a licensed and approved site.

2. On adjacent private property with written and notarized permission from the property owner.

3. On Owner property with written and notarized permission from the Owner.

B. All cost associated with waste material removal and disposal shall be the responsibility of the Contractor.

END OF SECTION

SECTION 02226

EXCAVATION, BACKFILLING AND COMPACTING FOR PAVEMENT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Excavating, Backfilling and Compacting for establishing pavement subgrade elevations. Installation of flexible base material as a finished roadway material, or as a subgrade material for asphaltic concrete paving.

1.2 REFERENCES:

A. ASTM D698 — Moisture — Density Relations of soils (standard).

B. ASTM D1557 – Moisture-Density Relations of soils (modified).

C. ASTM D4318 — Test for liquid limit, plastic limit and plasticity index of soils.

D. ASTM D3017 — Moisture content of Soil and Soil Aggregate In-Place by Nuclear Methods.

E. ASTM D2992 — Density of Soil and Soil Aggregate In-Place by Nuclear Methods.

F. TxDOT — Texas Department of Transportation Standard Specifications.

1.3 SUBMITTALS:

A. Procedures for submittals: Reference paragraph 1.3, Section 02210.

1.4 DEFINITION:

A. Classification: Earthwork materials are classified in accordance with definitions in this article.

B. Topsoil: Top 6 inches of natural surface soil possessing the characteristics of representative soils on the site that produce growths of grass or other vegetation. Topsoil includes roots and other vegetation.

C. Pavement Fill: Fill material excavated on-site or off-site consisting of inorganic sandy clay or clayey sand.

D. Natural Subgrade: Consists of that portion of the surface on which a compacted embankment or pavement is constructed, after removal of 6-inch topsoil layer, as described in Section 02110.

E. Compacted Fill: A subgrade under pavement consisting of fill placed and compacted between the top of the compacted natural subgrade and

underside of pavement and including fill areas adjacent to paving within limits shown on typical cross sections.

F. Borrow: Material taken from approved areas to makeup any deficit of excavated material.

G. Finish grading: Operations required for smoothing disturbed areas that are not overlaid with pavement.

H. Excavation: Excavation of every description and of whatever substance encountered within the grading limits of the project to the lines and grades indicated in the drawings.

I. Compaction: Compaction of soil materials shall be measured as a percent of standard or modified proctor density at the specified moisture content as determined by ASTM D698 or ASTM D1557.

J. Flexible Base: Material meeting TxDOT Item 247, "Flexible Base".

1.5 EXISTING UTILITIES:

A. Where pipes, ducts and structures are encountered in the excavation but are not shown on the drawings, immediately notify the Engineer.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Fill under pavement:

1. On-site excavated material or material excavated from approved source.

2. Plasticity index between 6 and 15.

3. Liquid limit of 35 or less.

4. No rock or pieces larger than 3 inches greatest dimension.

5. All fill soils shall be free of organic material and debris.

B. Flexible Base: TxDOT Item 247, Type A, Grade 2, or better.

PART 3 EXECUTION:

3.1 HANDLING OF TOPSOIL:

A. Remove top 6 inches of topsoil within limits of the paving section and area adjacent to paving section as required and stockpile. Protect stockpiles of topsoil from other excavated materials, dumping of unwanted material and dumping by the public.

3.2 STRIPPING OF GROUND SURFACE:

A. All vegetation, all decayed vegetable matter, rubbish and other unsuitable material within areas to be graded, not removed by clearing, shall be stripped or otherwise removed to ground level before grading or other earthwork is started. In no case will such material be allowed to remain in or on the areas to be graded.

3.3 EXCAVATION:

A. Objective: Excavate to lines, grades and elevations required for subsequent construction of pavement fill, flexible base, or pavement. Remove materials within the indicated limits and dispose as directed.

B. Drainage: During excavation, maintain grades for complete drainage. When directed, install temporary drains or drainage ditches to intercept or divert water and prevent interference or delay or the work.

C. Stockpiling: If at time of excavation it is not possible to place material in the proper section of permanent construction, stockpile the material in Owner or Engineer approved areas for later use.

D. Stone or Rock: Stones or rock fragments larger than 2 inches in their greatest dimension will not be permitted in top 6 inches of subgrade.

E. Dressing: Uniformly dress, cut and fill slope, cross section and alignment.

3.4 NATURAL SUBGRADE UNDER PAVEMENTS:

A. Remove existing earth as required for placement of pavement section. Proof roll excavated surface with 20 ton or larger roller to identify soft or undesirable material and remove such soft or undesirable material to suitable material beneath. Break down sides of holes or depressions to flatten the slopes.

B. Fill any such holes or depression with appropriate soil with similar classification, moisture content and density as adjacent soils.

C. Grade adjustments within pavement construction limits shall be accomplished with pavement fill, placed in maximum 8-inch lifts moistened and compacted as specified in this section.

D. After depressions have been filled, grade adjustments made and immediately before placement of pavement section, thoroughly loosen the material to depth of 6 inches. Remove roots and debris turned up while loosening the soil. Adjust moisture and recompact the subgrade.

3.5 PLACING PAVEMENT FILL FOR GRADE ADJUSTMENTS:

A. Inspection of natural subgrade: Do not place pavement fill for grade adjustments to the natural subgrade until the surface has been examined by the Engineer.

B. Prior to placing pavement fill, scarify the natural subgrade to a depth of 6 inches. As needed, adjust the moisture content to between optimum and plus 4 percent. Recompact the subgrade to a density between 95% and 98% of the maximum standard proctor density, as determined by ASTM D698.

C. Removing Debris: During the dumping and spreading process, remove all roots, stones and debris that are uncovered in the fill material.

D. Spreading Fill: After dumping, spread the pavement fill in horizontal layers over the entire fill area. The thickness of each layer before compaction shall not exceed 8 inches. Place fill adjacent to pavement section to elevations indicated.

E. Attaining proper bond: If the compacted surface of a layer is too smooth to bond with succeeding layers, loosen the surface by harrowing or other approved method before continuing work.

F. Flexible Base Course: Place and compact flexible base course under pavement sections, or for roadways where indicated. Compact to a density between 95 and 100 percent of the maximum dry density at ±2 percent of optimum moisture content per ASTM D1557. The thickness of each layer before compaction shall not exceed 8 inches.

3.6 MOISTURE CONTROL:

A. Intent: Developing the maximum density obtainable with the natural moisture of the material is preferred. However, the moisture content of the pavement fill and flexible base fill shall not vary from the optimum, as determined by ASTM D698 or ASTM 1557, by ranging between -2 and +4 percent of optimum. The moisture content of the natural subgrade under pavement sections, including grade adjustments with pavement fill, as determined by ASTM D698 shall range from optimum to +4 percent of optimum.

B. Adjustment: If the moisture content is too high, adjust to within the specified limits by spreading the material and permitting it to dry. Assist the drying process by dicing or harrowing if necessary. When the material is too dry, sprinkle each layer with water. Work the moisture into the soil by harrowing or other approved method.

3.7 COMPACTION:

A. Compact each layer of pavement select fill with suitable rollers as necessary to obtain a dry density of 95% to 98% maximum dry density within the specified range of the moisture content, according to ASTM D698.

B. Compact each layer of flex base as necessary to obtain a dry density of 95% to 100% maximum dry density within the specified range of the moisture content, according to ASTM D1557.

3.8 MATERIAL DISPOSAL:

A. Excess excavated material (soil material free of trees, stumps, logs, brush, roots, rubbish and other objectionable matter which has been accepted). Remove excess excavated material from the construction site before pre-final inspection. Legally dispose of material at a licensed site or with written and notarized permission from the property Owner for a private disposal site. All costs associated with waste material removal and disposal shall be paid for by the Contractor.

B. Waste material (soil material including trees, stumps, logs, brush, roots, rubbish and other objectionable matter which has been accepted). Remove waste material from the project site before pre-final inspection.

3.9 TESTING:

A. Laboratory testing and inspection services: As specified in Section 01400 - Quality Control.

END OF SECTION

SECTION 02231

AGGREGATE BASE COURSE

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Aggregate base material, consisting of crushed or uncrushed coarse and fine aggregate material, as necessary to meet the requirements herein and in conformity with lines, grades, compacted thickness and typical sections shown.

1.2 REFERENCES:

A. TxDOT Item 247--Flexible Base.

B. ASTM D698--Test Methods for Moisture-Density Relations of Soils (Standard).

1.3 SUBMITTALS:

A. Refer to Section 01300 for submittal requirements.

B. Samples: Aggregate samples of material as required by the testing laboratory.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Aggregate Base Course shall be hauled in tight trucks previously cleaned of all dirt and foreign material.

B. Place aggregate base course the same day as delivered to the jobsite unless otherwise approved by the Engineer.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Aggregate Base Course shall meet the requirements TxDOT Item 247--Flexible Base, Type A Grade 2, with material larger than 3 inches removed.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Place material only after the subgrade has been properly constructed and inspected.

3.2 PREPARATION:

A. Do not place fill or base on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT:

A. Place aggregate in maximum 8 inch layers and compact to 98% standard density± 2% of optimum moisture. For thicknesses over 8 inches, construct in multiple courses of equal thickness.

B. Upon completion, the material shall be smooth and in conformity with the typical sections as shown.

C. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES:

A. Correct any deviation in by loosening, adding or removing material, reshaping and recompacting at the Contractor's expense.

3.5 FIELD QUALITY CONTROL:

A. If the aggregate base material should lose the required density or finish before foundation is complete, it shall be reworked, recompacted, refinished and retested at the Contractor's expense.

END OF SECTION

SECTION 02510

ASPHALTIC CONCRETE PAVING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Surface course, consisting of compacted mixture of coarse and fine aggregates and asphaltic material, placed on stabilized base in conformity with lines, grades, compacted thickness and typical cross sections shown.

1.2 REFERENCES:

A. TxDOT Item 300 - Asphalts, Oils and Emulsions.

B. TxDOT Item 310 - Prime Coat (cutback asphaltic material only).

C. TxDOT Item 340 - Dense graded Hot Mix Asphalt (method).

D. TxDOT Item 666 – Reflectorized Pavement Markings

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Contractor shall certify the mixing plant will conform to the requirements of TxDOT.

C. Certified weight tickets shall be submitted with each delivery of asphaltic concrete to the work site.

D. Contractor shall submit design mixtures, including additive modifiers, for review and approval at least 30 days before any asphaltic pavement is placed. The design mixes shall be prepared by a certified independent testing laboratory employed and paid by the Contractor.

1.4 DELIVERY, STORAGE and HANDLING:

A. Asphaltic concrete material shall be hauled in tight trucks previously cleaned of all dirt and foreign material with the load completely covered by canvas.

B. All material shall be delivered so that material can be placed and rolled during daylight hours.

1.5 DELIVERY, STORAGE and HANDLING:

A. Asphaltic concrete shall not be placed when the ambient temperature is below 60 degrees F and is falling.

B. Asphaltic concrete may be mixed and placed when the ambient temperature is above 50 degrees F and rising.

PART 2 PRODUCTS

2.1 PRIME COAT:

A. Asphaltic Materials: TxDOT Item 300, "Asphalts, Oils and Emulsions".

B. Provide grade MC-30 or AE-P.

2.2 TACK COAT:

A. Asphaltic Materials: TxDOT Item 300, "Asphalts, Oils and Emulsions".

B. Provide grade RC-250, CSS-1H, or SS-1H. Do not dilute emulsions.

2.3 HOT MIX ASPHALTIC CONCRETE SURFACE COURSE:

A. The asphaltic concrete surface course shall be plant mixed, hot laid Type D (Fine Graded Surface Course) meeting requirements in TxDOT Item 340 and specific criteria for the job mix formula.

B. The mix shall be designed for stability of at least 35 as determined by test method Tex-227-F and shall be compacted to between 92 and 98 percent of the maximum theoretical density and determined under test method Tex-207-F.

C. The asphalt cement content by percent of total mixture weight shall fall within a tolerance of ±0.3 percent asphalt cement from the specific mix. In addition, the mix shall be designed so that 75 to 85 percent of the voids in the mineral aggregate (VMA) are filled with asphalt cement.

2.4 STRIPING

A. Striping shall be in accordance with TxDOT Item 666 and all related manufacturers and application requirements.

B. Provide TxDOT Type II striping as designated on plans.

PART 3 EXECUTION

3.1 PRIME COAT:

A. Apply with an approved sprayer. Prime coat shall be applied at a rate of 0.20 to 0.30 gallons per square yard as shown on contract drawings over compacted flexible base and shall be cured for 24 hours minimum. The actual rate of application to be determined in the field based on actual conditions.

3.2 TACK COAT:

A. Apply with approved sprayer. Thoroughly clean pavement surface and apply tack coat at a rate of 0.05 to 0.15 gallons per square yard of pavement

contact surface. The actual rate of application to be determined in the field based on actual conditions.

3.3 LAYING:

A. Placement: Haul the asphaltic concrete mixture, which has been heated and prepared as specified, to the project in tight vehicles previously cleaned of foreign material. The mixture shall be at a temperature between 200 degrees Fahrenheit and 350 degrees Fahrenheit when laid. The Engineer will determine the lowest acceptable temperature; a variance of 30 F upward will be allowed. Spread the material into place with approved mechanical finishing machine of screening or tamping type. Use a tire or track-mounted finish machine capable of maintaining uniform grade WITHIN SPECIFIED TOLERANCES while placing directly on the flexible base subgrade.

B. Surface Course Material: A surface course 2 inches or less in thickness may be spread in one lift. Spread all lifts in such a manner that when compacted, the finished course will be smooth, of uniform density and to section, line and grade shown.

3.4 LAYERING IN RESTRICTED AREAS:

A. If use of a paver is impractical, asphalt surface courses may be spread and finished by hand. Use wood or steel forms rigidly supported to assure correct grade and cross section. Carefully place materials to avoid segregation of the mix. Broadcasting the material will not be permitted. Any lumps that do not break down readily shall be removed. Place asphalt courses in the same sequence as if placed by machine.

3.5 ROLLING:

A. Begin rolling while pavement is still hot and as soon as it will bear the roller without undue displacement or hair cracking. To prevent adhesion of surface mixture to the roller, keep wheels properly moistened with water. Excessive use of water will not be permitted.

B. Compress the surface thoroughly and uniformly, first with power-driven, 3-wheel, or tandem rollers weighing 10 tons. Obtain subsequent compression by starting at the side and rolling longitudinally toward the center of the pavement, overlapping on successive trips by at least one-half width of rear wheels. Make alternate trips slightly different in length. Continue rolling until further compression cannot be contained and all rolling marks are eliminated.

C. Use a tandem roller for the final rolling. Double coverage with an approved pneumatic roller on asphaltic concrete surface is acceptable after flat wheel and tandem rolling has been completed.

3.6 HAND TAMPING:

A. Along walls, curbs, headers and similar structures and in all locations not accessible to rollers, compact the mixture thoroughly with a vibrating plate compactor.

3.7 DENSITY:

A. Compact the base surface course to the density shown. If, during the construction, the results of density tests show that the surface has a density less than specified, an additional rolling with a 3-wheel or pneumatic roller will be required. Such a rolling shall be done before the mix cools if it is to be successful.

3.8 SURFACE TESTS:

A. The completed surface, when tested with a 16-foot straightedge laid parallel to the center line of the pavement, shall show no deviation in excess of 1/16 inch per foot from the nearest point of contact. The maximum ordinate measured from the face of the straightedge shall not exceed 1/4 inch at any point. Furnish approved templates for checking subgrade in finished sections. The strength and rigidity of templates shall be such that if a support is transferred to center, no deflection in excess of 1/8 inch will be observed.

3.9 CONSTRUCION JOINTS:

A. Place courses as nearly continuously as possible. Pass the roller over unprotected ends of the freshly laid mixture only when the mixture has become chilled. When work is resumed, cut back the laid material to produce a slightly beveled edge for the fill thickness of the course. Remove old material which has been cut away and lay the new mix against the fresh cut.

B. When new asphaltic is laid against existing or old asphalt, the existing or old asphalt shall be cut to provide a straight smooth joint. A tack coat is to be applied against this sawed joint face before applying new hot mix.

3.10 DEFFECTIVE PAVEMENT:

A. Recompact pavement sections not meeting specified densities or replace them with new asphaltic concrete material. Replace with new material section of surface course pavement not meeting surface test requirements or having an unacceptable surface texture. Patch asphaltic pavement sections in accordance with procedures established by the Asphalt Institute. Replace asphalt pavement sections which did not meet the specifications.

3.11 FIELD QUALITY CONTROL:

A. Laboratory Testing and Inspection Services: As specified in 01400.

3.12 DEFICIENT SURFACE THICKNESS:

A. Any area of asphalt surface found deficient in thickness by more than 0.25 inches shall be removed and replaced, at the Contractor's expense, with asphalt surface of the thickness shown. Care should be taken not to damage or remove the pavement below the asphalt surface. Should damage to the pavement below the asphalt surface occur, it shall be removed and replaced at the Contractor's expense.

B. No additional payment will be made for any asphalt surface of a thickness exceeding 0.25 inches greater than that required by the contract documents.

END OF SECTION

SECTION 02665

WATER SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Water mains including valves, valve boxes, blocking, fittings, and other appurtenances for potable water distribution systems.

1.2 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. ASTM A53 - Pipe, Steel, Black and Hot Dipped, Zinc-Coated Welded and Seamless.

2. ASTM A126 - Gray Iron Castings for Valves, Flanges and Pipe Fittings.

3. ASTM A307 - Specification for Carbon Steel Bolts and Studs 60,000 psi Tensile.

4. ASTM A536 - Ductile Iron Castings.

5. ASTM D1784 - Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds.

6. ASTM D1785 - Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.

7. ASTM D2241 - Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR).

8. ASTM D2466 - Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.

9. ASTM D2737 - Polyethylene (PE) Plastic Tubing.

10. ASTM D2855 - Making Solvent-Cemented Joints with Polyvinyl Chloride (PVC) Pipe and Fittings.

11. ASTM D3139 - Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals.

12. ASTM F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

B. American Water Works Association (AWWA):

1. AWWA C104 - Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water.

2. AWWA C105 - Polyethylene Encasement for Ductile Iron Piping for Water and other Liquids.

3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3 inches through 48 inches, for Water and other Liquids.

4. AWWA C150 - Thickness Design of Ductile Iron Pipe.

5. AWWA C151 - Ductile Iron Pipe.

6. AWWA C153 - Ductile Iron Compact Fittings, 3 inches through 12 inches, for Water and other Liquids.

7. AWWA C500 - Metal-Seated Gate Valves, for Water Systems.

8. AWWA C509 - Resilient-Seated Gate Valves for Water Systems.

9. AWWA C550 - Protective Interior Coatings for Valves and Hydrants.

10. AWWA C600 - Installation of Ductile-Iron Water Mains and Appurtenances.

11. AWWA C700 - Cold Water Meters Displacement-Type, Bronze Main Case.

12. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 inches through 12 inches, for water.

13. AWWA C901 - Polyethylene (PE) Pressure Pipe, Tubing, and Fittings, 1/2 inch through 3 inches for Water.

14. AWWA C905 - Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14 inches through 36 inches.

C. ANSI 16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

D. 30 TAC 290, Texas Administrative Code, Volume 30, Chapter 290, Water Hygiene.

1.3 SUBMITTALS:

A. Procedures for submittals: Section 01300.

B. Product Data: Manufacturer's product data sheets on all materials incorporated into work.

C. Quality Control Submittals: For information only.

1. Certificates: Manufacturer's certificates attesting compliance with applicable specifications for grades, types, classes, and other properties.

2. Test Reports: Results of field quality control tests including hydrostatic tests and bacteriological tests.

D. Contract Closeout Submittals: Refer to Section 01700.

1. Protect Record Documents: Submit documents in accordance with Section 01700. Accurately record installed location of valves, hydrants, piping and service connections, and accessories.

1.4 QUALITY ASSURANCE:

A. Pipeline installation shall be in accordance with manufacturer's recommendations and as supplemented by these Specifications.

B. Pipe shall be kept clean of all foreign matter.

1. At temporary termination of pipe laying, provide suitable cover to close open end until burying operations are resumed.

C. Jointing shall be by trained employees.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Deliver, store, and handle products under provisions of Section 01600.

B. Each load of pipe delivered to the job site shall be inspected by the Engineer.

1. Pipe transported without adequate protection shall be rejected and removed immediately from the job site.

2. Inadequate wall thickness or tolerances greater than specified: Randomly selected samples of the pipe shall be forwarded immediately to an approved testing laboratory with instructions to check the pipe for compliance with applicable product standards, ASTM Specifications, and other applicable Specifications.

3. When the testing laboratory reports concur that the pipe does not meet Specifications, the defective pipe shall be removed immediately from the job site by the Contractor.

4. If defective, all costs for shipping of samples, laboratory testing, removal of defective pipe, and replacement pipe shall be the sole responsibility of the Contractor.

PART 2 PRODUCTS

2.1 PIPE:

A. PVC Water and Drain Pipe - (6 inches or less): ASTM D1784:

1. Schedule 40 or 80 as specified on drawings.
2. Solvent weld joints, ASTM D2855.

3. All pipe shall bear NSF 61 seal of approval.

B. Ductile Iron Water Pipe: AWWA C151.

1. Pressure Class 150, 250, or 350 as specified.
2. American Ductile Iron Flex-Ring Joint Pipe required with pressure rating between 250-350 psi. Or Engineer Approved Equivalent.
3. Cement lined interior, AWWA C104.
4. Exterior of buried piping shall be bituminous coated, AWWA C151. Exterior of above grade piping shall include primer compatible with coating system given in Section 09800.
5. Wrap buried pipe with 8 mil polyethylene encasement, AWWA C105.

C. Galvanized and Steel Pipe: ASTM A53:

1. Galvanized, standard wall; threaded.

2.2 FITTINGS:

A. Ductile Iron Buried Fittings (size 3 inches through 48 inches):

1. Ductile Iron, AWWA C110 (non-compact) or AWWA C153 (compact).
2. Cement lined interior, AWWA C104.
3. Exterior shall be bituminous coated.
4. Fittings shall be mechanical joint unless otherwise shown.
5. Wrap buried fittings with 8-mil polyethylene encasement, AWWA C105.
6. Working pressure rated to 350 psi.

B. PVC Above-Grade and Buried Fittings (6-inch and smaller) for use with ASTM D1784 pipe:

1. PVC, ASTM 2466 Sch 40 socket, ASTM 2467 Sch 80 socket.
2. Solvent weld joints, ASTM D2855.
3. NSF approved and marked for potable water use.

C. Ductile iron Above-Grade Fittings (size 3 inch through 48 inch):

1. Ductile Iron Flanged Fittings, AWWA C110.
2. Cement lined interior AWWA C104.
3. Exterior shall include primer compatible with coating system given in Section 09800.
4. Working pressure rated at 350 psi.
5. Face and drill in accordance with ANSI B16.1 for Class 150 or 300 flanges, as required.

D. Above-grade Fittings (smaller than 3 inch):

1. Galvanized steel, ASTM A53.
2. Standard wall; threaded.

2.3 COUPLINGS:

A. Restrained Flanged Coupling Adapters for Ductile Iron:

1. Conform with AWWA C219.

2. Star Pipe and Products is an acceptable manufacturer.

3. Products:

a. 3″-24″ Romac Style RFCA with 316 stainless steel t-bolt hardware and NSF61 certification. Working pressure rating 275 psi for 3″-16″ and 250 psi for 18″-24″. Coupling shall have a total pipe insertion differential of at least 4.3″ for 10″-12″ couplings and 3.5″ for 6″-8″ couplings; coupling shall be installed with a minimum pipe insertion depth of 3.5″. Flange compatible with ANSI Class 125/150. Or Engineer approved equivalent.

b. 30″- 48″ Flange-Lock Restrained FCA, Smith-Blair Series 911. Flange shall be AWWA C207 Class D for working pressure of 150 psi and maximum pressure rating of 250 psi. 30″ coupling shall have a total pipe insertion differential of at least 7″; 30″ coupling shall be installed with a minimum pipe insertion depth of 5″. Gasket and 316 stainless steel t-bolt hardware shall be included. Or Engineer approved equivalent.

B. Restrained MJ Retainer Glands for Ductile Iron Pipe:

1. Mechanical joint fittings to PVC: Ductile Iron, ASTM A536, Grade 65-45-12.

a. Product: Uni-flange Series 1300, or approved equivalent.

b. Device shall include gasket, MJ gland, restraint, and 304 stainless steel bolting hardware.

2. Mechanical joint fittings to Ductile Iron: Ductile Iron ASTM A536, Grade 65-45-12.

a. Product: EBAA Iron Series 1100, or approved equivalent.

b. Device shall include restraint, gasket and 304 stainless steel bolting hardware.

C. Restrained Dismantling Joint for Ductile Iron Pipe:

1. Romac DJ400 that conforms with AWWA C219. Flange ends per AWWA C207 Class D for 42″ dismantling joint at valve vault. 316 stainless steel tie rods shall be included. Or Engineer approved equivalent.

D. Restrained PE x PE Pipe Coupling for Ductile Iron Pipe:

1. Smith-Blair Pipe-Lock Series 471. Working pressure rating 350 psi for 3"-16" and 250 psi for 20"-48". Gasket and 316 stainless steel studs/nuts shall be included. Or Engineer approved equivalent.

2.4 FLANGE BOLTS AND GASKETS:

A. Flange gaskets shall conform to ASME B16.21.

B. Flange Bolts shall be high-strength 316 stainless steel suitable for pipe pressure class.

2.5 NSF61 CERTIFICATION:

A. All products listed in this section that have potable water wetted parts must be **NSF 61 certified or approved**.

PART 3 EXECUTION

3.1 PREPARATION:

A. Stake locations of fittings, valves, and accessories prior to installation for review by Engineer.

B. Prior to installing valves, remove foreign matter from within the valves. Inspect the valves in open and closed position to verify that parts are in satisfactory working condition.

3.2 SETTING VALVES AND VALVE BOXES:

A. Install valves and valve boxes where shown. Set valves plumb and as detailed. Center valve boxes on valves. Locate valves away from roads or streets. Carefully tamp earth around each valve box for a minimum radius of 4 feet, or to undisturbed trench face if less than 4 feet.

B. Provide Class B concrete thrust blocking as shown.

3.3 PIPE INSTALLATION:

A. Preparation:

1. Do not lay pipe in water, or when trench or weather are unsuitable for work. Keep water out of trench until jointing is complete and bedding is placed to top of pipe. When work is not in progress, close ends of pipe and fittings securely so that no trench water, earth or other substances will enter pipes or fittings.

2. Keep inside of pipe free from foreign matter during operations by plugging or other approved method.

3. Place pipe so that full length of each section rests solidly upon pipe bed, with recesses excavated to accommodate bells and joints. Take up and re-lay pipe when grade or joint is disturbed after laying.

4. Handle pipe and accessories so that pipe placed in trench is sound and undamaged. Take particular care not to injure pipe coating when applicable.

5. Cut neatly, using approved type mechanical cutter without damaging pipe. Use wheel cutters when practicable.

6. Wrap ductile iron pipe, fittings, and valves with 8 mil polyethylene film, AWWA C105, with edges overlapped and securely taped with duct tape to prevent contact between pipe and surrounding bedding. Repair punctures with duct tape to restore the protective continuous wrap before backfilling.

B. Pipe Bedding and Backfilling: In accordance with Section 02225, Excavating, Backfilling, and Compacting for Utilities.

C. Placing and Laying:

1. Bury water lines as shown.

2. Do not exceed 75 percent of pipe manufacturer's recommendations for deflections from straight line or grade as required by vertical curves, horizontal curves, or offsets. If alignment requires deflections in excess of these limitations, use fittings.

3. Intersecting lines shall be joined by an appropriate fitting.

4. Maintain separation of water line from sewer lines in accordance with 30 TAC 290.

5. Perform no work in fill areas until embankment or fill has been properly completed to at least 2 feet above top of pipe elevation.

D. Joints:

1. Install mechanical joints in accordance with manufacturer's recommendations.

2. Make push-on joints in accordance with manufacturer's recommendations.

E. Anchorage of Fittings - Thrust blocks not allowed. Restrained mechanical couplings required for all fitting and pipe joints.

3.4 DISINFECTION:

A. Disinfect completed water lines with chlorine in accordance with Section 02675.

B. Open and close valves in lines being sterilized several times during contact period.

3.5 FIELD QUALITY CONTROL TESTING:

A. Hydrostatic Tests: Pressure test completed water lines hydrostatically. Provide pumps, gauges, meters, and other equipment necessary for performance of tests.

1. Pressure in the test section shall be at least 100 percent, but not more than 120 percent of pressure rating of the pipe.

2. Leakage shall not exceed 10 gallons per inch of pipe diameter per mile of pipe per 24 hours.

3. Minimum test duration shall be 4 hours.

4. Maintain records of:

a. Date tests were performed.
b. Names of people in attendance.
c. Location of test section.
d. Brand name of pipe and pressure rating.

5. Failed test sections shall be repaired and retested at the Contractor's expense.

B. Bacteriological Tests: After disinfecting and flushing mains, obtain representative samples and conduct bacteriological tests. Test in accordance with Section 02675.

C. Dielectric Testing Methods and Criteria:

1. Provide electrical check between metallic non-ferrous pipe or appurtenances and ferrous elements of construction to assure discontinuity has been maintained.

2. Wherever electrical contact is demonstrated by such test, locate the point or points of continuity and correct the condition with insulating or dielectric component, or other means.

END OF SECTION

SECTION 02675

WATER SYSTEM DISINFECTION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Disinfection of water treatment structures and reservoirs.

B. Testing and reporting results.

1.2 REFERENCES:

A. AWWA B300 - Standard for Hypochlorite's.

B. AWWA B301 - Standard for Liquid Chlorine.

C. AWWA C652 - Disinfection of Water Storage Facilities.

D. 30 TAC 290.38 through 290.49 - Rules and Regulations for Public Water Systems, *Texas Administrative Code*.

1.3 SUBMITTALS FOR INFORMATION:

A. Section 01300 - Submittals: Procedures for Submittals.

B. Test Reports: Indicate results comparative to specified requirements.

C. Certificate: Certify that cleanliness of water storage tank meets or exceeds specified requirements.

1.4 PROJECT RECORD DOCUMENTS:

A. Submit under provisions of Section 01700.

B. Disinfection Report:

1. Type and form of disinfectant used.

2. Date and time of disinfectant injection start and time of completion.

3. Test locations.

4. Initial and 24-hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.

5. Date and time of flushing start and completion.

6. Disinfectant residual after flushing in ppm for each outlet tested.

C. Bacteriological Report:

1. Date issued, project name and testing laboratory name, address and telephone number.

2. Time and date of water sample collection.

3. Name of person collecting samples.

4. Test locations.

5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.

6. Coliform bacteria test results for each outlet tested.

7. Certification that water conforms, or fails to conform, to bacterial standards of AWWA C652 and 30 TAC 290.38 through 290.46.

1.5 QUALITY ASSURANCE:

A. Perform work in accordance with AWWA C652.

B. Testing Firm: Approved laboratory by the Texas Department of Health, Bureau of Laboratories.

C. The Contractor may use the:

City of Midland Water Lab
3303 W. Illinois
Space 22
Midland, TX 79703

Phone: 432-681-7618

Water is analyzed in this laboratory at the following times:
Monday – Thursday
8:00 AM – 12:00 PM and 1:00 PM – 3:00 PM

D. Submit bacteriologist's signature and authority associated with testing.

E. Bacteriologist tests shall indicate negative. If other than negative disinfection, shall be repeated at contractor's expense.

1.6 REGULATORY REQUIREMENTS:

A. Conform to AWWA C652 and 30 TAC 290.38 through 290.46 for performing the work of this section.

PART 2 PRODUCTS

2.1 DISINFECTION:

A. Chemicals: AWWA B300, Hypochlorite and AWWA B301, Liquid Chlorine.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Verify that piping system and structures have been cleaned, inspected and pressure tested.

B. Perform scheduling and disinfecting activity with start-up, testing, adjusting and balancing, demonstration procedures, including coordination with related systems.

3.2 EXECUTION:

A. Provide and attach equipment required to perform the work of this section.

B. Inject disinfectant into piping system, tank, or structure while filling. Disinfection agent may be introduced with permanent chlorination equipment when possible, or other means of application. Application of chlorine gas under pressure directly to the water is not permitted.

C. Maintain disinfectant in system for 24 hours.

D. Flush, circulate and clean until required cleanliness is achieved; use municipal domestic water.

E. Replace permanent system devices removed for disinfection.

3.3 FIELD QUALITY CONTROL:

A. Section 01400 - Quality Assurance: Field Inspection and Testing.

B. Analyze samples in accordance with AWWA C652 and 30 TAC 290.44.

C. New water tower shall be thoroughly disinfected, then sampled in accordance with AWWA C652.

D. Two (2) samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure, which shall be repeated if contamination persists. A minimum of two (2) samples are required.

END OF SECTION

SECTION 02685

CLEANING OF POTABLE WATER PIPES

PART 1 GENERAL

1.1 SUMMARY:

A. General:

1. Before any newly constructed potable water lines are placed into service at the Water Purification Plant, they shall be cleaned in advance of testing and disinfection.

B. Related Specification Sections include, but are not necessarily limited to:

1. Section 02665 – Water Systems.
2. Section 02675 – Water System Disinfection.

1.2 REFERENCES:

A. Reference Standards:

1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date.

2. American Water Works Association/American (AWWA):

a. C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type.

b. C303, Concrete Pressure Pipe, Bar-Wrapped, Steel-Cylinder Type.

c. C651, Disinfecting Water Mains.

d. C655, Field De-Chlorination.

1.3 SUBMITTALS:

A. Submittals:

For 24-inch and larger water mains, provide the following:

1. Cleaning Plan – Prior to the start of construction, submit a cleaning plan for new potable water piping at the new pump station site detailing the methods and schedule, including:

a. A detailed description of cleaning procedures.
b. Flushing procedures.
c. Plans and hydraulic calculations to demonstrate adequate flushing velocities.

d. Control of water.
e. Disposal.

2. Disinfection Plan – prior to the start of construction submit a disinfection plan including:

a. The method of mixing and introducing chlorine.
b. Flushing.
c. De-chlorination.
d. Sampling.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CLEANING:

A. General:

1. All water mains shall be cleaned prior to bacteriological testing.

a. Flushing is the only method permitted for cleaning potable water lines at the Water Purification Plant.

B. Flushing Method:

1. Prepare the potable water lines by installing blow-offs at appropriate locations, of sufficient sizes and numbers, and with adequate flushing to achieve a minimum velocity in the main of 2.5 feet per second.

a. Minimum blow-off sizes for various pipe sizes are as follows:

i 4-inch through 8-inch main – ¾-inch blow-off.
ii 10-inch through 12-inch main – 1-inch blow-off.
iii 16-inch and greater main – 2-inch blow-off.

b. Flushing shall be subject to the following limitations:

i Limit the volume of water for flushing to 3 times the volume of the water line.
ii Do not unlawfully discharge chlorinated water.
iii Do not damage Water Purification Plant property.
iv Do not impede traffic or interrupt daily operations within the Water Purification Plant site.

c. Once Flushing is complete:

i Corporations stops used for flushing shall be plugged.

C. Pipe installation cleaning procedures:

1. Wipe joints and then inspect for proper installation.

2. Sweep each joint and keep clean during construction.

3. Install a temporary plug on all exposed potable water lines at the end of each working day or an extended period of work stoppage.

END OF SECTION

SECTION 02723

PRECAST CONCRETE VAULTS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Design and install precast concrete vaults with access cover hatches as shown on the drawings and specified herein.

1.2 REFERENCES:

A. ASTM C33 - Concrete Aggregates.

B. ASTM C330 - Concrete Aggregates.

C. ASTM C150 - Portland Cement Concrete.

D. ASTM A36 - Structural Steel.

E. ASTM A615 - Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

1.3 SUBMITTALS FOR REVIEW:

A. Section 01300 - Submittals: Procedures for submittals.

B. Submit shop drawings of structures with dimensions and sufficient information to verify conformance with specifications.

PART 2 PRODUCTS

2.1 VAULT MATERIALS:

A. All precast concrete vault sections shall be manufactured by a plant specifically designed for that purpose, such as New Basis Company - Precast Concrete Products, or approved equal.

B. All units shall be square, plumb, true, and conform to the design and dimensions shown on the rectangular, drawings. All work shall be done under strict plant controlled supervision.

C. Concrete:

1. Aggregate: All aggregates fine and coarse other than lightweight aggregate shall conform to ASTM C33. Lightweight aggregates fine and coarse shall conform to ASTM C330. Aggregates shall be free of deleterious substances causing reactivity with oxidized hydrogen sulfide. Both types of aggregate shall be graded in a manner so as to produce a homogeneous concrete mix. All materials shall be accurately weighed at a central batching facility for mixing.

2. Cement: All cement shall be Portland Cement conforming to ASTM C150. Type I, Type III or Type V if specified. Cement content shall be sufficient to produce minimum compressive strength of 4,500 p.s.i., or other design strength if specified.

D. All reinforcing steel, including welded wire mesh, shall be of the size and in the location as shown on the plans. All reinforcing shall be sufficiently tied to withstand and displacement during the pouring operation. All bars shall be intermediate or hard grade billet steel conforming to ASTM A615 or A706 Grade 60. Welded wire mesh shall conform to ASTM A497 Grade 70. Bars other than ¼ inch round or smaller, shall be deformed in accordance with ASTM A305.

E. Other incidental hardware needed shall be as shown and as approved by the Engineer.

2.2 DESIGN LOADS:

A. Design loads shall consist of dead load, live load, impact, loads due to water table if present, and any other loads which may be imposed on the structure.

B. Live loads shall be for H-20 per AASHTO Standard Specifications for Highway Bridges with revisions. Design wheel load shall be 16 kips. The load case shall be that which produces the maximum shears and bending moments in the structure.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Verify items provided by other sections of Work are properly sized and located.

B. Verify that built-in items are in proper location, and ready for roughing into Work.

3.2 PREPARATION:

A. Coordinate placement of inlet and outlet pipe required by other sections.

B. Using approved drawings to obtain dimensions, Contractor shall prepare the excavation for the correct elevation after the base material has been properly installed. The depth of the base and the material used shall meet the specified requirements for the type of soil at the setting location. The base material shall be properly compacted and level.

3.3 PLACING PRECAST CONCRETE VAULTS:

A. Install valve/flow meter vault level and plumb. Ensure vault is parallel to the lift station discharge piping.

B. If joint sealant is necessary, utilize sealant provided by vault manufacturer. Install in accordance with manufacturer's instructions.

C. Install vault drain line as depicted on the Drawings. Ensure floor of vault drains to the drain opening such that no water stands in the valve/flow meter vault.

D. Backfill material shall be free flowing, granular material, placed in lifts of approximately two (2) feet around the vault so as not to shift the structure.

E. Excavation and backfilling shall meet the requirements of Section 02225.

F. Access covers / hatches shall be per Section 02725.

END OF SECTION

SECTION 02725

ACCESS COVERS/HATCHES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Standard access hatches for wet wells and vaults.

1.2 SUBMITTALS:

A. Provide the following information in accordance with Section 01300:

1. Manufacturer's catalog information.

2. Installation dimensional drawings indicating compliance with minimum open area dimensions and suitability for specific submersible pumps used in wetwells.

3. Installation dimensional drawings indicating compliance with minimum open area dimensions and suitability for use on each valve vault.

1.3 DELIVERY, STORAGE, AND HANDLING:

A. Storage: Store access hatches and appurtenances in accordance with the manufacturer’s written instructions. Protect from damage until final acceptance by Owner.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Hatches shall comply with minimum opening sizes depicted on Drawings.

B. Approved Hatch Manufacturers:

1. Halliday Products, Orlando, FL.
2. Engineer approved equal.

2.2 SIZE:

A. Hatches shall have minimum opening size shown on Drawings.

2.3 FEATURES:

A. Unit shall have lockable cover(s).

B. Unit shall have a door support ledge on a minimum of two (2) sides.

C. Door shall incorporate enclosed stainless steel compression spring assist allowing the door to close flush with the frame.

D. Door shall open to 90 degrees and automatically lock with a stainless steel hold-open arm with corrosion-resistant release handle.

E. Where indicated on Drawings, hatches shall be water-tight, with a channel frame that prevents water infiltration into the hatch (Halliday W series).

F. Where indicated on Drawings, cover shall be H-20 rated for off-street locations that may occasionally receive vehicle wheel loads.

2.4 MATERIALS:

A. Frame - Minimum ¼--inch thick, one piece, mill finish, extruded aluminum, incorporating a continuous concrete anchor.

B. Door Panel - Minimum ¼-inch thick aluminum diamond plate.

C. Hinges and fastening hardware - stainless steel.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install access hatches as per manufacturer's instructions and as indicated on Drawings.

B. Ensure that the hatch and frame are adequately anchored to the wetwell top or the valve vault, as applicable, and that both the frame and door ledge are adequately supported.

C. Location of access hatch hinges and orientation of installation shall be such that hatch does not interfere with hoisting equipment operation or pump removal, when hatch is in the open position.

END OF SECTION

SECTION 02911

TOPSOILING AND FINISHED GRADING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Topsoiling and finished grading.

1.2 SUBMITTALS:

A. Shop Drawings:

1. See Section 01300 for requirements for the mechanics and administration of the submittal process.

2. Project Data: Test reports for furnished topsoil.

1.3 PROJECT CONDITIONS:

A. Location of Work: All areas within limits of grading designated on the Drawings and all areas outside limits of grading which are disturbed in the course of the work.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Topsoil:

1. Original surface soil typical of the area.

2. Existing topsoil stockpiled under Section 02110 – Site Clearing and Grubbing.

3. Capable of supporting native plant growth.

2.2 TOLERANCE:

A. Finish Grading Tolerance: 0.1 FT plus/minus from required elevations.

PART 3 EXECUTION

3.1 PREPARATION:

A. Correct, adjust and/or repair rough graded areas.

1. Cut off mounds and ridges.

2. Fill gullies and depressions.

3. Perform other necessary repairs.

4. Bring all sub-grades to specified contours, even and properly compacted.

B. Loosen surface to depth of 2 inches, minimum.

C. Remove all stones and debris over 2 inches in any dimension.

3.2 ROUGH GRADE REVIEW:

A. Reviewed by Engineer in Section 02110, Site Clearing & Grubbing.

3.3 PLACING TOPSOIL:

A. Do not place when subgrade is wet or frozen enough to cause clodding.

B. Spread to compacted depth of 4 inches for all areas designated to receive hydro mulch seeding.

C. Provide finished surface free of stones, sticks, or other material 1 inch or more in any dimension.

D. Provide finished surface smooth and true to required grades.

E. Restore stockpile area to condition of rest of finished work.

F. Placing topsoil is incidental to hydro mulch seeding, Section 02921.

3.4 ACCEPTANCE:

A. Upon completion of topsoiling, obtain Engineer's acceptance of grade and surface.

B. Make test holes where directed to verify proper placement and thickness of topsoil.

END OF SECTION

SECTION 02921

HYDRO MULCH SEEDING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Seeding, fertilizing, mulching, and maintenance of areas indicated on Drawings.

1.2 SUBMITTALS:

A. Conform to requirements of Section 01300.

B. Submit certification from supplier that each type of seed conforms to these specifications and requirements of Texas Seed Law. Certification shall accompany seed delivery.

C. Submit certificate stating that fertilizer complies with these specifications and requirements of Texas Fertilizer Law.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Topsoil: Conform to material requirements of Section 02911 – Topsoil and Finished Grading.

B. Seed: Conform to U.S. Department of Agriculture rules and regulations of Federal Seed Act and Texas Seed Law. Seed shall be certified 90 percent pure and furnish 80 percent germination and meet following requirements:

1. Rye: Fresh, clean, Italian rye grass seed (lollium multi-florum), mixed in labeled proportions. As tested, minimum percentages of impurities and germination must be labeled. Deliver in original unopened containers.

2. Bermuda: Extra-fancy, treated, lawn type common bermuda (Cynodon dactylon). Deliver in original, unopened container showing weight, analysis, name of vendor, and germination test results.

3. Wet, moldy, or otherwise damaged seed will not be accepted.

4. Seed requirements, application rates, and planting dates are:

TYPE	APPLICATION RATE POUNDS/A	PLANTING DATE
Hulled Common Bermuda Grass 98/88 Unhulled Common Bermuda Grass 98/88	40 40	Jan 1 to Mar 31
Hulled Common Bermuda Grass 98/88	40	Apr 1 to Sep 30
Hulled Common Bermuda Grass 98/88 Unhulled Common Bermuda Grass 98/88 Annual Rye Grass (Gulf)	40 40 30	Oct 1 to Dec 31

C. Fertilizer: Dry and free flowing, inorganic, water soluble commercial fertilizer, which is uniform in composition. Deliver in unopened containers which bear manufacturers guaranteed analysis. Caked, damaged, or otherwise unsuitable fertilizer will not be accepted. Fertilizer shall contain minimum percentages of following elements:

1. Nitrogen: 10 Percent
2. Phosphoric Acid: 20 Percent
3. Potash: 10 Percent

D. Mulch:

1. Virgin wood cellulose fibers from whole wood chips having minimum of 20 percent fibers 0.42 inches in length and 0.01 inches in diameter.

2. Cellulose fibers manufactured from recycled newspaper and meeting same fiber content and size as for cellulose fibers from wood chips.

3. Dye mulch green for coverage verification purposes.

E. Soil Stabilizer: "Terra Tack 1" or approved equal.

F. Weed control agent: Pre-emergent herbicide for grass areas, such as "Benefin," or approved equal.

PART 3 EXECUTION

3.1 PREPARATION:

A. Place and compact topsoil in accordance with requirements of Section 02310 – Topsoil and Finished Grading.

3.2 APPLICATION:

A. Seed: Apply uniformly at rates given in Paragraph 2.1 B for type of seed and planting date.

B. Fertilizer: Apply uniformly at rate of 500 pounds per acre.

C. Mulch: Apply uniformly at rate of 50 pounds per 1000 square feet.

D. Soil Stabilizer: Apply uniformly at rate of 40 pounds per acre.

E. Weed Control Agent: Apply at manufacturer's recommended rate prior to hydro mulching.

F. Suspend operations under conditions of drought, excessive moisture, high winds, or extreme or prolonged cold. Obtain Engineer approval before resuming operations.

G. Hydro mulch shall be applied to all disturbed areas.

3.3 MAINTENANCE:

A. Maintain grassed areas minimum of 90 days, or as required to establish an acceptable cover. For areas seeded in fall, continue maintenance following spring until acceptable cover is established.

B. Maintain grassed areas by watering, fertilizing, weeding, and trimming.

C. Repair areas damaged by erosion by regrading, rolling and replanting.

D. Reseed small, sparse grass areas. When sparse areas exceed 20 percent of planted area, reseed by hydro mulch.

E. Mow grass when height reaches 3 1/2 inches or greater on average before final acceptance. Mow to height of 2 1/2 inches.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Related Requirements:

1. Division 01 Specification Sections apply to Work of this Section.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.

2. Admixtures.

3. Curing compounds.

B. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1.7 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301.

2. ACI 117.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

D. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

E. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.

3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.

C. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, Type I, Type II, or Type I/II, gray.

2. Fly Ash: ASTM C 618, Class F or C.

C. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.

2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Air-Entraining Admixture: ASTM C 260/C 260M.

E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

2. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

F. Water: ASTM C 94/C 94M and potable.

2.6 WATERSTOPS

A. Flexible PVC Waterstops: CE CRD-C 572, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. BoMetals, Inc.

b. Sika Corporation.

2. Profile: Ribbed without center bulb.

3. Dimensions: 6 inches by 3/8 inch thick; nontapered.

2.7 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Dayton Superior.

   b. Euclid Chemical Company (The); an RPM company.

2.8 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.9 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

   1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.

   2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.

   3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.

   4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

   1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.

   2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

   3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.

   4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.10 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 25 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.

2. Use water-reducing admixture in pumped concrete, concrete required to be watertight, and concrete with a w/c ratio below 0.50.

2.11 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Normal-weight concrete.

1. Minimum Compressive Strength: 4000 psi at 28 days.

2. Maximum W/C Ratio: 0.50.

3. Slump Limit: 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.

B. Foundation Walls: Normal-weight concrete.

1. Minimum Compressive Strength: 4000 psi at 28 days.

2. Maximum W/C Ratio: 0.45.

3. Slump Limit: 8 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.

4. Air Content: l4 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.

C. Slabs-on-Grade: Normal-weight concrete.

1. Minimum Compressive Strength: 4000 psi at 28 days.

2. Maximum W/C Ratio: 0.45.

3. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

D. Suspended Slabs: Normal-weight concrete.

1. Minimum Compressive Strength: 3000 psi at 28 days.

2. Maximum W/C Ratio: 0.50.

3. Slump Limit: 5 inches, plus or minus 1 inch.

E. Building Walls: Normal-weight concrete.

1. Minimum Compressive Strength: 4000 psi at 28 days.

2. Maximum W/C Ratio: 0.45.

3. Slump Limit: 5 inches, plus or minus 1 inch.

2.12 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.13 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.

2. Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.

2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.

2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.

2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

3.4 SHORING AND RESHORING INSTALLATION

A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.

B. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.

2. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

3. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

4. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 07 92 00 "Joint Sealants," are indicated.

3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 WATERSTOP INSTALLATION

A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

3.8 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.

2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.

2. Maintain reinforcement in position on chairs during concrete placement.

3. Screed slab surfaces with a straightedge and strike off to correct elevations.

4. Slope surfaces uniformly to drains where required.

5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.9 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, .

C. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix 1 part portland cement to 1-1/2 parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix 1 part portland cement and 1 part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.

1. Apply scratch finish to surfaces to receive concrete floor toppings.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view.

2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

   a. Specified overall values of flatness, F(F) 30; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 15; for suspended slabs.

3. Finish and measure surface, so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 3/16 inch.

E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

3.11 MISCELLANEOUS CONCRETE ITEM INSTALLATION

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.

2. Minimum Compressive Strength: 4000 psi at 28 days.

3. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.

4. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.

5. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

6. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

3.12 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305.1 for hot-weather protection during curing.

B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

a. Water.

b. Continuous water-fog spray.

c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.

b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.

3. Curing Compound: After a minimum of four days of moist curing as described above, apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

3.13 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least six month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

3.14 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.15 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

B. Inspections:

1. Steel reinforcement placement.

2. Verification of use of required design mixture.

3. Concrete placement, including conveying and depositing.

4. Curing procedures and maintenance of curing temperature.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:

1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.

a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.

3. Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.

5. Compression Test Specimens: ASTM C 31/C 31M.

a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

8. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.

10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Engineer.

11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

END OF SECTION

SECTION 03450

PRECAST ARCHITECTURAL CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Architectural precast concrete cladding units.

1.2 DEFINITIONS

A. Design Reference Sample: Sample of approved architectural precast concrete color, finish and texture, preapproved by Architect.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

2. Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each regional material.

3. Environmental Product Declaration: For each product.

4. Health Product Declaration: For each product.

5. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.

6. Product Certificates: For indigenous materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project, means of transportation, and cost for each indigenous material.

7. Environmental Product Declaration: For each product.

8. Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project, means of transportation, and cost for each regional material.

9. Environmental Product Declaration: For each product.

10. Environmental Product Declaration: For each product.

11. Third-Party Certifications: For each product.

12. Third-Party Certified Life Cycle Assessment: For each product.

C. Design Mixtures: For each precast concrete mixture. Include compressive strength and water-absorption tests.

D. Shop Drawings:

1. Detail fabrication and installation of architectural precast concrete units.

2. Indicate locations, plans, elevations, dimensions, shapes, and cross sections of each unit.

3. Indicate joints, reveals, drips, chamfers, and extent and location of each surface finish.

4. Indicate details at building corners.

E. Samples: Design reference samples for initial verification of design intent, for each type of finish indicated on exposed surfaces of architectural precast concrete units, in sets of three, representative of finish, color, and texture variations expected; approximately 12 by 12 by 2 inches.

F. Delegated-Design Submittal: For architectural precast concrete indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Material certificates.

C. Material Test Reports: For aggregates.

D. Field quality-control[and special inspection] reports.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm that assumes responsibility for engineering architectural precast concrete units to comply with performance requirements. This responsibility includes preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

1. Designated as a PCI-certified plant for Group A, Category A1 - Architectural Cladding and Load Bearing Units at time of bidding or designated as an APA-certified plant for production of architectural precast concrete products.

B. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations, and dimensional tolerances for types of units required, comply with PCI MNL 117, "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products."

C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D.1.1M, "Structural Welding Code - Steel"; and AWS D1.4/D1.4M, "Structural Welding Code - Reinforcing Steel."

D. Sample Panels: After sample approval and before fabricating architectural precast concrete units, produce a minimum of two sample panels approximately 16 sq. ft. in area for review by Architect. Incorporate full-scale details of architectural features, finishes, textures, and transitions in sample panels.

1.7 COORDINATION

A. Furnish loose connection hardware and anchorage items to be embedded in or attached to other construction without delaying the Work. Provide locations, setting diagrams, templates, instructions, and directions, as required, for installation.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design architectural precast concrete units.

B. Design Standards: Comply with ACI 318 and design recommendations of PCI MNL 120, "PCI Design Handbook - Precast and Prestressed Concrete," applicable to types of architectural precast concrete units indicated.

C. Structural Performance: Provide architectural precast concrete units and connections capable of withstanding design loads indicated within limits and under conditions indicated.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A706/A706M, deformed.

C. Plain-Steel Welded Wire Reinforcement: ASTM A185/A185M, fabricated from as-drawn galvanized-steel wire into flat sheets.

D. Deformed-Steel Welded Wire Reinforcement: ASTM A497/A497M, flat sheet.

E. Supports: Suspend reinforcement from back of mold or use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place according to PCI MNL 117.

2.3 CONCRETE MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or Type III, gray, unless otherwise indicated.

1. For surfaces exposed to view in finished structure, use gray or white cement, of same type, brand, and mill source.

B. Supplementary Cementitious Materials:

1. Fly Ash: ASTM C618, Class C or F, with maximum loss on ignition of 3 percent.

2. Metakaolin: ASTM C618, Class N.

3. Silica Fume: ASTM C1240, with optional chemical and physical requirement.

4. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120.

5. Blended Hydraulic Cement: ASTM C595, Type IS, portland blast-furnace slag Type IP, portland-pozzolan Type I (PM), pozzolan-modified portland Type I (SM), slag-modified portland cement.

C. Normal-Weight Aggregates: Except as modified by PCI MNL 117, ASTM C33/C33M, with coarse aggregates complying with Class 5S. Stockpile fine and coarse aggregates for each type of exposed finish from a single source (pit or quarry) for Project.

1. Face-Mixture-Coarse Aggregates: Selected, hard, and durable; free of material that reacts with cement or causes staining; to match selected finish sample.

a. Gradation: Uniformly graded To match design reference sample.

2. Face-Mixture-Fine Aggregates: Selected, natural or manufactured sand compatible with coarse aggregate; to match approved finish sample.

D. Coloring Admixture: ASTM C979/C979M, synthetic or natural mineral-oxide pigments or colored water-reducing admixtures, temperature stable, and nonfading.

E. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 117.

F. Air-Entraining Admixture: ASTM C260, certified by manufacturer to be compatible with other required admixtures.

G. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and to not contain calcium chloride, or more than 0.15 percent chloride ions or other salts by weight of admixture.

2.4 STEEL CONNECTION MATERIALS

A. Carbon-Steel Shapes and Plates: ASTM A36/A36M.

B. Carbon-Steel-Headed Studs: ASTM A108, AISI 1018 through AISI 1020, cold finished, AWS D1.1/D1.1M, Type A or Type B, with arc shields and with minimum mechanical properties of PCI MNL 117, Table 3.2.3.

C. Carbon-Steel Plate: ASTM A283/A283M, Grade C.

D. Malleable Iron Castings: ASTM A47/A47M, Grade 32510 or Grade 35028.

E. Carbon-Steel Castings: ASTM A27/A27M, Grade 60-30.

F. High-Strength, Low-Alloy Structural Steel: ASTM A572/A572M.

G. Carbon-Steel Structural Tubing: ASTM A500/A500M, Grade B or Grade C.

H. Wrought Carbon-Steel Bars: ASTM A675/A675M, Grade 65.

I. Deformed-Steel Wire or Bar Anchors: ASTM A496/A496M or ASTM A706/A706M.

J. Carbon-Steel Bolts and Studs: ASTM A307, Grade A or ASTM F1554, Grade 36; carbon-steel, hex-head bolts and studs; carbon-steel nuts, ASTM A563; and flat, unhardened steel washers, ASTM F844.

K. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M,Grade A325 Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.

L. Zinc-Coated Finish: For exterior steel items, steel in exterior walls, and items indicated for galvanizing, apply zinc coating by hot-dip process according to ASTM A123/A123M or ASTM A153/A153M electrodeposition according to ASTM B633, SC 3, Types 1 and 2.

1. Galvanizing Repair Paint: High-zinc-dust-content paint with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035B or SSPC-Paint 20.

M. Shop-Primed Finish: Prepare surfaces of nongalvanized steel items, except those surfaces to be embedded in concrete, according to requirements in SSPC-SP 3 and shop-apply lead- and chromate-free, rust-inhibitive primer, complying with performance requirements in MPI 79 SSPC-Paint 25 according to SSPC-PA 1.

2.5 GROUT MATERIALS

A. Sand-Cement Grout: Portland cement, ASTM C150/C150M, Type I, and clean, natural sand, ASTM C144 or ASTM C404. Mix at ratio of 1 part cement to 2-1/2 to 3 parts sand, by volume, with minimum water required for placement and hydration. Water-soluble chloride ion content less than 0.06 percent by weight of cement when tested according to ASTM C1218/C1218M.

B. Nonmetallic, Nonshrink Grout: Packaged, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C1107/C1107M, Grade A for drypack and Grades B and C for flowable grout and of consistency suitable for application within a 30-minute working time. Water-soluble chloride ion content less than 0.06 percent by weight of cement when tested according to ASTM C1218/C1218M.

C. Epoxy-Resin Grout: Two-component, mineral-filled epoxy resin; ASTM C881/C881M, of type, grade, and class to suit requirements.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures for each type of precast concrete required.

B. Limit use of fly ash and ground granulated blast-furnace slag to 20 percent of portland cement by weight; limit metakaolin and silica fume to 10 percent of portland cement by weight.

C. Design mixtures may be prepared by a qualified independent testing agency or by qualified precast plant personnel at architectural precast concrete fabricator's option.

D. Limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 318 or PCI MNL 117 when tested according to ASTM C1218/C1218M.

E. Normal-Weight Concrete Mixtures: Proportion mixtures by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:

1. Compressive Strength (28 Days): 5000 psi minimum.

F. Water Absorption: 6 percent by weight or 14 percent by volume, tested according to ASTM C642, except for boiling requirement.

G. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 117.

H. When included in design mixtures, add other admixtures to concrete mixtures according to manufacturer's written instructions.

2.7 FABRICATION

A. Cast-in Anchors, Inserts, Plates, Angles, and Other Anchorage Hardware: Fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware, and secure in place during precasting operations. Locate anchorage hardware where it does not affect position of main reinforcement or concrete placement.

1. Weld-headed studs and deformed bar anchors used for anchorage according to AWS D1.1/D1.1M and AWS C5.4, "Recommended Practices for Stud Welding."

B. Furnish loose hardware items including steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other hardware shapes for securing architectural precast concrete units to supporting and adjacent construction.

C. Cast-in reglets, slots, holes, and other accessories in architectural precast concrete units as indicated on the Contract Drawings.

D. Reinforcement: Comply with recommendations in PCI MNL 117 for fabricating, placing, and supporting reinforcement.

E. Reinforce architectural precast concrete units to resist handling, transportation, and erection stresses and specified in-place loads.

F. Prestress tendons for architectural precast concrete units by either pretensioning or post-tensioning methods. Comply with PCI MNL 117.

G. Comply with requirements in PCI MNL 117 and requirements in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.

H. Place face mixture to a minimum thickness after consolidation of the greater of 1 inch or 1.5 times the maximum aggregate size, but not less than the minimum reinforcing cover specified.

I. Place concrete in a continuous operation to prevent cold joints or planes of weakness from forming in precast concrete units.

1. Place backup concrete mixture to ensure bond with face-mixture concrete.

J. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air voids on surfaces. Use equipment and procedures complying with PCI MNL 117.

1. Place self-consolidating concrete without vibration according to PCI TR-6, "Interim Guidelines for the Use of Self-Consolidating Concrete in Precast/Prestressed Concrete Institute Member Plants." Ensure adequate bond between face and backup concrete, if used.

K. Comply with PCI MNL 117 for hot- and cold-weather concrete placement.

L. Identify pickup points of architectural precast concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each architectural precast concrete unit on a surface that does not show in finished structure.

M. Cure concrete, according to requirements in PCI MNL 117, by moisture retention without heat or by accelerated heat curing using low-pressure live steam or radiant heat and moisture. Cure units until compressive strength is high enough to ensure that stripping does not have an effect on performance or appearance of final product.

N. Discard and replace architectural precast concrete units that do not comply with requirements, including structural, manufacturing tolerance, and appearance, unless repairs meet requirements in PCI MNL 117 and Architect's approval.

2.8 FABRICATION TOLERANCES

A. Fabricate architectural precast concrete units to shapes, lines, and dimensions indicated so each finished unit complies with PCI MNL 117 product tolerances as well as position tolerances for cast-in items.

2.9 FINISHES

A. Exposed faces shall be free of joint marks, grain, and other obvious defects. Corners, including false joints shall be uniform, straight, and sharp. Finish exposed-face surfaces of architectural precast concrete units to match approved design reference sample and as follows:

1. Design Reference Sample: Panels of existing buildings on project site.

2. PCI's "Architectural Precast Concrete - Color and Texture Selection Guide," of plate numbers indicated.

3. Exposed-Aggregate Finish: Use chemical retarding agents applied to concrete forms and washing and brushing procedures to expose aggregate and surrounding matrix surfaces after form removal.

B. Finish unexposed surfaces of architectural precast concrete units with as cast finish.

2.10 SOURCE QUALITY CONTROL

A. Quality-Control Testing: Test and inspect precast concrete according to PCI MNL 117 requirements. If using self-consolidating concrete, also test and inspect according to PCI TR-6, ASTM C1610/C1610M, ASTM C1611/C1611M, ASTM C1621/C1621M, and ASTM C1712.

B. Contractor will employ an independent testing agency to evaluate architectural precast concrete fabricator's quality-control and testing methods.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install clips, hangers, bearing pads, and other accessories required for connecting architectural precast concrete units to supporting members and backup materials.

B. Erect architectural precast concrete level, plumb, and square within specified allowable tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment of units until permanent connections are completed.

1. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.

2. Unless otherwise indicated, maintain uniform joint widths of 3/4 inch.

C. Connect architectural precast concrete units in position by bolting, welding, grouting, or as otherwise indicated on Shop Drawings. Remove temporary shims, wedges, and spacers as soon as practical after connecting and grouting are completed.

D. Welding: Comply with applicable requirements in AWS D1.1/D1.1M and AWS D1.4/D1.4M for welding, welding electrodes, appearance, quality of welds, and methods used in correcting welding work.

E. At bolted connections, use lock washers, tack welding, or other approved means to prevent loosening of nuts after final adjustment.

F. Grouting or Dry-Packing Connections and Joints: Grout connections where required or indicated. Retain flowable grout in place until hard enough to support itself. Alternatively, pack spaces with stiff dry-pack grout material, tamping until voids are completely filled. Place grout and finish smooth, level, and plumb with adjacent concrete surfaces. Promptly remove grout material from exposed surfaces before it affects finishes or hardens. Keep grouted joints damp for not less than 24 hours after initial set.

3.2 ERECTION TOLERANCES

A. Erect architectural precast concrete units level, plumb, square, and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 117, Appendix I.

3.3 FIELD QUALITY CONTROL

A. Special Inspections: Contractor will engage a qualified special inspector to perform the following special inspections and prepare reports:

1. Erection of loadbearing precast concrete members.

2. Insert special inspections.

B. Testing Agency: Contractor will engage a qualified testing agency to perform tests and inspections and prepare test reports.

C. Visually inspect field welds and test according to ASTM E165 or to ASTM E709 and ASTM E1444. High-strength bolted connections are subject to inspections.

D. Testing agency will report test results promptly and in writing to Contractor and Architect.

E. Repair or remove and replace work where tests and inspections indicate that it does not comply with specified requirements.

F. Additional testing and inspecting, at Contractor's expense, shall be performed to determine compliance of replaced or additional work with specified requirements.

3.4 REPAIRS

A. Repair architectural precast concrete units if permitted by Architect. Architect reserves the right to reject repaired units that do not comply with requirements.

B. Mix patching materials and repair units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of 20 feet.

C. Prepare and repair damaged galvanized coatings with galvanizing repair paint according to ASTM A780/A780M.

D. Wire brush, clean, and paint damaged prime-painted components with same type of shop primer.

E. Remove and replace damaged architectural precast concrete units when repairs do not comply with requirements.

3.5 CLEANING

A. Clean surfaces of precast concrete units exposed to view.

B. Clean mortar, plaster, fireproofing, weld slag, and other deleterious material from concrete surfaces and adjacent materials immediately.

C. Clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, other markings, dirt, and stains.

1. Perform cleaning procedures, if necessary, according to precast concrete fabricator's recommendations. Protect other work from staining or damage due to cleaning operations.

2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

END OF SECTION

SECTION 04200

UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units.

2. Mortar and grout.

3. Steel reinforcing bars.

4. Masonry-joint reinforcement.

5. Ties and anchors.

6. Miscellaneous masonry accessories.

7. Masonry-cell fill.

B. Products Installed but not Furnished under This Section:

1. Steel lintels in unit masonry.

C. Related Requirements:

1. Division 01 Specification Sections apply to Work of this Section.

2. Section 04815 "Glass Unit Masonry" for glass block.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each regional material.

C. Shop Drawings: For the following:

1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.

2. Stone Trim Units: Show sizes, profiles, and locations of each stone trim unit required.

3. Reinforcing Steel: Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Material Certificates: For each type and size of the following:

1. Masonry units.

a. Include material test reports substantiating compliance with requirements.

2. Integral water repellent used in CMUs.

3. Cementitious materials. Include name of manufacturer, brand name, and type.

4. Mortar admixtures.

5. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.

6. Grout mixes. Include description of type and proportions of ingredients.

7. Reinforcing bars.

8. Joint reinforcement.

9. Anchors, ties, and metal accessories.

C. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.

2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

D. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.

E. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 FIELD CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.

2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe, and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.

1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.

2. Protect sills, ledges, and projections from mortar droppings.

3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.

D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.3 CONCRETE MASONRY UNITS

A. Regional Materials: CMUs shall be manufactured within 100 miles of Project site from aggregates and cement that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles of Project site.

B. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

2. Provide bullnose units for exposed outside corners at jambs of door openings indicated.

C. Integral Water Repellent: Provide units made with integral water repellent .

1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E 514/E 514M as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.

a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1) ACM Chemistries; RainBloc.
2) BASF Corporation-Construction Systems; MasterPel 240 (Pre-2014: Rheopel Plus) or MasterPel 200HD (Pre-2014: Rheopel 200HD).
3) Grace Construction Products; W.R. Grace & Co. -- Conn.; Dry-Block.

D. CMUs: ASTM C 90.

1. Density Classification: Medium weight.

2. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.

2.4 MASONRY LINTELS

A. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.5 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C 114.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Aggregate for Mortar: ASTM C 144.

E. Aggregate for Grout: ASTM C 404.

F. Delete "Epoxy Pointing Mortar" Paragraph below if not needed for pre-faced CMUs, glazed brick, or glazed structural clay facing tile.

G. Retain "Refractory Mortar Mix" Paragraph below if using firebox brick and clay flue linings.

H. "Cold-Weather Admixture" Paragraph below is an example of a requirement for a concrete admixture often used in cold weather as an antifreeze. Appendix X1 in ASTM C 270 and BIA generally recommend not using admixtures unless they are known to have no adverse effects. Before approving the use of cold-weather admixtures, verify their acceptability by laboratory testing with mortar mix used.

I. Retain "Products" Subparagraph and list of manufacturers and products below to require specific products or a comparable product from other manufacturers.

J. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. ACM Chemistries; RainBloc for Mortar.

b. BASF Corporation-Construction Systems; MasterPel 240MA (Pre-2014: Rheopel Plus Mortar Admixture) or MasterPel 210D (Pre-2014: Rheopel Plus D).

c. Grace Construction Products; W.R. Grace & Co. -- Conn.; Dry-Block Mortar Admixture.

K. Water: Potable.

2.6 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.

B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

   a. Dur-O-Wal; a Hohmann & Barnard company; D/A 810, D/A 812 or D/A 817.

   b. Heckmann Building Products, Inc.; No. 376 Rebar Positioner.

   c. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner.

   d. Wire-Bond; O-Ring or Double O-Ring Rebar Positioner.

C. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.

1. Interior Walls: Hot-dip galvanized carbon steel.

2. Exterior Walls: Hot-dip galvanized carbon steel.

3. Wire Size for Side Rods: 0.148-inch diameter.

4. Wire Size for Cross Rods: 0.148-inch diameter.

5. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.

6. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

D. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder or truss type with single pair of side rods.

E. Masonry-Joint Reinforcement for Multiwythe Masonry:

2.7 TIES AND ANCHORS

A. General: Ties and anchors shall extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 153/A 153M, Class B-2 coating.

2. Galvanized-Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 zinc coating.

3. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.

C. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

2.8 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from [neoprene] [urethane] [or] [PVC].

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

2.9 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.10 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.

2. Use portland cement-lime mortar unless otherwise indicated.

B. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.

1. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.

2. For interior non-load-bearing partitions, Type O may be used instead of Type N.

C. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.

2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2,000 psi.

3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

2. Verify that foundations are within tolerances specified.

3. Verify that reinforcing dowels are properly placed.

4. Verify that substrates are free of substances that impair mortar bond.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.

2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.

3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.

2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.

3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.

4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.

5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.

6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet or 1/2-inch maximum.

7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.

2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.

3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.

4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.

5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

E. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

G. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

H. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.

3.5 MORTAR BEDDING AND JOINTING

A. Lay CMUs as follows:

1. Bed face shells in mortar and make head joints of depth equal to bed joints.

2. Bed webs in mortar in all courses of piers, columns, and pilasters.

3. Bed webs in mortar in grouted masonry, including starting course on footings.

4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.

5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.

B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

1. For glazed masonry units, use a nonmetallic jointer 3/4 inch or more in width.

C. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.6 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.

1. Space reinforcement not more than 16 inches o.c.

2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.

3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at corners by using prefabricated L-shaped units.

D. Cut and bend reinforcing units as directed by manufacturer for continuity at[corners,] returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:

1. Provide an open space not less than [1/2 inch] [1 inch] [2 inches] wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.

2. Anchor masonry with anchors embedded in masonry joints and attached to structure.

3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.8 CONTROL AND EXPANSION JOINTS

A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

B. Form control joints in concrete masonry using one of the following methods:

1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout, and rake out joints in exposed faces for application of sealant.

2. Install preformed control-joint gaskets designed to fit standard sash block.

3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar, or rake out joint for application of sealant.

4. Install temporary foam-plastic filler in head joints, and remove filler when unit masonry is complete for application of sealant.

3.9 LINTELS

A. Install steel lintels where indicated.

B. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B. Inspections: Special inspections according to Level B in TMS 402/ACI 530/ASCE 5.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.

2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.

3. Place grout only after inspectors have verified proportions of site-prepared grout.

C. Testing Prior to Construction: One set of tests.

D. Testing Frequency: One set of tests for each 5,000 sq. ft. of wall area or portion thereof.

E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for compressive strength.

F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.

G. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.

H. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

END OF SECTION

SECTION 04815

GLASS UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Glass block set in mortar.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: Glass-block units.

PART 2 PRODUCTS

2.1 GLASS BLOCK

A. Hollow Glass Block: Hollow units made from transparent glass, with manufacturer's standard edge coating.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Mulia Inc.; distributed by Glass Blocks Unlimited.

b. Mulia Inc.; distributed by Mulia, Inc.

c. Pittsburgh Corning Corporation.

d. Seves; distributed by Glass Blocks Unlimited.

e. Seves; distributed by Glass Block Warehouse, LC.

f. Vetroarredo Sediver S.p.A.; distributed by International Product Supply.

g. J. Weck GmbH & Co. KG; distributed by Glashaus, Inc.

h. J. Weck GmbH & Co. KG; distributed by Glass Blocks Unlimited.

i. WGS Westerwald Glasstein GmbH. Solaris Glasstein; distributed by Glass Blocks Unlimited.

2. Glass Color: Colorless.

3. Pattern: Smooth, undistorted inner and outer faces.

4. Edge-Coating Color: White .

5. Thick-Faced Block: Units with faces at least 3/4 inch thick.

2.2 MORTAR MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or Type II. Provide natural color or white cement as required to produce mortar color indicated.

1. Where joints are indicated to be raked out and pointed, gray cement may be used for setting mortar.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Aggregate: ASTM C 144, with 100 percent passing No. 8 sieve.

1. For pointing mortar and joints narrower than 1/4 inch, use aggregate graded with 100 percent passing No. 16 sieve.

2. White Aggregates: Natural white sand or crushed white stone.

E. Water-Repellent Admixture: Dry mixture of stearates, water-reducing agents, and fine aggregates intended to reduce capillarity in mortar.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. BASF Corporation, Construction Chemicals; Hydrocide Powder.

F. Water: Potable.

2.3 GLASS UNIT MASONRY ACCESSORIES

A. Panel Reinforcement: Ladder-type units, butt welded, not lapped and welded; complying with ASTM A 951/A 951M in straight lengths of not less than 10 feet, and as follows:

1. Exterior Walls: Hot-dip galvanized, carbon -steel wire.

2. Wire Size: W1.7 or 0.148-inch diameter.

3. Width: 1-5/8 inches.

4. Spacing of Cross Rods: Not more than 16 inches apart.

B. Panel Anchors: Glass-block manufacturer's standard perforated steel strips, 0.0359 inch by 1-3/4 inches wide by 24 inches long, hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M.

C. Fasteners, General: Unless otherwise indicated, provide Type 304 or Type 316 stainless-steel fasteners at exterior walls and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at interior walls. Select fasteners for type, grade, and class required.

D. Asphalt Emulsion: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M or ASTM D 1227.

E. Sealant Accessories: Provide sealant accessories, including primers, bond-breaker tape, and cylindrical sealant backing, that comply with applicable requirements in Section 07900 "Joint Sealers."

2.4 MORTAR MIXES

A. General: Do not use admixtures unless otherwise indicated.

1. For mortar in exterior panels, use water-repellent admixture according to admixture manufacturer's written instructions.

2. Limit cementitious materials in mortar to portland cement and lime.

B. Mortar for Glass Unit Masonry Assemblies: Comply with ASTM C 270, Proportion Specification for Type S mortar.

PART 3 EXECUTION

3.1 INSTALLING GLASS BLOCK WITH MORTAR

A. Apply a heavy coat of asphalt emulsion to sill and adhere expansion strips to jambs and heads with asphalt emulsion. Allow asphalt emulsion to dry before placing mortar. Trim expansion strips to width required to fit glass block and to full lengths of heads and jambs.

B. Set glass block with completely filled bed and head joints, with no furrowing, accurately spaced and coordinated with other construction. Maintain 1/4-inch exposed joint widths.

C. Install panel reinforcement in horizontal joints at spacing indicated and continuously from end to end of panels; comply with the following requirements:

1. Vertical Spacing of Panel Reinforcement for Exterior Panels: Every other course but not more than 16 inches o.c., starting with first course above sill.

2. Do not bridge expansion joints with panel reinforcement.

3. Place panel reinforcement in joints immediately above and below all openings within glass unit masonry assemblies.

4. Lap panel reinforcement not less than 6 inches if more than one length is necessary.

D. Install panel anchors at locations indicated and in same horizontal joints where panel reinforcement occurs. Extend panel anchors at least 12 inches into joints, and bend within expansion joints at edges of panels and across the head. Attach panel anchors as follows:

E. Use plastic spacers or temporary wedges in mortar joints to produce uniform joint widths and to prevent mortar from being squeezed out of joints.

F. Keep expansion joints free of mortar.

G. Rake out joints indicated to be pointed to a uniform depth sufficient to accommodate pointing material, but not less than joint width.

1. Point joints at both faces of exterior panels with mortar.

H. Point joints with mortar by filling raked joints and voids. Place and compact pointing mortar in layers not more than 3/8 inch thick. Compact each layer thoroughly and allow to become thumbprint hard before applying next layer.

1. Tool exposed joints slightly concave when pointing mortar is thumbprint hard. Use a smooth plastic jointer larger than joint width.

I. Point joints by filling with sealant to comply with requirements in Section 07 92 00 "Joint Sealants."

J. Install sealant at jambs, heads, mullions, and other locations indicated. Prepare joints, including installation of primer and bond-breaker tape or cylindrical sealant backing, and apply elastomeric sealants to comply with requirements in Section 07900 "Joint Sealers."

3.2 CLEANING

A. Perform final cleaning of glass unit masonry assemblies when surface is not exposed to direct sunlight. Start at top of panel using generous amounts of clean water. Remove water with clean, dry, soft cloths; change cloths frequently to eliminate dried mortar particles and aggregate.

END OF SECTION

SECTION 05120

STRUCTURAL STEEL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural steel.

2. Grout.

B. Related Requirements:

1. Division 01 Specification Sections apply to Work of this Section.

1.2 DEFINITIONS

A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.3 COORDINATION

A. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.4 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.

2. Include embedment Drawings.

3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.

4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.

1.5 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Field quality-control and special inspection reports.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.

2. Clean and relubricate bolts and nuts that become dry or rusty before use.

3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 3125/F 3125M, Grade F1852 bolt assemblies and for retesting bolt assemblies after lubrication.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.

1. Select and complete connections using schematic details indicated andAISC 360.

2. Use Load and Resistance Factor Design; data are given at factored-load level.

B. Moment Connections: Type FR, fully restrained.

C. Construction: Braced frame.

2.2 STRUCTURAL-STEEL MATERIALS

A. W-Shapes: ASTM A 992/A 992M.

B. Channels, Angles-Shapes: ASTM A 36/A 36M.

C. Plate and Bar: ASTM A 36/A 36M.

D. Cold-Formed Hollow Structural Sections: ASTM A 500/A 500M, Grade C, structural tubing.

2.3 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM F 3125/F 3125M, Grade A325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F 436/F 436M, Type 1, hardened carbon-steel washers; all with plain finish.

1. Direct-Tension Indicators: ASTM F 959/F 959M, Type 325-1, compressible-washer type with plain finish.

B. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 3125/F 3125M, Grade F1852, Type 1, heavy-hex head assemblies consisting of steel structural bolts with splined ends; ASTM A 563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F 436/F 436M, Type 1, hardened carbon-steel washers.

1. Finish: Mechanically deposited zinc coating.

C. Shear Connectors: ASTM A 108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

D. Unheaded Anchor Rods: ASTM F 1554, Grade 36.

1. Configuration: Straight.

2. Nuts: ASTM A 563 heavy-hex carbon steel.

3. Plate Washers: ASTM A 36/A 36M carbon steel.

4. Washers: ASTM F 436, Type 1, hardened carbon steel.

5. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C.

2.4 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.5 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.

1. Camber structural-steel members where indicated.

2. Fabricate beams with rolling camber up.

3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.

4. Mark and match-mark materials for field assembly.

5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 3, "Power Tool Cleaning."

F. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

G. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.

2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.

3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.6 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

2.7 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.

1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.

2. Galvanize shelf angles attached to structural-steel frame and located in exterior walls.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

3.3 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Baseplates and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.

2. Weld plate washers to top of baseplate.

3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.

4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.

2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

E. Splice members only where indicated.

F. Do not use thermal cutting during erection unless approved by Engineer. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.

G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

H. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

3.4 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

2. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.

3.5 FIELD QUALITY CONTROL

A. Special Inspections: Engage a qualified special inspector to perform the following special inspections:

1. Verify structural-steel materials and inspect steel frame joint details.

2. Verify weld materials and inspect welds.

3. Verify connection materials and inspect high-strength bolted connections.

B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

C. Bolted Connections: Inspect and test bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

1. In addition to visual inspection, test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

a. Liquid Penetrant Inspection: ASTM E 165.

b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.

c. Ultrasonic Inspection: ASTM E 164.

d. Radiographic Inspection: ASTM E 94.

3.6 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION

SECTION 05500

METAL FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel framing and supports for overhead doors.

2. Metal ladders.

3. Ladder safety devices.

4. Metal bollards.

B. Products furnished, but not installed, under this Section include the following:

1. Loose steel lintels.

2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.

1.2 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:

1. Steel framing and supports for overhead doors.

2. Metal ladders.

3. Metal bollards.

1.4 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.6 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance of Aluminum Ladders: Aluminum ladders[, including landings,] shall withstand the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

B. Structural Performance of Alternating Tread Devices: Alternating tread devices shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Uniform Load: 100 lbf/sq. ft..

2. Concentrated Load: 300 lbf applied on an area of 4 sq. in..

3. Uniform and concentrated loads need not be assumed to act concurrently.

4. Alternating Tread Device Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

C. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.

D. Steel Tubing: ASTM A 500/A 500M, cold-formed steel tubing.

E. Steel Pipe: ASTM A 53/A 53M, Standard Weight (Schedule 40) unless otherwise indicated.

F. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.

1. Size of Channels: 1-5/8 by 1-5/8 inches.

2. Material: Galvanized steel, ASTM A 653/A 653M, structural steel, Grade 33, with G90 coating; 0.079-inch nominal thickness.

G. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.

H. Aluminum Plate and Sheet: ASTM B 209, Alloy 6061-T6.

I. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.

J. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.

K. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

L. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded architectural bronze).

M. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).

N. Nickel Silver Extrusions: ASTM B 151/B 151M, Alloy UNS No. C74500.

O. Nickel Silver Castings: ASTM B 584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

2.3 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

1. Provide stainless-steel fasteners for fastening aluminum.

2. Provide stainless-steel fasteners for fastening stainless steel.

3. Provide stainless-steel fasteners for fastening nickel silver.

4. Provide bronze fasteners for fastening bronze.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1.

D. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.

E. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.

F. Post-Installed Anchors: [Torque-controlled expansion anchors] [or] [chemical anchors].

1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.

2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.4 MISCELLANEOUS MATERIALS

A. Shop Primers: Provide primers that comply with Section 09800 "Painting."

B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

D. Concrete: Comply with requirements in Section 03300 "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 3000 psi.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

1. Fabricate units from slotted channel framing where indicated.

2. Furnish inserts for units installed after concrete is placed.

2.7 METAL LADDERS

A. General:

1. Comply with ANSI A14.3.

B. Steel Ladders:

1. Space siderails 18 inches apart unless otherwise indicated.

2. Siderails: Continuous, 1/2-by-2-1/2-inch steel flat bars, with eased edges.

3. Rungs: 3/4-inch- diameter steel bars.

4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.

5. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.

6. Provide nonslip surfaces on top of each rung by coating with abrasive material metallically bonded to rung.

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1) Harsco Industrial IKG, a division of Harsco Corporation.
2) ROSS TECHNOLOGY CORP.
3) SlipNOT Metal Safety Flooring; W.S. Molnar Company.

7. Support each ladder[at top and bottom and not more than 60 inches o.c.] with welded or bolted steel brackets.

8. Prime exterior ladders, including brackets and fasteners, with zinc-rich primer.

2.8 LADDER SAFETY DEVICES

A. General: Provide on rigid rail system on ladders taller than 20 feet. Devices to comply with OSHA 1910.27. Mounting hardware shall be part of safety device system. Mounting hardware shall be designed to fit ladder rung.

B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. 3M; Railok 90 Series.

2. FallTech; 776000 Series.

3. FrenchCreek; Rigid rail climbing system.

4. Honeywell; Miller GlideLoc or Saf-T-Climb Series.

C. Manufacture Restrictions: Ladder safety device and user devices must be provided by one manufacture.

D. Materials: Rail and accessories:

1. Interior Ladders: Galvanized.

2. Exterior Ladders: Galvanized.

E. User Devices: Provide two sets to Owner. User devices include user's harness and equipment to connect harness to rail system.

F. Dismount:

1. Provide dismount at top and bottom.

2. Provide removable extension [at ladders with hatch] [where noted in Drawings].

2.9 METAL BOLLARDS

A. Fabricate metal bollards from Schedule 40 steel pipe.

B. Prime bollards with primer specified in Section 09800 Painting

2.10 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

2.11 FINISHES, GENERAL

A. Finish metal fabrications after assembly.

B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.12 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.

1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.

C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.

1. Shop prime with primers specified in Section 09900 "Painting."

D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:

1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

3. Items Indicated to Receive Primers Specified in Section 09800 "Painting." SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

4. Other Items: SSPC-SP 3, "Power Tool Cleaning."

E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:

1. Cast Aluminum: Heavy coat of bituminous paint.

2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

3.3 INSTALLING LADDER SAFETY DEVICES

A. Install ladder safety devices per manufacturer's instructions.

3.4 INSTALLING METAL BOLLARDS

A. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.

B. Fill bollards solidly with concrete, mounding top surface to shed water.

1. Do not fill removable bollards with concrete.

3.5 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION

SECTION 05501

METAL FABRICATIONS (APPLIES TO CIVIL AND MECHANICAL DRAWINGS ONLY)

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Shop Fabrication of Ferrous Metal items, Prime Painted.

B. Aluminum Floor Grating and Frames.

C. Stair Nosings.

D. Stainless Steel Ladders.

1.2 REFERENCES:

A. ASTM A36 - Structural Steel.

B. ASTM A283 - Carbon Steel Plats, Shapes, and Bars.

C. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners.

D. AWS A2.0 - Standard Welding Symbols.

E. AWS D1.1 - Structural Welding Code.

F. WWT 700/6 - Federal Specification.

1.3 SUBMITTALS:

A. Submit under provisions of Section 01300.

B. Shop drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size, and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

C. Indicate welded connections using standard AWS A2.0 welding symbols.

1.4 FIELD MEASUREMENTS:

A. Verify that field measurements are as indicated on shop drawings.

1.5 SEQUENCING:

A. Inserts and Anchorage: Furnish inserts and anchoring devices which must be set in concrete for installation of miscellaneous metal work. Provide setting drawings, templates, instructions and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Steel Sections: ASTM A36.

B. Plates: ASTM A283.

C. Bolts, Nuts, and Washers: ASTM A325.

D. Welding Materials: AWS D1.1; Type required for materials being welded.

E. Shop and Touch-up Primer: SSPC 15, Type 1, red oxide.

2.2 FABRICATION:

A. Fit and shop-assemble in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Seal joined members by intermittent welds.

D. Grind exposed joints in flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.3 FINISHES:

A. Prepare surfaces to be primed in accordance with SSPC SPC2.

B. Do not prime surfaces in direct contact with concrete or where field welding is required.

C. Prime paint items with one coat. All exposed steel (except stainless steel) shall be painted according to specifications after being properly primed.

D. Coordinate prime coatings with specified finishes in Section 09800.

E. All carbon steel metal fabrications shall be hot-dipped galvanized after fabrication unless shown otherwise.

2.4 FLOOR GRATINGS AND FRAMES:

A. Floor gratings shall be designed to support a live load of 250 pounds per square foot for the spans indicated with minimum depth of 1 inch for loadings and/or

as shown on the plans and unless otherwise indicated shall conform to Federal Specification RR-G-661. Edges of gratings shall be banded with bars of the same size as bearing bars. Frames shall be provided with welded-on anchors. Floor gratings and frames shall be aluminum and located where indicated. No opening in the floor shall remain open. An aluminum plate and frame or aluminum grating and frame shall be supplied for all openings.

2.5 SAFTEY TREAD STAIR NOSING:

A. IKG Industries, Mebac Cast-in-Place-type or equal. Nosings shall be aluminum with bonded aluminum oxide grit surface. Surface shall exceed OSHA 0.50, coefficient of function standard when wet or coated with oil.

2.6 STEEL BOLLARDS:

A. Steel bollards shall be constructed as indicated of ASTM A53 Grade B or A501 galvanized steel pipe. Pipes shall be set into concrete footings as indicated.

2.7 VAULT LADDERS ONLY:

A. Fabricate ladders for the locations shown, with dimensions, spacing's, details, and anchorages as indicated. Comply with the requirements of ANSI A 14.3, except as otherwise indicated.

1. Unless otherwise shown, provide 1/2" x 2-1/2" continuous structural steel flat bar side rails with eased edges, spaced 18-inches apart.

2. Provide 3/4-inch diameter solid structural steel bar rungs, spaced 12-inches o.c.

B. Fit rungs in centerline of side rails, plug weld and grind smooth on outer rail faces.

C. Support each ladder at top and bottom and at intermediate points spaced not more than 5'-0" o.c. unless other indicated on drawings. Use welded or bolted steel brackets, designed for adequate support and anchorage, and to hold the ladder clear of the wall surface with a minimum of 7 inches clearance for wall to centerline of rungs.

D. Provide non-slip surface on the top of each rung, either by coating the rung with aluminum oxide granules set in epoxy resign adhesive, or by using a type of manufactured rung which is filled with aluminum oxide grout.

E. All vault ladders shall be constructed of 316 stainless steel and be attached with 316 stainless steel epoxy anchors suitable for the application.

F. Ladder design shall comply with all applicable OSHA standards. If ladder specifications listed above conflict with applicable OSHA standards, OSHA standards shall govern.

2.8 LADDER SAFETY DEVICES

A. General: Provide rigid rail system on ladders taller than 20 feet. Devices to comply with OSHA 1910. 27. Mounting hardware shall be a part of the safety device system. Mounting hardware shall be designed to fit ladder rung.

B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. 3M; Railok 90 Series
2. FallTech; 776000 Series.
3. FrenchCreek: Rigid rail climbing system
4. Honeywell; Miller GlideLoc of Saf-T-Climb Series.

C. Manufacture Restrictions: Ladder safety devices and user devices for all new construction at the Midland NE TPS must be provided by one manufacturer.

D. Manufacture Restrictions: Ladder safety device and user devices must be provided by one manufacture.

E. Dismount:

1. Provide dismount at top and bottom.
2. Provide removable ladder extension where indicated on drawings.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Verify that field connections are acceptable and are ready to receive work.

B. Beginning of installation means erector accepts existing conditions.

3.2 PREPARATION:

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply items required to be cast into concrete or embedded in masonry with setting templates.

3.3 INSTALLATION:

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Obtain Engineer's approval prior to site cutting or making adjustments not scheduled.

END OF SECTION

SECTION 07190

WATER REPELLENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes penetrating water-repellent treatments for the following vertical and horizontal surfaces:

1. Cast-in-place concrete.

2. Precast concrete.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each type of water repellent and substrate indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Product certificates.

1.5 QUALITY ASSURANCE

A. Applicator Qualifications: An employer of workers trained and approved by manufacturer.

PART 2 PRODUCTS

2.1 PENETRATING WATER REPELLENTS

A. Silane/Siloxane-Blend, Penetrating Water Repellent: Clear, silane and siloxane blend with 400 g/L or less of VOCs.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. BASF Construction Chemicals - Building Systems; MasterProtect H 107.

b. Chemical Products Industries, Inc.; Siloxane WB Concentrate.

c. Euclid Chemical Company (The), an RPM company; Chemstop WB Heavy Duty.

d. L&M Construction Chemicals, Inc.; Hydropel WB.

e. OKON Inc., Division of Rust-Oleum Corporation, an RPM company; OKON S-20.

f. PROSOCO, Inc.; Siloxane WB Concentrate.

g. Rainguard Products Company; MicroSeal.

h. Tnemec Company, Inc..; Series 633 Prime-A-Pell H2O.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements and conditions affecting performance of the Work.

1. Verify that surfaces are clean and dry according to water-repellent manufacturer's requirements. Check moisture content in representative locations by method recommended by manufacturer.

2. Verify that there is no efflorescence or other removable residues that would be trapped beneath the application of water repellent.

3. Verify that required repairs are complete, cured, and dry before applying water repellent.

B. Test pH level according to water-repellent manufacturer's written instructions to ensure chemical bond to silica-containing or siliceous minerals.

3.2 PREPARATION

A. New Construction and Repairs: Allow concrete and other cementitious materials to age before application of water repellent, according to repellent manufacturer's written instructions.

B. Cleaning: Before application of water repellent, clean substrate of substances that could impair penetration or performance of product according to water-repellent manufacturer's written instructions.

C. Coordination with Mortar Joints: Do not apply water repellent until pointing mortar for joints adjacent to surfaces receiving water-repellent treatment has been installed and cured.

D. Coordination with Sealant Joints: Do not apply water repellent until sealants for joints adjacent to surfaces receiving water-repellent treatment have been installed and cured.

1. Water-repellent work may precede sealant application only if sealant adhesion and compatibility have been tested and verified using substrate, water repellent, and sealant materials identical to those required.

3.3 APPLICATION

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect the substrate before application of water repellent and to instruct Applicator on the product and application method to be used.

B. Apply coating of water repellent on surfaces to be treated using low-pressure spray to the point of saturation. Apply coating in dual passes of uniform, overlapping strokes. Remove excess material; do not allow material to puddle beyond saturation. Comply with manufacturer's written instructions for application procedure unless otherwise indicated.

1. Precast Concrete: At Contractor's option, first application of water repellent may be completed before installing units. Mask mortar and sealant bond surfaces to prevent water repellent from migrating onto joint surfaces. Remove masking after repellent has cured.

C. Apply a second saturation coating, repeating first application. Comply with manufacturer's written instructions for limitations on drying time between coats and after rainstorm wetting of surfaces between coats. Consult manufacturer's technical representative if written instructions are not applicable to Project conditions.

3.4 CLEANING

A. Immediately clean water repellent from adjoining surfaces and surfaces soiled or damaged by water-repellent application as work progresses. Correct damage to work of other trades caused by water-repellent application.

B. Comply with manufacturer's written cleaning instructions.

END OF SECTION

SECTION 07222

ROOF BOARD INSULATION

PART 1 GENERAL

1.1 REFERENCES (INCLUDING LATEST REVISIONS)

A. Comply with governing local, state, and federal regulations, safety standards, and codes.

B. Testing Laboratory Services: Test results shall meet or exceed established standards.

C. Underwriters Laboratories, Inc. (Roofing Covering): Class A fire hazard classification.

D. American Society of Testing Materials (ASTM)

1. C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

2. C 209 Methods of Testing Insulating Board (Cellulosic Fiber), Structural and Decorative

3. C 728 Perlite Thermal Insulation Board

4. D 41 Asphalt Primer Used in Roofing and Waterproofing

5. D 312 Asphalt Used in Roofing

6. D 1621 Test Method for Compressive Properties of Rigid Cellular Plastics

7. D 4601 Asphalt Coated Glass Fiber Base Sheet Used in Roofing

E. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual

F. American National Standards Institute/Single Ply Roofing Industry (ANSI/SPRI)

G. American Society of Civil Engineers - ASCE 7 Minimum Design Loads for Buildings and Other Structures (for wind uplift criteria)

1.2 QUALITY ASSURANCE

A. Regulatory Requirements

1. Classified by Underwriter's Laboratories (UL) as Class A roof covering.

2. Follow local, state, and federal regulations, safety standards, and codes.

B. Installation

1. Installation shall be in accordance with manufacturer's current published application procedures, NRCA general recommendations, and ASCE 7 wind uplift criteria.

2. Roof system manufacturer's technical specifications shall be considered part of this specification and shall be used as reference for specific application procedures.

C. Contract Documents

1. In the case of an inconsistency between the drawings and specifications or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Project Manager's/Architect's interpretation.

1.3 SUBMITTALS

A. Product Data: Submit Manufacturer's product data sheets for each product.

B. Certification: Submit roof manufacturer's certification in writing that insulation is acceptable as substrate for application of specified roof system.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store materials in accordance with manufacturer's recommendations.

B. When stored outdoors:

1. Tarp and shield insulation from moisture and ultraviolet rays.

2. Elevate insulation above substrate four inches minimum.

3. Secure insulation to resist high winds.

4. Distribute insulation stored on roof deck to prevent concentrated loads that would impose excessive stress or stain on deck or structural members. Verify that structure can accommodate additional loading.

5. Wet insulation, or insulation that has been wet but which has dried, may not be used and shall be removed completely and immediately from the job site.

6. Do not double stack bundles of insulation on the rooftop.

1.5 SEQUENCING AND SCHEDULING

A. Substrate Acceptance: Roof system manufacturer's representative shall inspect roof deck and associated substrates and provide written acceptance of conditions.

B. Manufacturer's approved roofing contractor shall inspect and approve deck and substrates.

C. Plan roof layout with respect to roof deck slope to prevent rainwater drainage into completed roofing.

D. Do not install more insulation than can be covered with complete roof system in same day.

1.6 PRODUCT CONDITIONS

A. Environmental Requirements:

1. Apply roofing and insulation in dry weather.

2. Do not proceed with roof construction during inclement weather or when precipitation is predicted 40% or more possibility.

3. Do not apply insulation over wet or moist deck or in foggy conditions.

4. Days with wind speeds of 30 mph or greater shall be considered "Bad Weather" days.

B. Emergency Equipment: Maintain on-site equipment and material necessary to apply emergency temporary seals in the event of sudden storms or inclement weather.

C. Costs for emergency roofing shall be borne by Contractor.

PART 2 PRODUCTS

2.1 INSULATION – FLAT STOCK

A. All insulation shall be approved in writing by the membrane manufacturer as to thickness, type, and manufacturer. All insulation must be approved for the specific application, Underwriters Laboratory approved, and be listed in the FM Global Approval Guide.

B. Polyisocyanurate Roof Insulation: Insulation shall be one layers of rigid polyisocyanurate foam board; meeting Federal Specification No. HH-I-1972/1 or 2 with 20 psi minimum compressive strength and 2.0 pcf minimum density. First layer shall be a minimum thickness of four inch (4"). Average R-value over each roof area shall meet or exceed R-25. Board shall be surfaced on two (2) sides with non-asphaltic facer material.

2.2 COVER BOARD

A. Shall be fiberboard thickness of 1/2", board size four feet by eight feet (4' x 8'), impregnated six (6) sides with asphalt, Underwriters Laboratory approved and listed in the FM Global Approval Guide.

2.3 ASPHALT ROOF PRIMER

A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces, as manufactured by GAF, or approved equal.

Applicable Federal Specification	SS-A-701B
ASTM	D 41
Flash Point	105° F
Viscosity at 80° F (ASTM D 217)	50-60 K.U.
Weight per gallon	7.4 pounds
Drying time (to touch)	Min. 4 hours

2.4 BITUMEN

A. Shall be ASTM D 312 Type IV extra steep asphalt.

2.5 FASTENERS

A. Fasteners and fastening plates and/or termination bars shall be FM Approved and shall be listed in the FM Global Approval Guide, and as recommended by the insulation/fastener manufacturer for the specific application to meet the minimal requirements for wind uplift as required by the local jurisdiction and/or FM Global.

B. Heavy Duty Fastener for Steel Applications for 18-22 gauge Steel and Wood Substrates: Shall be a #14 fastener with a minimum .190 diameter shank and a thread diameter of .245 with ten (10) threads per inch and a 30 degree spade point. Fasteners shall be fluorocarbon coated with CR-10 corrosion resistant coating when subjected to 30 Kesternich cycles (DIN 50018) shows less than 15% red rust which surpasses FM Global Approval Standard 4470, as manufactured by OMG Roofing Products, or approved equal. All fasteners shall be used in conjunction with the manufacturers approved round pressure plate. Fasteners, plates, and/or bars shall be FM approved and listed in the FM Global Approval Guide.

PART 3 EXECUTION

3.1 PROTECTION OF ROOFING

A. Provide special protection from traffic on completed work.

3.2 EXAMINATION AND PREPARATION

A. Do not install until defects are corrected and deck substrate meets roof system manufacturer's requirements.

B. Do not apply insulation unless asphalt application temperature, EVT of approximately 375° F to 425° F, can be maintained or when water or moisture is present on substrate. Do not heat asphalt above flashing point, or 525° F.

C. Examine substrate and related surfaces, and verify that there are no conditions such as inadequate anchorage, foreign materials, moisture, ridges, depressions, or other conditions which would prevent satisfactory installation of roof system.

D. Start of work constitutes acceptance of deck substrate and site conditions.

E. Sweep deck substrate clean of dust and debris immediately prior to installation of insulation.

3.3 APPLICATION OF INSULATION – GENERAL INSTRUCTIONS

A. Manufacturer's Instructions: In regard to attachment, the manufacturer's instructions or specifications shall determine the suitability for an application. Installation must meet ASCE 7 criteria and meet local governing building codes.

3.4 APPLICATION OF INSULATION OVER METAL DECK - MECHANICALLY FASTENED ADHERED

A. Specified flat stock insulation shall be mechanically fastened to conform to the ASCE 7 criteria for wind uplift as dictated by wind zone applicable to location of project. Fasteners and fastening patterns shall be determined by building height, location and geographical area of the United States. It is the contractor's responsibility to consult current publications, literature, and bulletins of IBC and the manufacturer that are in effect at the time of this project. Boards shall be staggered and butted as close as possible with voids over one-fourth inch (1/4") to be filled.

B. Insulation shall be laid with edges parallel to flutes and bearing on deck surface/flats. The long dimension of base insulation layer must be fully supported by the top flange of the metal deck. The edges of insulation boards must not cantilever over the flutes of the metal deck.

C. The top surface of the preceding layer of insulation shall be coated with hot asphalt using twenty-five pounds (25#) ±20%, per one hundred (100) square feet of surface, and specified cover board shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

3.5 BACKNAILING/STRAPPING

A. On slopes greater than one inch (1") in twelve inches (12"), refer to NRCA and/or manufacturer's guidelines for backnailing procedures and follow the more stringent guidelines for all specified materials.

Slope	Interply& Top Pour	Backnail	Strap
0 - ½" per 12"	Type IV	No	No
½" - 2" per 12"	Type IV	Yes	Strap if possible
2" - 3" per 12"	Type IV	Yes	Yes

3.6 ADJUSTING

A. Remove insulation which has been damaged (broken, cracked, punctured, wet, etc.) and install acceptable new units before installation of roof system.

3.7 CLEANING

A. Remove debris and material wrappers from jobsite. Leave insulation clean and dry, ready to receive roofing membrane.

END OF SECTION

SECTION 07545

SBS ASPHALT MODIFIED BITUMEN ROOF SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. New SBS asphalt modified bitumen roofing and related membrane and penetration flashings.

1.2 INSTALLER QUALIFICATIONS

A. Roofing installer must be:

1. Currently prequalified with the Owner in accordance with Owner's prequalification requirements.

2. Currently in good standing with the manufacturer.

3. Installer must be an experienced single firm specializing in the type of roofing repair and/or removal and replacement work required, employing only experienced workers for the class of work in which they are employed, having at least five (5) years successful experience on projects similar in size and scope and acceptable as applicators by the Owner's representative.

4. Contractor must have successfully completed previous projects warranted by the manufacturer.

B. It shall remain each Bidder's responsibility to determine his current status with the manufacturer's certification plan.

1.3 QUALITY ASSURANCE

A. Testing Laboratory Services: Test results shall meet or exceed established standards.

B. Underwriters Laboratories, Inc. (Roofing Covering): Class A fire hazard classification.

C. Comply with governing local, state, and federal regulations, safety standards, and codes.

D. Regulatory Requirements:

1. System shall be classified by Underwriters Laboratories Inc., UL 790, as Class A roof covering.

2. System shall be classified by FM Global as 1-90 approved assembly. Follow installation requirements for 1-90.

3. Follow local, state, and federal requirements, safety standards, and codes.

4. Refer to applicable building codes for roofing system installation requirements and limitations. When conflict exists, the more restrictive document will govern.

E. Pre-installation Conference:

1. Prior to roofing installation, conduct pre-installation conference at project site.

2. Attendance: Owner, Consultant, Contractor, project superintendent, roof applicator, and roof manufacturer's technical representative.

3. Agenda:

a. Scheduling of roofing operation.

b. Daily production anticipated.

c. Designation of key individuals and their respective responsibilities.

d. Processing procedures of field and change orders.

e. Review of staging and material storage locations.

f. Accommodations for temporary services (water, power).

g. Coordination of work by other trades.

h. Protection of completed roofing.

i. Emergency rain protection procedures.

j. Discussion of process for manufacture's inspection and acceptance of completed roofing and flashings.

k. Manufacturer's deck inspection to be performed.

F. Installation:

1. Installation shall be in accordance with procedures and standards set forth by National Roofing Contractors Association.

2. Installation shall be in accordance with manufacturer's current published application procedures and general recommendations of National Roofing Contractor's Association. Follow Underwriters Laboratories' requirements acceptable for use with specified products or systems.

3. Roofing shall be as described in this section and shall be provided and approved by roof system manufacturer. Materials not manufactured or provided by manufacturer shall have written approval from manufacturer stating that materials are acceptable and are compatible with other materials and systems required.

G. There shall be no deviations made from manufacturer's published specification, this specification, or approved shop drawings without prior written approval of Owner's representative and Roof Membrane Manufacturer.

H. Perform work on this section in accordance with best standards of practice relating to trades involved.

I. Pullout Tests: Conduct pullout test on deck using appropriate fastener prior to roof system installation. Submit pullout results for manufacturer's review to determine specific fastening pattern for this project, minimum uplift requirements shall conform to current ASCE 7 criteria.

J. Material Manufacturer's Inspection Paid for By Contractor: Minimum of two inspections shall be made during Project schedule by authorized representative of roof system manufacturer to ensure that said Project is installed in accordance with manufacturer's requirements. Manufacturer shall provide written report to the Owner's representative within five days of each inspection stating acceptance of Contractor procedures and outlining items of non-compliance with manufacturer's requirements.

K. Material Manufacturer's Final Inspection:

1. Manufacturer's authorized representative shall provide final inspection at completion of project to ensure that project has been completed in accordance with manufacturer's requirements. Upon approval and acceptance of project, manufacturer's warranty certification shall be written, executed, and furnished to Owner.

2. Contractor shall pay for manufacturer's final inspection and additional inspections.

L. Laboratory Testing and Samples:

1. At Owner's request, obtain 3 field samples of completed roof membrane and assembly. Take samples at locations designated by Owner's representative, Owner's representative, and test for compliance with requirements on Contract Documents and with manufacturer's published performance criteria. Test shall be performed by nationally recognized testing laboratory in accordance with accepted ASTM methods. Contractor shall assume costs for extraction and patch of samples. Owner will assume costs for testing of field sample.

2. Correct deficiencies in accordance with manufacture's recommended procedures at no cost to Owner.

3. If, for any reason, areas that are tested by Owner fail to meet manufacturer's requirements, then subsequent expense for retesting of those areas will be borne by Contractor.

1.4 REFERENCES (INCLUDING LATEST REVISIONS)

A. American Society for Testing and Materials (ASTM):

D 41-85 Asphalt Primer Used in Roofing and Waterproofing

D 312-89 Asphalt Used in Roofing

D 1863-86 Mineral Aggregate Used on Modified Bitumen Roofs

D 2178-89 Asphalt Glass (Felt) Used in Roofing and Waterproofing

D 2824-85 Aluminum - Pigmented Asphalt Roof Coatings

D 4586-86 Asphalt Roof Cement, Asbestos Free

B. Federal Specifications (FS): FF-S-325 Shield, Expansion; Nail, Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry)

C. Industry Standards:

1. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual

2. National Roofing Contractor's Association (NRCA) - Technical Developments Bulletin 2-91

3. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual

4. American Society of Civil Engineers – ASCE 7

1.5 SUBMITTALS

A. Samples and Manufacturer's Submittals: Submit prior to delivery or installation.

1. Samples of all roofing system components including all specified accessories.

2. Submit samples of proposed warranty complete with any addenda necessary to meet the warranty requirements as specified.

3. Submit latest edition of manufacturer's specifications and installation procedures. Submit only those items applicable to this project.

4. A written statement from the roofing materials manufacturer approving the installer, specifications and drawings as described and/or shown for this project and stating the intent to guarantee the completed project.

5. Manufacturer's Equiviscous Temperatures (EVT) for the specified bitumens.

B. Shop Drawings: Provide manufacturer's approved details of all perimeter conditions, projection conditions, and any additional special job conditions which require details other than indicated in the drawings.

C. Maintenance Procedures: Within ten days of the date of Substantial Completion of the project, deliver to the Owner three copies of the manufacturer's printed instructions regarding care and maintenance of the roof.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers and rolls with all labels intact and legible including labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

B. Manufacturer's packaging and/or roll plastic is not acceptable for exterior storage. Tarpaulin with grommets shall be minimum acceptable for exterior coverings. All materials stored as above shall be minimum of four inches (4") off the substrate, and the tarpaulin tied off with rope.

C. Deliver materials requiring fire resistance classification to the job with labels attached and packaged as required by labeling service.

D. Deliver materials in sufficient quantity to allow continuity of work.

E. Handle and store material and equipment in such a manner as to avoid damage. Liquid products shall be delivered sealed, in original containers.

F. Handle rolled goods so as to prevent damage to edge or ends.

G. Select and operate material handling equipment so as not to damage existing construction or applied roofing.

H. Moisture-sensitive products shall be maintained in dry storage areas and properly covered. Provide continuous protection of materials against wetting and moisture absorption. Store roofing and flashing materials on clean raised platforms with weather protective covering when stored outdoors.

I. Store rolled goods on end.

J. Protect materials against damage by construction traffic.

K. The proper storage of materials is the sole responsibility of the contractor and any wet or damaged roofing materials shall be discarded, removed from the project site, and replaced prior to application.

L. Comply with fire and safety regulations, especially with materials which are extremely flammable and/or toxic. Use safety precautions indicated on labels.

M. Products liable, such as emulsions, to degrade as a result of being frozen shall be maintained above 40° F in heated storage.

N. No storage of materials shall be permitted on roof areas other than those materials that are to be installed the same day. Any exception must be in written form.

1.7 SITE CONDITIONS

A. Job Condition Requirements:

1. Coordinate the work of the contractor with the work to be performed by the Owner's personnel, to ensure proper sequencing of the entire work. The Owner's personnel will be erecting interior protection for equipment, if required. The contractor is to schedule his work so that adequate time is allowed for the Owner's personnel to perform this work. No roof work shall be performed until the Owner's personnel have completed erection of the interior protection in that area.

2. Apply roofing in dry weather.

3. Do not apply roofing when ambient temperature is below 40° F (4° C).

4. Proceed with roofing work only when weather conditions are in compliance with manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with specifications.

5. For further information regarding roofing material manufacturer's recommendations for project conditions, refer to the manufacturer's published application manual.

6. Schedule the work so the building will be left watertight at the end of each day. Do not remove more roofing or insulation material than can be reinstalled in any working day.

7. Phased application of roofing plies is not recommended. However, if conditions do not allow installation of the complete roof membrane and the area must be left exposed overnight, it is recommended that the incomplete membrane be visually inspected and sealed with hot bitumen before leaving the work area for the night. A glaze coat of hot asphalt should be applied in a relatively thin film. The surface should be dry and clean before installing additional plies.

8. All surfaces to receive new roofing shall be smooth, dry, and free from dirt, debris, and foreign material before any of this work is installed. Competent operators shall be in attendance at all times equipment is in use. Materials shall be stored neatly in areas designated by the Owner. Load placed on the roof at any point shall not exceed the safe load for which the roof is designed.

9. The contractor shall take all necessary precautions to protect the roof mat and deck from damage. The contractor shall be responsible for repairing all new areas of damage caused by the negligence of the contractor, at the contractor's expense. The Owner's on-site representative shall determine damage caused by contractor negligence.

10. The contractor is to be aware of the potential for roof leaks on the existing roof as a result of ruptured blisters and/or roof mat damage caused by the vacuum process, foot traffic, or material and equipment storage. The contractor is to take all necessary precautions to prevent damage to the existing roof. All damage to the existing roof that could result in roof leaks is to be repaired on a daily basis by the roofing contractor.

11. The contractor shall follow local, state, and federal regulations, safety standards, and codes for the removal, handling, and disposal of asbestos containing materials, if present. When a conflict exists, use the stricter document.

12. Follow insurance underwriter's requirements acceptable for use with specified products or systems.

13. Due caution should be exercised so as not to alter the structural integrity of the deck. When cutting through any deck, care should be taken so as not to damage the deck or any part of the deck, such as post tension cables, etc.

14. All kettles shall have a fume recovery system and temperature gauge, all in working order.

15. The contractor is to verify the location of all interior ducts, electrical lines, piping, conduit, and/or similar obstructions. The contractor is to perform all work in such a manner as to avoid contact with the above mentioned items.

16. Surface and air temperatures should be a minimum 45° F during applications of cleaner and waterproof coating and remain above 45° F for a minimum of four (4) hours following applications. Verify compatibility of cleaner with coatings, paints, primers and joint sealers specified. Advise Owner's representative of any problems in this regard prior to commencing cleaning operations.

B. Protection of Work and Property:

1. Work: The contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He shall provide and maintain at all times any OSHA required danger signs, guards, and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. All federal, state, and city rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations pertaining to asbestos as required shall be fulfilled by the contractor as part of his proposal.

2. Property: Protect existing planting and landscaping as necessary or required to provide and maintain clearance and access to the work of this contract. Examples of two categories or degrees of protection are generally as follows: a) removal, protection, preservation, or replacement and replanting of plant materials; b) protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.

3. Twenty-four Hour Call: The contractor shall have personnel on call 24 hours per day, seven (7) days per week for emergencies during the course of a job. The Owner's Project Manager is to have the 24-hour numbers for the contact. Contractor must be able to respond to any emergency call and have personnel on-site within two (2) hours after contact. Numbers available to the Owner's Project Manager are to be both home and office numbers for:

a) Job Foreman
b) Job Superintendent
c) Owner or Company Officer

C. Damage to Work of Others: The contractor shall repair, refinish, and make good any damage to the building or landscaping resulting from any of his operation. This shall include, but is not limited to, any damage to plaster, tile work, wall covering, paint, ceilings, floors, or any other finished work. Damage done to the building, equipment, or grounds must be repaired at the successful contractor's expense holding the Owner harmless from any other claims for property damage and/or personal injury.

D. Measurements: It will be the contractor's responsibility to obtain and/or verify any necessary dimensions by visiting the job site, and the contractor shall be responsible for the correctness of same. Any drawings supplied are for reference only.

E. Use of Premises:

1. The contractor is advised that the Owner will occupy the building at all times, and the contractor must provide all safeguards required to protect personnel and to keep noise levels as low as reasonably possible for each operation.
2. The contractor shall:

a) Coordinate work in such a manner as to not interfere with the normal operation of the building.
b) Assume full responsibility for protection and safekeeping of products stored on premises.
c) Agree to hold the Owner harmless in any and all liability of every nature and description which may be suffered through bodily injuries, including death of any persons by reason of negligence of the contractor, agents, employees, or subcontractors.

F. Cleaning and Disposal of Materials:

1. Contractor shall keep the job clean and free from all loose materials and foreign matter. Contractor shall take necessary precautions to keep outside walls clean and shall allow no roofing materials to remain on the outside walls.
2. All waste materials, rubbish, etc., shall be removed from the Owner's premises as accumulated. Rubbish shall be carefully handled to reduce the spread of dust. A suitable scrap chute or hoist must be used to lower any debris. At completion, all work areas shall be left broom clean and all contractor's equipment and materials removed from the site.
3. All bituminous or roofing related materials shall be removed from ladders, stairs, railings, and similar parts of the building.
4. Debris shall be deposited at an approved disposal site.

1.8 SEQUENCING AND SCHEDULING

A. Coordinate roofing schedule with work of other trades.

B. Plan lay up roofing membrane with respect to deck slope. Avoid situations where excessive drainage could pass into completed roofing.

C. Maintain communication with roofing manufacturer's representative to inform of progress and to schedule periodic sample testing.

D. All penetrations shall be made in roof prior to beginning with roof installation.

1.9 WARRANTY

A. Roofing - Manufacturer: Project shall be installed in such a manner that the roofing material manufacturer will furnish a written twenty (20) year NDL type warranty from the date of substantial completion of the completed project.

B. Roofing - Contractor: The contractor, jointly with any subcontractors employed by him, shall guarantee the work required and performed under this contract will be free from defects in workmanship and materials, and that the building will be and remain waterproof for a two (2) year warranty period, after the Owner accepts the work as substantially complete. The warranty shall be in approved notarized written form, to obligate the contractor and his subcontractors, if any, to make good the requirements of the warranty.

C. Warranty repairs shall be performed by a certified installer. The repairs shall be performed in accordance with the manufacturer's written instructions and recommended procedures so as to not void the warranty. Repair of the system, including materials and labor, shall be done at no cost to the Owner.

D. During the proposal period each Bidder shall make arrangements with the material manufacturer to provide the required warranty.

PART 2 PRODUCTS

2.1 GENERAL

A. All materials shall be furnished, specified, or approved in writing by the manufacturer issuing the warranty.

B. Samples of all materials used on the project, which are not supplied by the membrane manufacturer, shall be submitted to the membrane manufacturer for written approval prior to work starting.

C. No asbestos containing materials shall be used on job site or incorporated into work.

2.2 MEMBRANE

A. Modified Bitumen Base Sheet: Shall be smooth reinforced SBS modified asphalt base membrane, one hundred eighteen mil (118) mils in thickness, reinforced with fiberglass – 2.0 pounds/100 square feet, or approved equal.

Physical Properties (ASTM D 5147 Test Method):

Tensile Strength (@ 0° F & 0.08 in/min)	MD = 164 LBF/IN CD = 121 LBF/IN
Elongation (@ 0° F & 0.08 in/min)	MD = 45% CD = 50%
Strain Energy (@ 0° F & 0.08 in/min)	MD = 60 IN-LB/IN^2 CD = 51 IN-LB/IN^2
Tear Strength	MD = 156 LBS CD = 133 LBS
Low Temp Flex CD = -20° F	MD = -20° F

B. Finish Ply: Shall be granule surfaced white in color reinforced modified asphalt membrane, one hundred sixty-five (165) mils in thickness, DynaWeld 250 FR or approved equal.

Physical Properties (ASTM D 5147 Test Method):

Tensile Strength (@ 0° F & 0.08 in/min)	MD = 181 LBF/IN CD = 135 LBF/IN
Elongation (@ 0° F & 0.08 in/min)	MD = 53% CD = 59%
Strain Energy (@ 0° F & 0.08 in/min)	MD = 72 IN-LB/IN^2 CD = 59 IN-LB/IN^2
Tear Strength	MD = 185 LBS CD = 139 LBS
Low Temp Flex	MD = -15° F CD = -15° F

2.3 FLASHING

A. Shall be granulated surfaced, white in color, reinforced polyester mat saturated with asphalt and coated on both sides.

B. Flashing materials shall be supplied by roofing material manufacturer.

Physical Properties (ASTM D 5147 Test Method):

Tensile Strength (@ 0° F & 0.08 in/min)	MD = 125 LBF/IN CD = 87 LBF/IN
Elongation (@ 0° F & 0.08 in/min)	MD = 45% CD = 47%
Strain Energy (@ 0° F & 0.08 in/min)	MD = 42 IN-LB/IN^2 CD = 31 IN-LB/IN^2
Tear Strength	MD = 127 LBS CD = 101 LBS
Low Temp Flex CD = -15° F	MD = -15° F

2.4 FLASHING FOR UP AND OVER PARAPET WALL

A. The flashing membrane shall be a white polyester reinforced flexible sheet, as supplied by the roof membrane manufacturer

2.5 BITUMEN

A. Shall be ASTM D 312, Type IV extra steep asphalt, and as acceptable by roofing manufacturer to comply with warranty requirements

2.6 ROOF DRAINS

A. Shall be all cast iron, minimum four inch (4"), as manufactured by Josam, or approved equal.

2.7 LEAD JACKS

A. Shall be four pound (4#) lead and of dimensions required to completely cover existing plumbing stack.

2.8 LEAD FLASHING DRAINS

A. Shall be four pound (4#) lead, minimum thirty-six inches by thirty-six inches (36" x 36"), used for flashing of internal drains.

2.9 PITCH PAN SEALANT

A. Shall be one-part, self-leveling polyurethane sealant meeting Federal Specification No. TT-S-00230C, Type I, Class A, ASTM C 920, Type S, Grade P, Class 25, for use in new pitch pans as manufactured by Sonneborn (RC-710), or approved equal.

2.10 TERMINATION/PRESSURE BARS

A. Aluminum strip shall be extruded channel bar with a mill finish, height to be one inch (1"), thickness to be 0.25" ± 0.1", leg height to be one-fourth inch (1/4") top and bottom, leg angle to be ninety degrees (90°), for perimeter and curb anchorage, having predrilled holes six inches (6") on center, as manufactured by Olympic Fasteners, or approved equal.

2.11 ASPHALT ROOF PRIMER

A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces, , as manufactured by Johns-Manville or GAF Roofing Products, Inc., or approved equal.

Applicable Federal Specification	SS-A-701B
ASTM	D 41
Flash Point	105° F
Viscosity at 80° F (ASTM D 217)	50-60 K.U.
Weight per gallon	7.4 pounds
Drying time (to touch)	Min. 4 hours

2.12 ICE AND WATER SHIELD

A. A premium heavyweight, self-adhering underlayment, to use as an ice and water shield, such as: All Climate as manufactured by Elk Premium Building Products; Tamko TW Metal and Tile Underlayment as manufactured by Tamko Roofing Products, Inc.; or Vycor Ultra, as manufactured by Grace Construction Products; or approved equal.

2.13 DELIVERY AND STORAGE

A. All materials shall be delivered with appropriate carton and can labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

2.14 PRECAUTIONS

A. Some of the indicated materials are extremely flammable and/or toxic. Use precautions indicated on can and carton labels.

2.15 MISCELLANEOUS MATERIALS

A. Other materials shall be as specified or of the best grade for the proposed use as recommended by the manufacturer.

PART 3 - EXECUTION

3.1 REFERENCE

A. The roofing membrane manufacturer's Reference Manual shall be considered part of this specification, and should be referred to for more specific application procedures and recommendations.

B. Application of materials shall be in strict accordance with the manufacturer's recommendations and current NRCA, Underwriters Laboratory and IBC guidelines, except where more stringent requirements are shown or specified. In the instance of a conflict between these specifications and those of the manufacturer and/or current NRCA, Underwriters Laboratory and IBC guidelines, the more stringent specifications shall take precedence.

C. General Installation:

1. Comply with governing local, state, and federal regulations, safety standards, and codes.

2. Protect adjacent areas with tarpaulin or other durable materials.

3. Contractor shall prevent overspray, and be responsible for parking lot areas and/or adjoining areas not part of this contract.

4. Contractor shall be responsible for sealing, as required, all openings that may allow bitumen migration or drippage, i.e. pitch dams, envelopes, and filler strips.

5. Prepare surfaces according to manufacturer's or applicator's published instructions. All metal that is to receive bitumen, or come in contact with bitumen or adhesive, shall be first primed with appropriate primer. Any prefinished galvanized sheet steel that is to receive bitumen, or come in contact with bitumen or adhesive, shall be scored, scuffed or abraded before receiving primer application.

6. Use cleaning materials or primers necessary to render an acceptable surface/substrate.

7. All surfaces/substrates shall be clean and dry prior to application of materials.

8. Bitumen kettle shall have a fume recovery system, and visible thermometer to provide positive monitoring of the bitumen temperature when it is heated in accordance with manufacturer's instructions.

9. Ambient temperature shall be 45° F and rising.

10. The maximum heating temperature of Type IV asphalt shall be 525° F.

11. The temperature of Type IV asphalt shall be approximately 475° F ± at the point of application.

12. Do maintain kettle and/or tanker temperature at least 25° F below the actual flash point of the bituminous materials used.

13. Never heat the bituminous materials at high temperatures for prolonged periods of time.

14. Do not allow bituminous materials to stand in luggers for long periods.

15. Do circulate bituminous materials.

16. Do insulate hot transport lines if required.

17. The base sheets and the field membranes are to be laid in the direction of maximum roof slope, working from bottom of slope toward ridge.

18. Wrinkles, buckles, kinks, and fishmouths are not acceptable when laying felt and membrane.

19. Dry voids of felt on felt or membrane on membrane are not acceptable.

20. Where deteriorated base flashing is removed, primed cant strips shall be installed at the intersection of the deck and the vertical surfaces. All flashings shall be mechanically top-fastened with a termination bar a minimum of six inches (6") on center at the top leading edge, and be a minimum of eight inches (8") in height from finished membrane.

3.2 SUBSTRATE PREPARATION

A. New Construction: Substrate shall be smooth and free of debris, sharp edges, and other surface irregularities prior to work starting. Substrate repair shall be performed as required to minimum of NRCA standards.

B. Prepare other surfaces according to respective manufacturer's or applicator's published instructions.

C. Use cleaning materials necessary to render an acceptable surface.

D. Use compatible materials on voids and joints so finished deck surface will be even and smooth.

E. Protect adjacent areas with tarpaulin or other durable materials.

F. Damaged decking shall be replaced with like materials as authorized on unit cost basis using procedures as recommended by the manufacturer.

H. Contractor shall be responsible for sealing, as required, all openings that may allow bitumen migration or drippage, i.e. pitch dams, envelopes, filler strips, etc.

3.3 NAILERS

A. Wooden nailers shall be installed at gravel stops, drip edges, and expansion joints on outside perimeter of building according to NRCA, Underwriters Laboratory and IBC guidelines.

3.4 CANTS

A. Toe of cant shall be level with the surface to receive new roof membrane and in all cases anchored according to NRCA, Underwriters Laboratory and IBC guidelines.

3.5 APPLICATION OF MEMBRANE PLIES

A. First Ply and Top Ply: Shall be installed with three inches (3") side laps and six inch (6") end laps. Membrane ply shall be installed in appropriate grade of hot asphalt at a rate of approximately twenty pounds (20#) per one hundred (100) square feet per ply. No voids or holidays are acceptable. All end laps shall be staggered a minimum of eighteen inches (18"). All membranes shall be laid starting at the low edge, with top ply staggered from first ply.

B. Install membrane materials in accordance with manufacturer's current published application instructions.

C. Apply roofing membrane using felt laying machine or mop-in by hand.

D. Place plies with exposures as determined, and depicted by manufacturer's published details and drawings.

3.6 PERIMETER FASTENING

A. Wood nailers are required for perimeter gravel stops or drip edges. Field membrane and all plies shall be mechanically fastened to nailer on twelve inch (12") centers maximum.

3.7 FLASHINGS AND CURBS

A. Bridge all junctures of vertical and horizontal surfaces with 45□ cant strips. First ply membrane is not to be attached to the cant strip.

B. Base flashings: The flashing system shall be a component of or attached to the roof deck or roof deck system. Flashings should not be applied until the field roofing membrane has been installed.

1. With nailing facilities: Install in accordance with manufacturer's current published details.
2. Without nailing facilities: Install in accordance with manufacturer's approval of deviation from recommended details.
3. Roofing membrane manufacturer's accepted flashing details are included and are part of the general specification.

C. Replace all deteriorated equipment supports. New supports shall be installed in accordance with roof material manufacturer's recommended details.

D. All curbs/flashings shall be a minimum of eight inches (8") in height from finished surface, and a minimum of six inches (6") onto the field membrane. Any deviation shall be in writing from manufacturer.

3.8 EDGING FLASHINGS

A. An NRCA-approved gravel stop/fascia system shall be installed in strict accordance with published instructions.

B. The roof membrane shall extend over the roof edge and down to base of nailer, and be fastened six inches (6") on center. A metal edge of proper gauge and dimensions shall be mechanically fastened, using a continuous clip fastened six inches (12") on center, to the wood nailer over the membrane. The metal shall have a minimum of a three inch (3") flange, set in asphalt mastic and fastened into nailer a minimum of six inches (6") on center, and a minimum of a four inch (4") fascia (match existing). The metal edge shall have a minimum of one inch (1") gravel stop, and the bottom edge of the new metal edge shall be the same elevation as existing.

3.9 EXPANSION JOINT DETAILS

A. Expansion joints at walls and field of the roof shall be curbed as outlined in accordance with NRCA and SMACNA guidelines. The curbs will be flashed as outlined above in Flashings and Curbs.

3.10 MEMBRANE PROTECTION

A. Where equipment pads, wood sleepers, or walkway slabs are to be installed over the roofing membrane, an additional layer of the roofing membrane shall be installed between the roofing membrane and the pad, sleeper, or slab. Due caution shall be exercised to prevent roofing membrane damage during placement. Where required, membrane shall be welded to field membrane to prevent slippage.

3.11 WALK TREADS

A. Install manufacturer's walk pad continuously on each side of each air-handling/mechanical unit on the roof, or as shown on drawings in accordance with the manufacturer's recommended procedures.

3.12 PIPING/CONDUIT

A. Piping/conduit shall be raised to NRCA recommended heights, and new supports furnished. Permanent supports shall be installed upon pads approved by membrane manufacturer. Coordinate work with Owner's representative.

B. All gas lines, piping, and conduits shall be coated with commercial grade yellow paint / specified aluminum coating.

3.13 PIPE/EQUIPMENT SUPPORTS

A. All gas lines, piping, and conduit must be supported on specified stands or hangars.

3.14 DRAINS

A. Insulation shall be tapered at drains and scuppers to provide proper drainage.

B. Sump to drain shall be four foot x four foot sump (4'x4').

3.15 DRAIN FLASHINGS

A. All drains shall receive new lead flashings. Flashings shall be installed in strict accordance with manufacturer's recommendations and with practices as set forth in the NRCA Roofing Manual.

B. Drain shall be covered with the roofing membrane and underlayment plies as specified, slitting the membranes over the drain hole with an "X".

C. Lead flashings as specified shall be installed and primed with asphalt base primer and allowed to dry prior to application of flashing layers.

D. Lead flashing shall be covered with flashing membranes consisting of one layer of smooth surfaced base sheet and one layer of roofing membrane. Each layer shall be installed in a solid bed of asphalt bitumen as specified and shall extend a minimum of twelve inches (12") past the outer edges of the three by three foot (3' x 3') lead flashing. Flashing membranes and lead flashing shall be slit over the drain hole with an "X", cutting excess material from the interior of the drain bowl.

END OF SECTION

SECTION 07620

SHEET METAL AND MISCELLANEOUS ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Provide flashing and sheet metal components for moisture protection.

2. Related accessories.

1.2 SUBMITTALS

A. Product Data: Submit shop drawings, product data and mockups of all sheet metal.

1.3 QUALITY ASSURANCE

A. Comply with governing local, state, and federal regulations, safety standards, and codes. Provide products of acceptable manufacturers in satisfactory use in similar service for five years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

B. Reference Standards: Applicable portions of SMACNA, ASTM and NAAMM publications.

1.4 WARRANTIES

A. Manufacturer's Product Warranty: Submit manufacturer's standard limited product warranty signed by the manufacturer's authorized official, guaranteeing to correct failures in product which may occur during the warranty period, without reducing or otherwise limiting any other rights to correction which the Owner/Project Consultant may have under the contract documents. Failure is defined to include product failure which leads to interruption of a watertight installation. Correction may include repair or replacement of failed product.

B. Contractor's Warranty period: For roofing flashing and sheet metal, provide a written warranty which shall warrant work to be free of leaks and defects in materials and workmanship for two years, starting from date of substantial completion.

C. Defects of the sheet metal occurring during the warranty period shall be promptly corrected by the contractor, and defects of the roofing shall be promptly corrected by the manufacturer at no additional cost to the Owner. Upon notification from the Owner or the Owner's representative that evidence of a defect exists, the responsible party shall immediately inform the Owner's representative of the date on which corrective work will be scheduled, and shall notify the Owner's representative when the corrective work has been completed.

PART 2 PRODUCTS

2.1 SHEET METAL MATERIAL

A. Prefinished for use as counterflashings, and expansion joints: Minimum 24-gauge, G-90, hot-dipped galvanized metal, commercial quality, ASTM A 525.

B. Stainless Steel for use as pitch pans: Minimum 24-gauge, commercial quality, ASTM A 525.

C. Hot-dipped Galvanized Steel for use as continuous clips: Minimum 22-gauge, G-90, hot-dipped galvanized metal, commercial quality, ASTM A 525.

D. Coping Cap ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2001. Material: 0.032 inch aluminum, ASTM B 209 3105-H14 alloy Material: 0.040 inch aluminum, ASTM B 209 3105-H14 alloy.

E. Stainless Steel: QQ-S-766, Class 301, 302, 304, or 316; or ASTM A 167, Type 301, 302, 304, or 316; form and condition most suitable for the purpose.

F. Aluminum and Aluminum Alloy Plate and Sheet: QQ-A-250; form, alloy, and temper shall be that most suitable for the purpose.

G. Sheet Lead: QQ-L-201, Grade B.

H. All existing sheet metal shall be replaced with new metal of like gauge and type, or as specified on drawings.

2.2 FASTENERS

A. Fasteners shall be same metal as flashing/sheet metal, or other non-corrosive metal as recommended by sheet manufacturer for the specific application. Match finish of exposed heads with material being fastened.

B. Fasteners and fastening plates or bars shall be listed in the FM Global Approval Guide.

C. Fastener for Brick: Shall be 1/4 inch by 2 inches, zinc with plated steel or stainless steel nail, one piece unit, flat head.

D. Screws: Self-taping sheet metal type with neoprene washer, as appropriate.

E. Pop Rivets: Full stainless steel Series 42 or 44, as appropriate.

F. Continuous Clip: Concealed hold-down clip type; of same materials as coping, gravel guard, sized to suit application. Use a continuous clip, minimum 22-gauge G-90 galvanized.

2.3 RELATED MATERIAL

A. Plastic Cement: FS SS-C-153, cutback asphalt type.

B. Solder: QQ-S-571 composition best suited for purpose; use high tin content, minimum 60/40, for stainless steel and monel alloy.

C. Solder: For use with galvanized steel or copper, provide 50-50 tin/lead solder (ASTM B 32), with rosin flux.

D. Sealant (for Sheet Metal): One-component polyurethane, conforming to requirements of FS TT-S-230C, non-staining and non-bleeding.

F. Miscellaneous Materials:

1. Downspout Boots: Cast iron by Neenah Foundry Company, or pre-approved equal, provide and install.

2. Splash Blocks: Concrete, 3000 psi, 28 days. Provide and install with protection pads at all downspouts. Dimensions shall be a minimum 18 inches wide by 36 inches long.

3. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size, and gauge required for performance.

PART 3 EXECUTION

3.1 INSPECTION

A. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant strips and reglets in place, substrates are smooth and clean and nailing strips located.

B. Verify membrane termination and base flashings are in place, sealed and secure.

C. Beginning of installation means acceptance of conditions.

3.2 PREPARATION

A. Field measure site conditions prior to fabricating work. Provide all shop drawings and mock-ups one month prior to installation to the Owner/Project Consultant for approval.

B. Install starter and edge strips and cleats before starting installation.

3.3 FABRICATION - GENERAL

A. Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.

B. Form sheet metal on bending brake.

C. Shape, trim and hand seam metal on bench insofar as practicable.

D. Form materials with straight lines, sharp angles and smooth curves.

E. Fold back edges on concealed side of exposed edge to form hem (1/2" minimum).

F. Weld or solder joints on parts that are to be permanently and rigidly assembled.

G. Submit sheet metal models for approval by the Owner/Project Consultant.

H. Limit single-piece lengths to 10 feet.

I. Fabricate corner pieces with 18-inch extensions, metered and sealed by forming as one piece.

J. Surface sand flange prior to applying any primers on Kynar metal.

K. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint.

L. Install new metal rooftop projections. New rooftop projection details shall be as recommended in NRCA or SMACNA handbooks. All rooftop projections shall be cleaned, all joints sealed, and painted with a rust inhibitive paint. Standard color to be selected by the Owner/Project Consultant.

M. All existing or missing metal rooftop projections shall be replaced. New rooftop projection details shall be as recommended in NRCA or SMACNA handbooks. All rooftop projections shall be cleaned, all joints sealed, and painted with a rust inhibitive paint. Standard color to be selected by the Owner/Project Consultant.

N. All sheet metal shall be sealed and watertight.

O. Metal work should be secured so as to prevent damage from buckling or wind. Where clips are shown, these are to be continuous.

P. All metal to receive bitumen or adhesive shall be first primed with asphalt primer.

Q. All prefinished metal shall be sanded and/or abraded prior to receiving primer.

R. Seams: Fabricate non-moving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges are to be seamed, form seams, and solder.

S. Expansion Provisions: Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

T. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with industry standards.

U. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

V. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.

3.4 INSTALLATION

A. General: All sheet metal termination to vertical wall shall have a through-wall with receiver installed on masonry walls or prefabricated "Z" bar flashing pre-installed to fluid applied wall finished prior to installation of sheet metal termination. This applies to edge metal, base flashing closures and all vertical surface intersections. Refer to NRCA, SMACNA, and metal manufacturer's guidelines.

B. Gravel Guard/Fascia:

1. Shall be installed with expansion joints, 10 feet on center, 1/4 inch expansion leeway, with a cover plate.

2. Secure metal flashings per specifications.

3. Lock seams and end joints.

4. Form sections identical to profiles as shown or approved similar, to match existing building.

5. Fabricate corner pieces with minimum 18-inch, maximum 48-inch extensions, formed and sealed with rivets and sealant, as one piece.

6. Hem exposed edges 3/4 inch minimum.

7. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.

8. Integrate flashing in a manner consistent with detailing.

9. Provide and install continuous clip around perimeter.

10. Shall be fabricated in accordance with all SMACNA provisions.

11. Color as selected from manufacturer's full range of colors including metallics.

C. Coping:

1. Install new metal coping as required for a permanent watertight installation.

2. Remove existing and replace with new metal coping as required for a permanent watertight installation.

3. All coping shall be manufactured with low profile standing seam metal.

4. Shall be minimum 24-gauge prefinished Kynar aluminum installed in 10-foot sections maximum.

5. Vertical fascia shall extend minimum 2-1/2 inches or be minimum 1-1/2 inches below bottom of nailer, whichever is greater.

6. Secure metal flashings per specifications.

7. Lock seams and end joints.

8. Form sections identical to profiles as shown or approved similar, to match existing building.

9. Fabricate corner pieces with minimum 18-inch, maximum 48-inch extensions, formed and sealed with rivets and sealant, as one piece.

10. Hem exposed edges 3/4 inch minimum.

11. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.

12. Integrate flashing in a manner consistent with detailing.

13. Provide and install continuous clip, minimum 22-gauge.

14. Shall be fabricated in accordance with all SMACNA provisions.

15. Color as selected from manufacturer's full range of colors including metallics.

D. Expansion Joint Field and at Wall:

1. Shall be as outlined by details, and be in full compliance with all provisions of SMACNA and FM Global requirements for attachment, installation and recommendations.

2. Secure metal flashings per specifications.

3. Lock seams and end joints.

4. Form sections identical to profiles as shown or approved similar, to match existing building.

5. Fabricate corner pieces with minimum 18-inch, maximum 48-inch extensions, formed and sealed with rivets and sealant, as one piece.

6. Hem exposed edges 3/4 inch minimum.

7. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.

8. Integrate flashing in a manner consistent with detailing.

9. Provide and install continuous clip around perimeter.

10. Shall be fabricated in accordance with all SMACNA provisions.

E. Counterflashing:

1. Install new metal counterflashing as required for a permanent watertight installation.

2. Remove existing and replace with new metal counterflashing as required for a permanent watertight installation.

3. Saw cut brick mortar joint to receive friction fit reglet and removable counterflashing as detailed and SMACNA Figure 4-3E.

F. Gutter and Downspout:

1. Fabrication:

a. Fabricate gutter and downspout of profile and size indicated.

b. Field measure site conditions prior to fabricating work.

c. Fabricate with required connection pieces.

d. Fabricate section square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance.

e. Hem exposed edges of metal.

f. Form and seal all metal joints; provide for expansion joints per SMACNA.

2. Installation:

a. Install collector head, downspout, and accessories.

b. Join lengths with seams pop riveted and sealed watertight. Flash and seal collector head to downspouts and accessories.

c. Seal all metal joints watertight for full metal surface contact.

d. Collector Head: SMACNA style profile; submit detail for approval.

e. Downspouts: Rectangular profile. Seal all joints, 6 inches by 6 inches.

f. Support Brackets, Joint Fasteners: Profiled to suit gutters and downspouts.

g. Anchorage Devices: SMACNA requirements. Type recommended by fabricator.

h. Collector Head Support: Kynar. Color and Finish to match, as recommended by SMACNA.

i. Downspout Supports: Straps, Kynar. Color and Finish to match.

j. Color as selected from manufacturer's full range of colors including metallics.

G. Overflow Scupper, Collector Head and Downspout:

1. Fabrication:

a. Fabricate overflow scupper, collector head and downspout of profile and size indicated, taking care that the roof drain leader fits properly into the back of the collector head. Seal the pipe to the collector head for watertightness.

b. Field measure site conditions prior to fabricating work.

c. Fabricate with required connection pieces.

d. Fabricate section square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance.

e. Hem exposed edges of metal.

f. Form and seal all metal joints; provide for expansion joints per SMACNA.

2. Installation:

a. Install collector head, downspout, and accessories.

b. Join lengths with seams pop riveted and sealed watertight. Flash and seal collector head to downspouts and accessories.

c. Seal all metal joints watertight for full metal surface contact.

d. Collector Head: SMACNA style profile; submit detail for approval.

e. Downspouts: Rectangular profile. Seal all joints, 4 inches by 6 inches.

f. Support Brackets, Joint Fasteners: Profiled to suit gutters and downspouts.

g. Anchorage Devices: SMACNA requirements. Type recommended by fabricator.

h. Collector Head Support: Kynar. Color and Finish to match, as recommended by SMACNA.

i. Downspout Supports: Straps, Kynar. Color and Finish to match.

H. Pitch Pans: Shall be as recommended by the roof membrane manufacturer issuing the warranty.

I. Bonnets/Hoods:

1. Fabricate and install above all pitch pans, where necessary, or reinstall as applicable, metal bonnets over all pitch pans, NO EXCEPTIONS.

2. Bonnets/Hoods shall be manufactured with metal compatible with metal to which bonnet is to be attached.

3. On beams and other steel, weld in place bonnets fabricated from 1/4 inch steel plate.

4. Draw band bonnets fabricated from 22-gauge galvanized steel may be used on circular projections.

3.5 FINISH

A. Backpaint concealed metal surfaces with bituminous paint where expected to be in contact with cementitious materials or dissimilar metals. Exposed surfaces to be provided with a factory applied fluorocarbon Kynar finish meeting ASTM A 446 and AAMA specification 605.2 for high performance coating.

END OF SECTION

SECTION 07710

ROOF SPECIALTIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Copings.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For roof specialties.

1. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.

C. Samples: For each type of roof specialty and for each color and texture specified.

1.3 WARRANTY

A. Roofing-System Warranty: Roof specialties are included in warranty provisions in Section <Insert Section number> "<Insert roof Section title>."

B. Special Warranty on Painted Finishes: Manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested according to ASTM D2244.

b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.

c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. FM Approvals' Listing: Manufacture and install copings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-90. Identify materials with FM Approvals' markings.

B. SPRI Wind Design Standard: Manufacture and install copings tested according to SPRI ES-1 and capable of resisting the following design pressures:

1. Design Pressure: As indicated on Drawings.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 COPINGS

A. Metal Copings: Manufactured coping system consisting of metal coping cap in section lengths not exceeding 12 feet, concealed anchorage; with corner units, end cap units, and concealed splice plates with finish matching coping caps.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Architectural Products Company.

b. Cheney Flashing Company.

c. Hickman Company, W. P.

d. PAC-CLAD; Petersen Aluminum Corporation.

2. Metallic-Coated Steel Sheet Coping Caps: Zinc-coated (galvanized) steel, nominal 0.028-inch thickness 0.034-inch thickness thickness as required to meet performance requirements Insert thickness.

a. Surface: Smooth, flat finish.

b. Finish: Premium fluoropolymer coating produced with Kynar 500 resins.

c. Color: As selected by Architect from manufacturer's full range.

3. Corners: Factory mitered and soldered continuously welded mechanically clinched and sealed watertight.

4. Coping-Cap Attachment Method: face leg hooked to continuous cleat with back leg fastener exposed, fabricated from coping-cap material.

a. Face-Leg Cleats: Concealed, continuous galvanized-steel sheet.

2.3 MATERIALS

A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 coating designation.

B. Aluminum Sheet: ASTM B209, alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.

C. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304.

D. Copper Sheet: ASTM B370, cold-rolled copper sheet, H00 or H01 temper.

2.4 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Carlisle Residential; a division of Carlisle Construction Materials.

b. GCP Applied Technologies Inc.

c. Henry Company.

d. Metal-Fab Manufacturing, a Drexel Metals Company.

e. Owens Corning.

f. Protecto Wrap Company.

g. SDP Advanced Polymer Products Inc.

2. Thermal Stability: ASTM D1970/D1970M; stable after testing at 240 deg F.

3. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F.

B. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt, nonperforated.

2.5 MISCELLANEOUS MATERIALS

A. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:

1. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A153/A153M or ASTM F2329.

B. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.

C. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type joints with limited movement.

D. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

E. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

2.6 FINISHES

A. Coil-Coated Galvanized-Steel Sheet Finishes:

1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with ASTM A755/A755M and coating and resin manufacturers' written instructions.

a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat.

PART 3 EXECUTION

3.1 INSTALLATION OF UNDERLAYMENT

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.

1. Apply continuously under copings.

2. Coordinate application of self-adhering sheet underlayment under roof specialties with requirements for continuity with adjacent air barrier materials.

B. Slip Sheet: Install with tape or adhesive for temporary anchorage to minimize use of mechanical fasteners under roof specialties. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.

3.2 INSTALLATION, GENERAL

A. Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.

1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.

2. Provide uniform, neat seams with minimum exposure of solder and sealant.

3. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.

4. Torch cutting of roof specialties is not permitted.

5. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.

C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.

1. Space movement joints at a maximum of 12 feet with no joints within 18 inches of corners or intersections unless otherwise indicated on Drawings.

2. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.

D. Fastener Sizes: Use fasteners of sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.

E. Seal concealed joints with butyl sealant as required by roofing-specialty manufacturer.

F. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F.

3.3 INSTALLATION OF COPING

A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.

B. Anchor copings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

1. Interlock face-leg drip edge into continuous cleat anchored to substrate at 16-inch centers. Anchor back leg of coping with screw fasteners and elastomeric washers at 16-inch centers.

3.4 INSTALLATION OF ROOF-EDGE SPECIALITIES

A. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners.

B. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

3.5 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as roof specialties are installed.

END OF SECTION

SECTION 07900

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Nonstaining silicone joint sealants.

2. Mildew-resistant joint sealants.

3. Butyl joint sealants.

4. Latex joint sealants.

B. Related Requirements:

1. Division 01 Specification Sections apply to Work of this Section.

1.2 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.

2. Joint-sealant manufacturer and product name.

3. Joint-sealant formulation.

4. Joint-sealant color.

1.3 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

2. When joint substrates are wet.

3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.

4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's standard range. Do not paint sealants to achieve color.

2.2 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

B. Silicone, Nonstaining, S, NS, 50, NT: Nonstaining, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

1. Products: Subject to compliance with requirements, provide the following:

a. Dow Corning Corporation; 756 SMS or 795.

b. GE Construction Sealants; Momentive Performance Materials Inc; SilPruf NB.

c. May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 295 FPS NB.

d. Pecora Corporation; 864NST, 895NST, or 898NST.

e. Tremco Incorporated; Spectrem 2 or Spectrem 3.

2.3 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Products: Subject to compliance with requirements, provide the following:

a. Dow Corning Corporation; 786-M White.

b. GE Construction Sealants; Momentive Performance Materials Inc.; SCS1700 Sanitary.

c. May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex Sil 100 WF.

d. Soudal USA; RTV GP.

e. Tremco Incorporated; Tremsil 200.

2.4 BUTYL JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealants: ASTM C 1311.

1. Products: Subject to compliance with requirements, provide the following:

a. Bostik, Inc.; Chem-Calk 300.

b. Pecora Corporation; BC-158.

2.5 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, provide the following:

a. BASF Construction Chemicals - Building Systems; Sonolac.

b. May National Associates, Inc., a subsidiary of Sika Corporation U.S.; Bondaflex 600 or Bondaflex Sil-A 700.

c. Pecora Corporation; AC-20.

d. Sherwin-Williams Company (The); 850A, 950A, or PowerHouse.

e. Tremco Incorporated; Tremflex 834.

2.6 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. BASF Construction Chemicals - Building Systems.

b. Construction Foam Products, a division of Nomaco, Inc.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

a. Concrete.

b. Masonry.

c. Unglazed surfaces of ceramic tile.

d. Exterior insulation and finish systems.

B. Remove laitance and form-release agents from concrete.

1. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

a. Metal.

b. Glass.

c. Porcelain enamel.

d. Glazed surfaces of ceramic tile.

C. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

D. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.

2. Do not stretch, twist, puncture, or tear sealant backings.

3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.

2. Completely fill recesses in each joint configuration.

3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.

2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces JS03.

1. Joint Locations:

a. Construction joints in cast-in-place concrete.

b. Joints between plant-precast architectural concrete units.

c. Control and expansion joints in unit masonry.

d. Joints in dimension stone cladding.

e. Joints in glass unit masonry assemblies.

f. Joints in exterior insulation and finish systems.

g. Joints between metal panels.

h. Joints between different materials listed above.

i. Perimeter joints between materials listed above and frames of doors windows and louvers.

j. Control and expansion joints in ceilings and other overhead surfaces.

2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.

b. Tile control and expansion joints.

c. Vertical joints on exposed surfaces of unit masonry, concrete, walls, and partitions.

d. Joints on underside of plant-precast structural concrete beams and planks.

2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT.

C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations: Joints between plumbing fixtures and adjoining walls, floors, and counters.

2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Concealed mastics.

1. Joint Locations:

a. Thresholds.

b. Sill plates.

c. Concealed joints in metal roof or flashing conditions.

2. Joint Sealant: Butyl-rubber based.

END OF SECTION

SECTION 08110

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes hollow-metal work.

B. Related Requirements:

1. Division 01 Specification Sections apply to Work of this Section.

2. Section 08710 "Door Hardware" for door hardware for hollow-metal doors.

1.2 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.3 COORDINATION

A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each door type.

2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.

3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.

4. Locations of reinforcement and preparations for hardware.

5. Details of each different wall opening condition.

6. Details of anchorages, joints, field splices, and connections.

7. Details of accessories.

8. Details of moldings, removable stops, and glazing.

9. Details of conduit and preparations for power, signal, and control systems.

C. Schedule: Provide a schedule of hollow-metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final Door Hardware Schedule.

1.5 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.

B. Oversize Construction Certification: For assemblies required to be fire rated and exceeding limitations of labeled assemblies.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow-metal work palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.

1. Provide additional protection to prevent damage to factory-finished units.

B. Store hollow-metal work vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Amweld International, LLC.

2. Ceco Door; ASSA ABLOY.

3. Curries Company; ASSA ABLOY.

4. Republic Doors and Frames.

5. Rocky Mountain Metals, Inc.

6. Security Metal Products Corp.

7. Steelcraft; an Ingersoll-Rand company.

B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 INTERIOR DOORS AND FRAMES

A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Heavy-Duty Doors and Frames: SDI A250.8, Level 2.

1. Physical Performance: Level B according to SDI A250.4.

2. Doors:

a. Type: As indicated in the Door and Frame Schedule.

b. Thickness: 1-3/4 inches.

c. Face: Metallic-coated, cold-rolled steel sheet, minimum thickness of 0.042 inch.

d. Edge Construction: Model 2, Seamless.

e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.

3. Frames:

a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch.

b. Construction: Face welded.

4. Exposed Finish: Prime.

2.3 EXTERIOR HOLLOW-METAL DOORS AND FRAMES

A. Construct exterior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Maximum-Duty Doors and Frames: SDI A250.8, Level 4. At locations indicated in the Door and Frame Schedule.

1. Physical Performance: Level A according to SDI A250.4.

2. Doors:

a. Type: As indicated in the Door and Frame Schedule.

b. Thickness: 1-3/4 inches

c. Face: Metallic-coated steel sheet, minimum thickness of 0.067 inch, with minimum A40 coating.

d. Edge Construction: Model 2, Seamless.

e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion. Provide doors fabricated with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu when tested according to ASTM C 1363.

3. Frames:

a. Materials: Metallic-coated steel sheet, minimum thickness of 0.067 inch, with minimum A40 coating.

b. Construction: Face welded.

4. Exposed Finish: Prime.

2.4 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.

2. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch- diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.

B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.

2.5 MATERIALS

A. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

B. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

C. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

D. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

E. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.

F. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.

G. Glazing: Comply with requirements in Section 08 80 00 "Glazing."

H. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.6 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:

1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.

2. Fire Door Cores: As required to provide fire-protection[and temperature-rise] ratings indicated.

3. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches.

4. Top Edge Closures: Close top edges of doors with inverted closures, except provide flush closures at exterior doors of same material as face sheets.

5. Bottom Edge Closures: Close bottom edges of doors with end closures or channels of same material as face sheets.

6. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.

PACKET 9.1344 December 15, 2020
November 17, 2020

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.

2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.

4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.

5. Jamb Anchors: Provide number and spacing of anchors as follows:

a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:

1) Two anchors per jamb up to 60 inches (1,524 mm) high.
2) Three anchors per jamb from 60 to 90 inches high.
3) Four anchors per jamb from 90 to 120 inches high.
4) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.

b. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.

D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.

E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive non-templated, mortised, and surface-mounted door hardware.

2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

F. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.

2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.

3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.

4. Provide loose stops and moldings on inside of hollow-metal work.

5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

2.7 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.

C. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Drill and tap doors and frames to receive non-templated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

A. General: Install hollow-metal work plumb, rigid, properly aligned, and securely fastened in place. Comply with Drawings and manufacturer's written instructions.

B. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, sidelites, borrowed lites, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

   a. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.

   b. Install frames with removable stops located on secure side of opening.

   c. Install door silencers in frames before grouting.

   d. Remove temporary braces necessary for installation only after frames have been properly set and secured.

   e. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.

   f. Field apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

   a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.

4. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.

5. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.

6. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.

7. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

PACKET 9.1347 December 15, 2020
November 17, 2020

a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.

b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.

c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.

d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

C. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Steel Doors:

a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.

b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.

c. At Bottom of Door: [3/4 inch] [5/8 inch] plus or minus 1/32 inch.

d. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

D. Glazing: Comply with installation requirements in Section 08 80 00 "Glazing" and with hollow-metal manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow-metal work immediately after installation.

C. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION

PACKET 9.1349 December 15, 2020
November 17, 2020

SECTION 08331

OVERHEAD COILING DOORS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Insulated service doors.

B. Related Requirements:

1. Section 05500 "Metal Fabrications" for miscellaneous steel supports, door-opening framing, corner guards, and bollards.

1.2 ACTION SUBMITTALS

A. Product Data: For each type and size of overhead coiling door and accessory.

B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.

1. Include points of attachment and their corresponding static and dynamic loads imposed on structure.

2. Show locations of controls, locking devices detectors or replaceable fusible links, and other accessories.

3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Special warranty.

B. Maintenance data.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of doors that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance, Exterior Doors: Capable of withstanding the following design wind loads:

1. Design Wind Load: 20 lbf/sq. ft., acting inward and outward.

2. Testing: According to ASTM E330/E330M.

2.2 DOOR ASSEMBLY 101C

A. Service Insulated Service Door: Overhead coiling door formed with curtain of interlocking metal slats.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. ACME Rolling Doors.

b. Advanced Door Technologies.

c. Alpine Overhead Doors, Inc.

d. Alumatec Pacific Products.

e. ASTA Door Corporation.

f. City-Gates.

g. Dynamic Closures Corporation.

h. ENTREMATIC.

i. Lawrence Roll-Up Doors, Inc.

j. McKeon Rolling Steel Door Company, Inc.

k. Metro Door.

l. Overhead Door Company

m. Southwestern Rolling Steel Door Co.

n. Wayne-Dalton Corp.

B. Operation Cycles: Door components and operators capable of operating for not less than 20,000.

C. Curtain R-Value: R7.7.

D. Door Curtain Material: Galvanized steel.

E. Door Curtain Slats: Flat profile slats of 2-5/8-inch center-to-center height.

1. Vision Panels: Approximately 10- by 1-5/8-inch openings spaced approximately 2 inches apart and beginning 12 inches from end guides; in two three Insert number rows of slats at height indicated on Drawings; installed with insulated vision-panel glazing.

2. Insulated-Slat Interior Facing: Metal.

F. Bottom Bar: Two angles, each not less than 1-1/2 by 1-1/2 by 1/8 inch thick; fabricated from hot-dip galvanized steel and finished to match door.

G. Curtain Jamb Guides: Galvanized steel with exposed finish matching curtain slats.

H. Hood: Match curtain material and finish.

1. Mounting: As indicated on Drawings.

I. Electric Door Operator:

1. Usage Classification: Standard duty, up to 25 cycles per hour and up to 90 cycles per day.

2. Safety: Listed according to UL 325 by a qualified testing agency for commercial or industrial use.

3. Motor Exposure: Interior.

4. Motor Electrical Characteristics:

a. Horsepower: 1/2 1 2 3 As recommended by manufacturer.

b. Voltage: 115-V ac 208-V ac 230-V ac, single phase, 60 Hz.

c. Voltage: [208-V ac] [230-V ac] [460-V ac], three phase, 60 Hz.

5. Emergency Manual Operation: Chain type.

6. Obstruction-Detection Device: Automatic photoelectric sensor Insert type.

7. Control Station(s): Interior mounted.

J. Door Finish:

1. Factory Prime Finish: Manufacturer's standard color.

2. Stainless Steel Finish: ASTM A480/A480M No. 2B (bright, cold rolled) ASTM A480/A480M No. 4 (polished directional satin).

3. Interior Curtain-Slat Facing: Match finish of exterior curtain-slat face Finish as indicated by manufacturer's designations Finish matching Architect's sample Finish as selected by Architect from manufacturer's full range Insert finish.

2.3 MATERIALS, GENERAL

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.4 DOOR CURTAIN MATERIALS AND CONSTRUCTION

A. Door Curtains: Fabricate overhead coiling-door curtain of interlocking metal slats, designed to withstand wind loading indicated, in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:

1. Insulation: Fill slats for insulated doors with manufacturer's standard thermal insulation complying with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E84 or UL 723. Enclose insulation completely within slat faces.

2. Metal Interior Curtain-Slat Facing: Match metal of exterior curtain-slat face, with minimum steel thickness of 0.010 inch.

B. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.

2.5 HOODS

A. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.

1. Include automatic drop baffle on fire-rated doors to guard against passage of smoke or flame.

2. Exterior-Mounted Doors: Fabricate hood to act as weather protection and with a perimeter sealant-joint-bead profile for applying joint sealant.

2.6 LOCKING DEVICES

A. Slide Bolt: Fabricate with side-locking bolts to engage through slots in tracks for locking by padlock, located on both left and right jamb sides, operable from coil side.

B. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded dead bolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.

1. Lock Cylinders: As standard with manufacturer and keyed to building keying system.

2. Keys: Three for each cylinder.

C. Chain Lock Keeper: Suitable for padlock.

D. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.

2.7 CURTAIN ACCESSORIES

A. Smoke Seals: Equip each fire-rated door with replaceable smoke-seal perimeter gaskets or brushes for smoke and draft control as required for door listing and labeling by a qualified testing agency.

B. Weatherseals for Exterior Doors: Equip each exterior door with weather-stripping gaskets fitted to entire exterior perimeter of door for a weather-resistant installation unless otherwise indicated.

C. Astragal for Interior Doors: Equip each door bottom bar with a replaceable, adjustable, continuous, compressible gasket of flexible vinyl, rubber, or neoprene as a cushion bumper.

D. Push/Pull Handles: Equip each push-up-operated or emergency-operated door with lifting handles on each side of door, finished to match door.

E. Poll Hooks: Provide pole hooks and poles for doors more than 84 inches high.

2.8 COUNTERBALANCE MECHANISM

A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.

B. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

2.9 ELECTRIC DOOR OPERATORS

A. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operation-cycles requirement specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control stations, control devices, integral gearing for locking door, and accessories required for proper operation.

1. Comply with NFPA 70.

2. Control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24-V ac or dc.

B. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.

C. Motors: Reversible-type motor with controller (disconnect switch) for motor exposure indicated for each door assembly.

1. Electrical Characteristics: Minimum as indicated for each door assembly. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. and not more than 12 in./sec., without exceeding nameplate ratings or service factor.

2. Operating Controls, Controllers, Disconnect Switches, Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.

D. Obstruction-Detection Devices: External entrapment protection consisting of indicated automatic safety sensor capable of protecting full width of door opening. For non-fire-rated doors, activation of device immediately stops and reverses downward door travel.

1. Photoelectric Sensor: Manufacturer's standard system designed to detect an obstruction in door opening without contact between door and obstruction.

a. Self-Monitoring Type: Designed to interface with door operator control circuit to detect damage to or disconnection of sensing device. When self-monitoring feature is activated, door closes only with sustained or constant pressure on close button.

2. Electric Sensor Edge: Automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.

a. Self-Monitoring Type: Four-wire-configured device designed to interface with door operator control circuit to detect damage to or disconnection of sensor edge.

E. Control Station: Three-button control station in fixed location with momentary-contact push-button controls labeled "Open" and "Stop" and sustained- or constant-pressure push-button control labeled "Close."

1. Interior-Mounted Units: Full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.

2. Exterior-Mounted Units: Full-guarded, standard-duty, surface-mounted, weatherproof type, NEMA ICS 6, Type 4 enclosure, key operated.

F. Emergency Manual Operation: Equip each electrically powered door with capability for emergency manual operation. Design manual mechanism so required force for door operation does not exceed 25 lbf.

G. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.

H. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.

I. Audible and Visual Signals: Audible alarm and visual indicator lights in compliance with the accessibility standard.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install overhead coiling doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.

B. Fire-Rated Doors: Install according to NFPA 80.

C. Smoke-Control Doors: Install according to NFPA 80 and NFPA 105.

D. Power-Operated Doors: Install according to UL 325.

3.2 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain overhead coiling doors.

END OF SECTION

SECTION 08710

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.

2. Sliding doors.

3. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.

2. Cylinders specified for doors in other sections.

C. Related Sections:

1. Division 08 Section “Door Hardware Schedule”.

2. Division 08 Section “Hollow Metal Doors and Frames”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.

2. ICC/IBC - International Building Code.

3. NFPA 70 - National Electrical Code.

4. NFPA 80 - Fire Doors and Windows.

5. NFPA 101 - Life Safety Code.

6. NFPA 105 - Installation of Smoke Door Assemblies.

7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series

2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.2 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3. Content: Include the following information:

a. Type, style, function, size, label, hand, and finish of each door hardware item.

b. Manufacturer of each item.

c. Fastenings and other pertinent information.

d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.

e. Explanation of abbreviations, symbols, and codes contained in schedule.

f. Mounting locations for door hardware.

g. Door and frame sizes and materials.

h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.3 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.

2. Plans for existing and future key system expansion.

3. Requirements for key control storage and software.

4. Installation of permanent keys, cylinder cores and software.

5. Address and requirements for delivery of keys.

G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.

2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.

3. Review sequence of operation narratives for each unique access controlled opening.

4. Review and finalize construction schedule and verify availability of materials.

5. Review the required inspecting, testing, commissioning, and demonstration procedures

H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.5 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.6 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.

2. Faulty operation of the hardware.

3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Five years for exit hardware.

2. Fifteen years for manual surface door closer bodies.

3. Twenty five years for manual surface door closer bodies.

4. Twenty five years for manual surface door closer bodies.

5. Twenty five years for manual surface door closer bodies.

1.7 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

a. Two Hinges: For doors with heights up to 60 inches.

b. Three Hinges: For doors with heights 61 to 90 inches.

c. Four Hinges: For doors with heights 91 to 120 inches.

d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.

b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.

b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:

a. Hager Companies (HA) - CB Series.

b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - TA Series.

c. Stanley Hardware (ST) - CB Series.

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:

a. Hager Companies (HA).

b. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

c. Stanley Hardware (ST).

2.3 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.

C. Cylinders: Original manufacturer cylinders complying with the following:

1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.

2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.

3. Bored-Lock Type: Cylinders with tailpieces to suit locks.

4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.

5. Keyway: Match Facility Standard.

D. Keying System: Each type of lock and cylinders to be factory keyed.

1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.

2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.

3. Existing System: Key locks to Owner's existing system.

E. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)

2. Master Keys (per Master Key Level/Group): Five (5).

3. Construction Keys (where required): Ten (10).

F. Construction Keying: Provide construction master keyed cylinders.

G. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

2. Provide transcript list in writing or electronic file as directed by the Owner.

H. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

1. Manufacturers:

a. Lund Equipment (LU).

b. MMF Industries (MM).

c. Telkee (TK).

I. Key Control Software: Provide one network version of "Key Wizard" branded key management software package that includes one year of technical support and upgrades to software at no charge. Provide factory key system formatted for importing into “Key Wizard” software.

2.4 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.

2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.

3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.

2. Strikes for Bored Locks and Latches: BHMA A156.2.

3. Strikes for Auxiliary Deadlocks: BHMA A156.36.

4. Dustproof Strikes: BHMA A156.16.

2.5 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.

3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.

4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.

5. Energy Efficient Design: Provide lock bodies which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.

6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

   a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.

   b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.

9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.

10. Rail Sizing: Provide exit device rails factory sized for proper door width application.

11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

1. Manufacturers:

a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.

b. Yale (YA) - 7000 Series.

C. Security Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified rim panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be constructed of high grade, heat treated, corrosion resistant nickel steel alloy, and have a full 3/4" throw projection with slide action positive deadlocking.

1. Static Load Force Resistance: Minimum 3000 lbs certified independent tested.

2. Manufacturers:

a. Corbin Russwin Hardware (RU) - ED4000S / ED5000S Series.

b. Yale (YA) - 7050 Series.

D. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.

1. Provide keyed removable feature where specified in the Hardware Sets.

2. Provide stabilizers and mounting brackets as required.

3. Provide electrical quick connection wiring options as specified in the hardware sets.

4. Manufacturers:

a. Corbin Russwin Hardware (RU) - 700/900 Series.

2.6 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.

4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.

5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Utility Grade): ANSI/BHMA 156.4, Grade 1 certified surface mounted, utility grade door closers with complete spring power adjustment, sizes 1 thru 6. Closers to be rack and pinion type, cast aluminum case construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide closer standard packed for regular, top-jamb, and parallel arm type mounting applications.

1. Manufacturers:

a. Norton Door Controls (NO) - 1601 Series.

b. Yale Locks and Hardware (YA) - 51BC Series.

2.7 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.

3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.

4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:

   a. Stainless Steel: 300 grade, 050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

6. Manufacturers:

   a. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

   b. Trimco (TC).

2.8 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

   a. Hiawatha, Inc. (HI).

   b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.9 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. National Guard Products (NG).

2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.10 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.11 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."

4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.

C. Manufacturer's Abbreviations:

D. Refer to Section 080671, Door Hardware Sets, for hardware sets.

1. MK - McKinney
2. PE - Pemko
3. RU - Corbin Russwin
4. OT - OTHER
5. BE - dormakaba Best
6. NO - Norton
7. RO - Rockwood

Hardware Sets

Set: 1.00

Doors: 101A, 101B
Description: Exterior Single HM

1	Continuous Hinge	CFM83SLI-HD1		PE	087100
1	Mechanical Push Button Lock	Ilco LP1020-B	26D	OT	087100
1	Exit Device	ED5200S M54	630	RU	087100
1	Rim Cylinder	1E-72 PATD	626	BE	087100
1	Core	6C-7A1	626	BE	087100
1	Surface Closer	CLP1604BC TBGN	689	NO	087100
1	Kick Plate	K1050 10" x 2" LDW CSK BEV	US32D	RO	087100
1	Threshold	2005AT		PE	087100
1	Gasketing	312CR		PE	087100
1	Rain Guard	346C + 4" Overall Door Width		PE	087100
1	Sweep	315CN		PE	087100

Notes: Confirm compatibility of push button lock and exit device

Set: 2.00

Doors: 101C
Description: Exterior Overhead Door

1	Balance of Hardware	By Assembly Mfg		OT

Set: 3.00

Doors: 102A
Description: Electrical Room Pair

8	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK 087100
1	Removable Mullion	CR910KM 10' CL6/7		RU 087100
1	Exit Device (storeroom)	ED5200S L959ET M54	630	RU 087100
1	Exit Device (exit only)	ED5200S EO M54	630	RU 087100
1	Rim Cylinder	1E-72 PATD	626	BE 087100
2	Core	6C-7A1	626	BE 087100
2	Surface Closer	CLP1604BC TBGN	689	NO 087100
2	Kick Plate	K1050 10" x 1" LDW CSK BEV	US32D	RO 087100

Set: 4.00

Doors: 102B
Description: Electrical Room Single

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK 087100
1	Exit Device (storeroom)	ED5200S L959ET M54	630	RU 087100
1	Rim Cylinder	1E-72 PATD	626	BE 087100
1	Core	6C-7A1	626	BE 087100
1	Surface Closer	CLP1604BC TBGN	689	NO 087100
1	Kick Plate	K1050 10" x 2" LDW CSK BEV	US32D	RO 087100

END OF SECTION

SECTION 09800

PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. The work of this section includes the coating of all interior and exterior surfaces.

1.2 REFERENCES:

A. ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.

B. ASTM D3359 - Method for Measuring Adhesion by Tape Test.

C. NACE (National Association of Corrosion Engineers) - Industrial Maintenance Painting.

D. NPCA (National Paint and Coating Association) - Guide to U.S. Government Paint Specifications.

E. SSPC (Society for Protective Coatings) - Steel Structures Painting Manual.

F. TACB (Texas Air Control Board) - 31 TAC Chapter 11.

G. TCEQ (Texas Commission on Environmental Quality) - TAC Chapter 290 – Public Drinking Water.

H. Paint manufacturer's printed instructions.

I. TAC - Texas Administrative Code.

1.3 DEFINITIONS:

A. Dft - Dry film thickness.

B. Mil(s) - a unit of measure equal to a thousandth of an inch (0.0254) mm.

C. VOC(s) - volatile organic compound(s).

1.4 INTERPRETATION:

A. The Engineer's decision shall be final in the interpretation and/or conflict between any of the referenced Specifications and Standards contained herein.

1.5 SUBMITTALS:

A. Information to be provided: Provide a list of materials to be used under this Section. Submit the list before the materials are delivered to the job site. Cross reference the list to the coating systems identified. Furnish with the list, the coating manufacturer's standard product data and color chart for each material to be used.

B. Manufacturer's color charts shall be submitted to the Engineer at least 30 days or prior to paint application. Coordinate work so as to allow sufficient time for paint to be delivered to the job site.

1.6 QUALITY ASSURANCE:

A. General: Use quality assurance procedures and practices to monitor all phases of surface preparation, application and inspection throughout the duration of the project. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and accepted professional standards.

B. Surface Preparation: Surface preparation will be based upon comparison with: "Pictorial Surface Preparation Standards for Painting Steel Surfaces" SSPC-VIS 1-89 and ASTM Designation D2200, "Standard Methods of Evaluating Degree of Rusting on Painted Steel Surfaces" SSPC-VIS 2 and ASTM Designation D610, "Visual Standard for Surfaces of New Steel Air blast Cleaned with Sand Abrasive".

C. Application: No coating shall be applied: When the surrounding air temperature or the temperature of the surface to be coated or painted is below the minimum surface temperature for the products specified herein; or in rain; snow, fog, or mist; when the temperature is less than 5 degrees F above the dew point; when the air temperature is expected to drop below 35 degrees F within six hours after application of coating. Dew point shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychometric Tables. If the above conditions are forecast, coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.

D. Thickness and Holiday Checking (Steel Surfaces): Thickness of coatings shall be checked with a non-destructive, magnetic-type thickness gauge. Use an instrument such as a Tooke Gauge if a destructive tester is deemed necessary. The integrity of coated surfaces shall be checked with an approved inspection device. Non-destructive holiday detector shall not exceed the voltage recommended by the manufacturer of the coating system. For thickness between 10 and 20 mils, use a non-sudsing type wetting agent, such as Kodak Photo-Flow. Failures shall be marked, repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities will be permitted in the final coating.

E. Inspection Devices: The Contractor shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and measurement of dry film thickness (dft) of coating. The Contractor shall also furnish U.S Department of Commerce; National Bureau of Standards certified thickness calibration plates to test accuracy of dft gauges and certified instrumentation to test accuracy of holiday detector. Dry film thickness gauges and holiday detectors shall be made available for the Engineer's use at all times until final acceptance of application. Holiday detection devices shall be operated in the presence of the Engineer.

F. Warranty Inspection: Warranty inspection shall be conducted during the eleventh month following completion of all coating and painting work. All defective work shall be repaired in accordance with this specification and to the satisfaction of the Engineer/Owner.

1.7 QUALIFICATIONS:

A. The Contractor shall have three years practical experience and successful history in the application of specified products to surfaces in water treatment, wastewater treatment, or industrial facilities. The Contractor shall be a knowledgeable and experienced professional, fully aware of the methods and regulatory requirements of coating removal and application. Upon request, he shall substantiate this requirement by furnishing a list of references and job completions.

1.8 SAFETY AND HEALTH REQUIREMENTS:

A. General: The Contractor shall perform all work in accordance with applicable local, state, and federal laws and regulations, and material manufacturer's instructions and recommendations pertaining to the methods, materials, or activities in the work. Some of these regulations are included in the following groups:

Occupational Safety and Health Act and derived regulations.

Clean Air Act and derived regulations, both federal and state.

The items listed below in the rest of this Paragraph are intended to call the Contractor's attention to some of the frequently necessary compliance activities. The Contractor is solely responsible for compliance with applicable regulations including, but not limited to, the areas identified in this Specification. The Contractor shall provide and require the use of personal protective equipment for persons working on or about the project.

B. Head and Face Protection and Respiratory Devices: Equipment shall include protective helmets which shall be worn by all persons while in the vicinity of the work. In addition, workers engaged in or near the work during sandblasting shall wear appropriate eye and face protection devices and air purifying, half mask or mouthpiece respirators with appropriate filters.

C. Ventilation: Where ventilation is used to control hazardous exposure, all equipment shall be explosion-proof. Ventilation shall reduce the concentration of air contaminants to the degree a hazard does not exist. Air circulation and exhausting of solvent vapors shall be continued until coatings have fully cured.

D. Sound Levels: Whenever the occupational noise exposure exceeds maximum allowable sound levels, the Contractor shall provide and require the use of approved ear protective devices.

E. Illumination: Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the Engineer, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the Engineer.

F. Temporary Ladders and Scaffolding: All temporary ladders and scaffolding shall confirm to applicable safety requirements. They shall be erected where requested by the Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Materials specified are those that have been evaluated for the specific service. Products are listed to establish a standard of quality. Equivalent materials of other manufacturers may be substituted on written approval of the Engineer in accordance with Section 01600.

Requests for substitution shall include manufacturer's literature for each product giving name, product number, and generic type, descriptive information, solids by volume, recommended dft and certified laboratory test reports showing results to equal the performance criteria of the products specified herein. In addition, a list of five projects shall be submitted in which each product has been used and rendered satisfactory service. The listed projects shall be in the State of Texas, Oklahoma, Louisiana, or Arkansas.

2.2 DELIVERY AND STORAGE:

A. All materials shall be brought to jobsite in original sealed containers. They shall not be used until the Engineer has inspected contents and obtained data from information on containers or label. Materials exceeding storage life recommended by the manufacturer shall be rejected.

B. All coatings and paints shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable coatings or paint must be stored to conform with City, County, State, and Federal safety codes for flammable coating or paint materials. At all times coatings and paints shall be protected from freezing.

2.3 MATERIALS:

The number of coats called for in this schedule shall be considered minimum. If additional coats are required for complete coverage and uniform appearance, they shall be applied. Colors will be selected by the Owner. The system numbering may not be sequential or inclusive of all numbers from the first to last system or schedule numbers.

SYSTEM NO. 1

TYPE OF SURFACE: Metal or Pre-painted Metal (excluding stainless steel, galvanized steel, and aluminum)

TYPE OF STRUCTURE: Normal plant conditions such as: Machinery (if not factory coated), pipes, valves, equipment housing, ducts, pumps, motors, handrails, steel sash, doors, walkways, stairways, windows and structural steel.

EXPOSURE CONDITION: Non-Submerged; inside or outside

SURFACE PREPARATION: All surfaces should be clean, dry, free of oil, rust, loose and scaling paint and foreign material.

PAINTING SYSTEM:

First Coat:
Tnemec Series 1 Omnithane or Series 530 Omnithane 2.5 dft mils

Second Coat:

Tnemec Series 1074 Endura-Shield II (Gloss)	4.0 dft mils
Tnemec Series 1075 Endura-Shield II (S-G)	4.0 dft mils
Total Thickness Tnemec Series =	6.5 mils min.

SYSTEM NO. 5 (Must be NSF61 Certified)

TYPE OF SURFACE: Metal (excluding stainless steel, galvanized steel, and aluminum)

TYPE OF STRUCTURE: Normal plant conditions such as: Pipes, pumps, and pump cans.

EXPOSURE CONDITION: Submerged or Intermittently Submerged.

TYPE OF LIQUID HANDLED: Potable Water

SURFACE PREPARATION: SSPC-SP10 Near white metal blast clean.

PAINTING SYSTEM:

First Coat:

Tnemec Series 20-1211 Pota-Pox	4.0 dft mils

Second Coat:
Tnemec Series N140 Pota-Pox Plus 5.0 dft mils
Total Thickness Tnemec = 9.0 dft mils min.

Alternate First Coat:
Sherwin-Williams Catalyzed B62 series/B60V20 5.0-6.0 dft mils

Alternate Second Coat:
Sherwin-Wiliams Catalyzed Epoxy B62 series/B60V20 5.0-6.0 dft mils
Total Thickness Sherwin-Williams = 10.0 mils dft min.

SYSTEM NO. 6

TYPE OF SURFACE: Exterior Above-Grade Concrete

TYPE OF STRUCTURE: Exteriors of building structures.

EXOSURE CONDTION: Non-Submerged

SURFACE PREPARATION: All surfaces must be clean and in sound condition. Painted surface should be wire brushed to remove any chalkiness and loose or peeling paint. Extremely rough masonry block should be given a cement wash before painting to provide a smooth uniform surface. No primer or surface is needed on smooth surfaces.

PAINTING SYSTEM:

Surface Filler:
Tnemec Series 130-6602 60-80 sq. ft. per gallon

First and Second Coats:
Tnemec Series 156 Enviro-Crete
If rolled: 200 sq. ft. per gallon
If sprayed: 100 sq. ft. per gallon

Note: Top coat color selection shall match colors of nearby high service pump station.

SYSTEM NO. 7

TYPE OF SURFACE: Interior Concrete

TYPE OF STRUCTURE: Interior pre-cast concrete tilt-up walls only of new building.

EXPOSURE CONDITION: Non-Submerged

SURFACE PREPARATION: All surfaces must be clean and in sound condition. Painted surface should be wire brushed to remove any chalkiness and loose or peeling paint. Extremely rough concrete or masonry block should be given a cement wash before painting to provide a smooth uniform surface.

PAINTING SYSTEM:

Surface Filler:	
Tnemec Series 130-6602	65 sq. ft./gallon
First and Second Coats:	
Tnemec Series 66-Color Hi-Build Epoxy	6.0 dft mils/coat
Total Thickness Tnemec =	12.0 dft mils min.
Alternate First and Second Coats:	
Sherwin-Williams Sher-Tile Hi Solids Epoxy, B67	4.0 dft mils/coat
Total Thickness =	8.0 dft mils min.

Note: Top coat color selection shall match colors of nearby high service pump station.

SYSTEM NO. 10

TYPE OF SURFACE: Exterior Below-Grade Concrete

TYPE OF STRUCTURE: Exterior walls of new buildings, vaults, and manholes below grade

EXPOSURE CONDITION: Below grade

SURFACE PREPARATION: Concrete should be completely cured and brushed free of all form release compounds, laitance, loose particles and be completely dry. Previously coated surfaces must be cleaned of all loose paint, rust, grease, and dirt.

PAINTING SYSTEM:

First Coat:	
Tnemec Series 46H-413 H.B. Tnemec-Tar	16.0 dft mils
Alternate First Coat:	
Sherwin-Williams Hi-Mil Sher-Tar Epoxy B69B40/B60V40	16.0 - 24.0 dft mils

SYSTEM NO. 11

TYPE OF SURFACE: Concrete or CMU Masonry

TYPE OF STRUCTURE: Concrete Floor and Stem Walls Inside of New Pump Station Building. CMU masonry (inside and outside surfaces at electrical room).

SURFACE PREPARATION: Concrete should be completely cured and brushed free of all form release compounds, laitance, loose particles and be completely dry. Previously coated surfaces must be cleaned of all loose paint, rust, grease, and dirt. Consult supplier for additional surface preparation requirements.

PAINTING SYSTEM:

First and Second Coat:
Sherwin-Williams Clear Solvent-Borne Silane System 50-100 sq. ft./gallon
S-W Loxon® 40% Silane Water Repellant, LX31T40

SYSTEM NO. 21

TYPE OF SURFACE: Galvanized Steel

TYPE OF STRUCTURE: Throughout plant, galvanized steel repair e.g. chain link fence repair

EXPOSURE CONDTION: Atmospheric

SURFACE PREPARATION: SSPC-SP6: Commercial Blast Cleaning. Surface must be clean and dry.

PAINTING SYSTEM:

First Coat:
Tnemec Series 90G-1K97 Tnemec-Zinc 2.5-3.5 dft mils

Alternate First Coat:
Sherwin Williams Corothane I Zinc Primer B65A14 3.0-4.0 dft mils

SYSTEM NO. 22

TYPE OF SURFACE: Aluminum in Contact with Dissimilar Metal or Concrete

TYPE OF STRUCTURE: Throughout plant

EXPOSURE CONDTION: Atmospheric

SURFACE PREPARATION: As recommended by paint supplier.

PAINTING SYSTEM:

Thick layer of cold-applied asphalt paint complying with SSPC-Paint-12 compounded for 15 mil DFT per coat. Apply two (2) coats for total thickness of 30 mil DFT.

PART 3 EXECUTION

3.1 GENERAL:

A. All surface preparation, coating and painting shall conform to applicable standards of the Society for Protective Coatings and the manufacturer's printed instructions. Material applied to the surface prior to the approval of the Engineer shall be removed and re-applied to the satisfaction of the Engineer at the expense of the Contractor.

B. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be coordinated with the Engineer.

C. The Contractor shall provide a supervisor at the work site during cleaning and application operations. The supervisor shall have the authority to sign change orders, coordinate work and make decisions pertaining to the fulfillment of the contract.

D. Dust, dirt, oil, grease or any foreign matter that will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in an approved cleaning solvent and wiped dry with clean rags.

E. Coating and painting systems include surface preparation, prime coating and finish coatings. Unless otherwise approved by the Engineer, prime coating shall be field applied. Where prime coatings are shop applied, the Contractor shall instruct suppliers to provide the prime coat compatible with the finish coat specified. Any off-site work which does not conform to this specification or that is damaged during transportation, construction or installation shall be thoroughly cleaned and touched-up in the field as directed by the Engineer. The Contractor shall use repair procedures which insure the complete protection of all adjacent primer. The specified repair method and equipment may include wire brushing, hand or power tool cleaning, or dry-air blast cleaning. In order to prevent injury to surrounding painted areas, blast cleaning may require use of lower air pressure, smaller nozzle and abrasive particle sizes, or shorter blast nozzle distance from surface shielding and masking. If damage is too extensive or uneconomical to touch-up, then the item shall be re-cleaned and coated as directed by the Engineer.

F. The Contractor's coating and painting equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air.

G. Application of the first coat shall follow immediately after surface preparation and cleaning and before rust bloom occurs. Any cleaned areas not receiving the first coat within this period shall be re-cleaned prior to application of the first coat.

H. Prior to assembly, all surfaces made inaccessible after assembly shall be prepared as specified herein and shall receive the coating or paint system specified.

3.2 SURFACE PREPARATION:

A. The latest revision of the following surface preparation specifications of the Society for Protective Coatings shall form a part of this Specification:

1. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods which involve a

solvent or cleaning action.

2. Hand Tool Cleaning (SSPC-SP2): Removal of loose rust, loose mil scale and other detrimental foreign matter to degree specified by hand chipping, scraping, sanding and wire brushing.

3. Power Tool Cleaning (SSPC-SP3): Removal of loose rust, loose mil scale and other detrimental foreign matter to degree specified by power wire brushing, power impact tools or power sanders.

4. White Metal Blast Cleaning (SSPC-SP5): Blast cleaning to a gray-white uniform metallic color until each element of surface area is free of all visible residues.

5. Commercial Blast Cleaning (SSPC-SP6): Blast cleaning until at least two-thirds of each element or surface area is free of all visible residues.

6. Brush-Off Blast Cleaning (SSPC-SP7): Blast cleaning to remove loose rust, loose mil scale and other detrimental foreign matter to degree specified.

7. Near White Blast Cleaning (SSPC-SP10): The removal of all visible oil, grease, dirt, rust, mil scale, rust, paint, oxides, corrosion products and other foreign matter by compressed air nozzle blasting, centrifugal wheels or other specific method. Discoloration caused by certain stains shall be limited to no more than 5% of each square inch of surface area.

8. Power Tool Cleaning to Bare Metal (SSPC-SP11): The removal of all visible oil, grease, dirt, mil scale, rust, paint, oxide, corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portion of pits if the original surface is pitted. Differs from SSPC-SP3 in that it requires more thorough cleaning and a surface profile not less than 1 mil (25 microns). For areas where abrasive blasting is prohibited or not feasible.

B. Slag and weld metal accumulation and spatters not removed by the Fabricator, Erector, or Installer shall be removed by chipping and grinding. All sharp edges shall be penned, ground or otherwise blunted as required by the Engineer.

C. Field blast cleaning for all surfaces shall be by dry method unless otherwise directed.

D. Particle size of abrasive used in blast cleaning shall be that which will produce a 1.5-2.0 mils (37.5 microns-50.0 microns) surface profile or in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied.

E. Abrasive used in blast cleaning operations shall be new, washed, graded and free of contaminants that would interfere with adhesion of coating or paint and shall not be reused unless specifically approved by the Engineer.

F. During blast cleaning operations, caution shall be exercised to insure that existing coatings or paint to remain intact are not exposed to abrasion from blast cleaning.

G. The Contractor shall keep the area of his work and the surrounding environment in a clean condition. He shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the accomplishment of the work, the operation of the existing facilities, or nuisance to the surrounding environment.

H. Blast cleaned surfaces shall be cleaned prior to application of specified coatings or paint. No coatings or paint shall be applied over damp or moist surfaces.

I. All welds shall be neutralized with suitable chemical compatible with the specified coating materials.

J. Specific Surface Preparation: Surface preparation for the specific system shall be as noted in Section 2.3.

3.3 APPLICATION:

A. Coating and paint application shall conform to the requirements of the Steel Structures Painting Council Paint Application Specification SSPC-PA1, latest revision, for "Shop, Field and Maintenance Painting", the American Water Works Association and the manufacturer of the coating and paint materials.

B. Thinning shall be permitted only as recommended by the manufacturer and approved by the Engineer.

C. Each application of coating or paint shall be applied evenly, free of brush marks, sags, runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping on glass or hardware. Coatings and paints shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.

D. Protective coverings or drop cloths shall be used to protect floors, fixtures, and equipment. Care shall be exercised to prevent coatings or paints from being spattered onto surfaces which are not to be coated or painted. Report surfaces from which materials cannot be satisfactory removed to the Engineer.

E. When two coats of coating or paint are specified, where possible, the first coat shall contain sufficient approved color additive to act as an indicator of coverage or the two coats must be of contrasting color.

F. Film thickness per coat specified in Section 2.3 are minimum required. If roller application is deemed necessary, the Contractor shall apply additional coats to achieve the specified thickness.

G. All material shall be applied as specified.

H. All welds and irregular surfaces shall receive a brush coat of the specific product prior to application of the first complete coat.

3.4 COATING SYSTEM APPLICATION:

A. After completion of surface preparation as specified for the specific system, materials shall be applied as noted in Section 2.3.

3.5 COLOR SCHEME:

A. The Engineer shall select colors for the project. The Contractor shall submit a current chart of the manufacturer's available colors to the Engineer thirty days prior to the start of coating and painting.

B. The identification of pipe lines shall be accomplished by use of paint color. Color coding must be by solid color or banding. If bands are used, they shall be placed along the pipe at no greater than five foot intervals. The color code is as follows:

LABELS	COLOR OF PIPE
Potable Water	Light Blue
Drain	Dark Gray
Plant Water	Blue/Black
Sanitary Sewer	Dark Gray

3.6 DISINFECTION:

A. Disinfection may be required for interior surfaces of tanks or systems containing potable water. Refer to Section 02675. Coordinate painting with disinfection requirements.

3.7 VAPOR REMOVAL:

A. All solvent vapors shall be completely removed by suction-type exhaust fans and blowers before placing tank or system in operating service.

3.8 CLEAN UP:

A. Upon completion of the work, all staging, scaffolding and containers, waste blast abrasive, or other painting debris shall be removed from the site. Coating or paint spots or oil stains upon adjacent surfaces shall be removed and the jobsite cleaned. All damage to surfaces resulting from the work of this section shall be cleaned, repaired, or refinished to the satisfaction of the Engineer at no cost to the Owner.

3.9 SCHEDULE:

Follow general painting guidelines described above, including painting of pipe, valves, drywall, and other miscellaneous surfaces. Existing structures and equipment need not be repainted unless otherwise noted. Specific surfaces to be coated include the following:

PAINTING SCHEDULE	
Surface	**System No.**
Exposed ductile iron piping, valves, pumps, motors, bollards	1
PS Building interior walls	7
PS Building exterior walls below grade	10
Building exterior walls above grade	6
New valve vaults, flow meter vaults, and manholes exterior walls below grade	10
CMU walls, concrete floors, stem walls, interior of surge relief valve vault	11
Exposed aggregate exterior of building	Per Section 07190

END OF SECTION

SECTION 10523

FIRE EXTINGUISHERS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

B. Related Requirements:

1. Divisions 01 Specification Sections apply to Work of this Section.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.

B. Product Schedule: For fire extinguishers. Coordinate final fire-extinguisher schedule with fire-protection cabinet schedule to ensure proper fit and function.

1.3 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.5 COORDINATION

A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

1.6 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure of hydrostatic test according to NFPA 10.

b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each mounting bracket (FEB) indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. JL Industries, Inc.; a division of the Activar Construction Products Group.

b. Larsens Manufacturing Company.

c. Potter Roemer LLC.

2. Valves: Manufacturer's standard.

3. Handles and Levers: Manufacturer's standard.

4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.

B. Regular Dry-Chemical Type <Insert drawing designation>: UL-rated <Insert capacity> nominal capacity, with sodium bicarbonate-based dry chemical in manufacturer's standard enameled container.

2.3 MOUNTING BRACKETS (FEB)

A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or black baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Amerex Corporation.

b. Ansul Incorporated.

c. Badger Fire Protection.

d. Buckeye Fire Equipment Company.

e. Fire End & Croker Corporation.

f. Guardian Fire Equipment, Inc.

g. JL Industries, Inc.; a division of the Activar Construction Products Group.

h. Larsens Manufacturing Company.

i. Nystrom Building Products.

j. Potter Roemer LLC.

k. Strike First Corporation of America.

B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Engineer.

1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

a. Orientation: Vertical.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets:

a. Fire extinguishers weighing 40 pounds or less: 42 inches above finished floor.

b. Fire extinguishers weighing more than 40 pounds: 42 inches above finished floor to top of cabinet.

B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION

PACKET 9.1392 December 15, 2020

SECTION 11005

EQUIPMENT: BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Requirements of this Specification Section apply to all equipment provided on the Project including those found in other Divisions even if not specifically referenced in individual "Equipment" Articles of those Specification Sections.

1.2 QUALITY ASSURANCE:

A. Referenced Standards:

1. American Bearing Manufacturers Association (ABMA).
2. American Gear Manufacturers Association (AGMA).
3. ASTM International (ASTM):

a. E1934, Standard Guide for Examining Electrical and Mechanical Equipment with Infrared Thermography.

b. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

4. Hydraulic Institute (HI):

a. 9.6.4, Centrifugal and Vertical Pumps for Vibration Measurements and Allowable Valves.

5. International Electrotechnical Commission (IEC).
6. Institute of Electrical and Electronics Engineers, Inc. (IEEE).
7. International Organization for Standardization (ISO):

a. 1940, Mechanical Vibration - Balance Quality Requirements for Rotors in a Constant (Rigid) State - Part 1: Specification and Verification of Balance Tolerances.

8. National Electrical Manufacturers Association (NEMA):

a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
b. ICS 6, Enclosures for Industrial Control and System.
c. MG 1, Motors and Generators.

9. InterNational Electrical Testing Association (NETA):

a. ATS, Acceptance Testing Specification for Electrical Power Distribution Equipment and Systems.

10. National Fire Protection Association (NFPA):

a. 70, National Electrical Code (NEC):

i Article 430, Motors, Motor Circuits, and Controllers.

11. National Institute for Certification in Engineering Technologies (NICET).
12. National Institute of Standards and Technology (NIST).
13. Occupational Safety and Health Administration (OSHA):

a. 29 CFR 1910, Occupational Safety and Health Standards, referred to herein as OSHA Standards.

14. Underwriters Laboratories, Inc. (UL).

a. 508, Standard for Safety Industrial Control Equipment.
b. 508A, Standard for Safety Industrial Control Panels.

15. Vibration Institute.

B. Miscellaneous:

1. A single manufacturer of a "product" to be selected and utilized uniformly throughout Project even though:

a. More than one (1) manufacturer is listed for a given "product" in Specifications.
b. No manufacturer is listed.

2. Equipment, electrical assemblies, related electrical wiring, instrumentation, controls, and system components shall fully comply with specific NEC requirements related to area classification and to NEMA 250 and NEMA ICS 6 designations and defined in Division 16.

3. Variable speed equipment applications: The driven equipment manufacturer shall have single source responsibility for coordination of the equipment and VFD system and sure their compatibility.

1.3 DEFINITIONS:

A. Product: Manufactured materials and equipment.

B. Major Equipment Supports - Supports for Equipment:

1. Located on or suspended from elevated slabs with supported equipment weighing 2000 LBS or greater, or;

2. Located on or suspended from roofs with supported equipment weighing 500 LBS or greater, or;

3. Located on slab-on-grade or earth with supported equipment weighing 5,000 LBS or more.

C. Equipment:

1. One (1) or more assemblies capable of performing a complete function.

2. Mechanical, electrical, instrumentation or other devices requiring an electrical, pneumatic, electronic or hydraulic connection.

3. Not limited to items specifically referenced in "Equipment" articles within individual Specifications.

D. Installer or Applicator:

1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.

2. Installer and applicator are synonymous.

E. Inverter Duty Motor: An AC induction motor complying with all requirements of NEMA MG 1 Part 31 for definite-purpose inverter-fed motors.

F. Abbreviations:

1. ODP-Open Dripproof.
2. RTD-Resistance Temperature Detector.
3. TEFC-Totally Enclosed Fan Cooled.
4. WP-1-Weather Protected Type 1.
5. Motor Controllers:

a. FVNR-Full Voltage Non-Reversing.
b. RVAT-Reduced Voltage Autotransformer.

1.4 SUBMITTALS:

A. Shop Drawings:

1. General for all equipment:

a. See Division 01 for requirements for the mechanics and administration of the submittal process.

b. Data sheets that include manufacturer's name and complete product model number.

i Clearly identify all optional accessories that are included.

c. Acknowledgement that products submitted comply with the requirements of the standards referenced.

d. Manufacturer's delivery, storage, handling, and installation instructions.

e. Equipment identification utilizing numbering system and name utilized in Drawings.

f. Equipment installation details:

i Location of anchorage.
ii Type, size, and materials of construction of anchorage.
iii Anchorage setting templates.
iv Manufacturer's installation instructions.

g. Equipment area classification rating.

h. Shipping and operating weight.

i. Equipment physical characteristics:

i Dimensions (both horizontal and vertical).
ii Materials of construction and construction details.

j. Equipment factory primer and paint data.

k. Manufacturer's recommended spare parts list.

l. Equipment lining and coatings.

m. Equipment utility requirements include air, natural gas, electricity, and water.

n. Ladders and platforms provided with equipment:

i Certification that all components comply fully with OSHA requirements.
ii Full details of construction/fabrication.
iii Scaled plan and sections showing relationship to equipment.

2. Mechanical and process equipment:

a. Operating characteristics:

i Technical information including applicable performance curves showing specified equipment capacity, rangeability, and efficiencies.
ii Brake horsepower requirements.
iii Copies of equipment data plates.

b. Piping and duct connection size, type and location.
c. Equipment bearing life certification.
d. Equipment foundation data:

i Equipment center of gravity.
ii Criteria for designing vibration, special or unbalanced forces resulting from equipment operation.

3. Electric motor:

a. Identify each motor by driven machine identification.
b. Motor manufacturer and model number.
c. Complete motor nameplate data.
d. Weight.
e. NEMA design type.
f. Enclosure type.
g. Frame size.
h. Winding insulation class and temperature rise.
i. Starts per hour.
j. Performance data:

i Guaranteed minimum efficiencies at 100 percent, 75 percent, and 50 percent of full load.

ii Guaranteed minimum power factor at 100 percent, 75 percent, and 50 percent of full load.

iii Locked rotor and full load current at rated terminal voltage and minimum permissible or specified terminal voltage.

iv Starting, full load, and breakdown torque at rated terminal voltage and minimum permissible or specified terminal voltage.

v Motor speed-torque curve superimposed over driven machine speed-torque curve during start-up acceleration and at rated terminal voltage and minimum permissible or specified terminal voltage for all motors over 200 HP.

vi Time-current plots with acceleration verses current and thermal damage curves at the operating and ambient temperatures and at rated terminal voltage and minimum permissible or specified terminal voltage for all motors over 200 HP.

vii Hot and cold stall time damage points all motors over 200 HP.

k. Bearing data and lubrication system.

l. Thermal protection system including recommended alarm and trip settings for winding and bearing RTD's.

m. Fabrication and/or layout drawings:

i Dimensioned outlined drawing.

ii Connection diagrams including accessories (strip heaters, thermal protection, etc.).

n. Certifications:

i When utilized with a reduced voltage starter, certify that motor and driven equipment are compatible.

ii When utilized with a variable frequency controller, certify motor is inverter duty and the controller and motor are compatible.

- Include minimum speed at which the motor may be operated for the driven machinery.

o. Electrical gear:

i Unless specified in a narrow-scope Specification Section, provide the following:

- Equipment ratings: Voltage, continuous current, kVa, watts, short circuit with stand, etc., as applicable.

ii Control panels:

- Panel construction.
- Point-to-point ladder diagrams.
- Scaled panel face and subpanel layout.
- Technical product data on panel components.
- Panel and subpanel dimensions and weights.
- Panel access openings.
- Nameplate schedule.
- Panel anchorage.

4. Systems schematics and data:

a. Provide system schematics where required in system specifications.

i Acknowledge all system components being supplied as part of the system.

ii Utilize equipment, instrument and valving tag numbers defined in the Contract Documents for all components.

iii Provide technical data for each system component showing compliance with the Contract Document requirements.

iv For piping components, identify all utility connections, vents and drains which will be included as part of the system.

5. For factory painted equipment, provide paint submittals in accordance with Specification Section 09905.

B. Operation and Maintenance Manuals:

1. See Division 01 for requirements for:

a. The mechanics and administration of the submittal process.
b. The content of Operation and Maintenance Manuals.

C. Informational Submittals:

1. Sample form letter for equipment field certification.

2. Certification that equipment has been installed properly, has been initially started up, has been calibrated and/or adjusted as required, and is ready for operation.

3. Certification for major equipment supports that equipment foundation design loads shown on the Drawings or specified have been compared to actual loads exhibited by equipment provided for this Project and that said design loadings are equal to or greater than the loads produced by the equipment provided.

4. Field noise testing reports if such testing is specified in narrow-scope Specification Sections.

5. Notification, at least one (1) week in advance, that motor testing will be conducted at factory.

6. Certification from equipment manufacturer that all manufacturer-supplied control panels that interface in any way with other controls or panels have been submitted to and coordinated with the supplier/installer of those interfacing systems.

7. Motor test reports.

8. Certification prior to Project closeout that electrical panel drawings for manufacturer-supplied control panels truly represent panel wiring including any field-made modifications.

9. Provide three (3) bound final written reports documenting vibration monitoring and testing for specified equipment.

a. Include the acceptance criteria of all equipment tested.
b. Provide individual tabbed sections for information associated with each piece of tested equipment.

10. Preliminary field quality control testing format to be used as a basis for final field quality control reporting.

11. Testing and monitoring reports in accordance with PART 3 of this Specification Section.

12. Certification that driven equipment and VFD are compatible.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Motors:

a. Baldor.
b. General Electric.
c. Marathon Electric.
d. Reliance Electric.
e. U.S. Motors.
f. WEG.

B. Submit request for substitution in accordance with Division 01.

2.2 MANUFACTURED UNITS:

A. General:

1. Furnish equipment manufacturer's field quality control services and testing as specified in the individual equipment Specification Sections.

2. Execute pre-demonstration requirements in accordance with Division 01.

3. Perform and report on all tests required by the equipment manufacturer's Operation and Maintenance Manual.

4. Provide testing of electrical equipment and connections in accordance with Division 16.

5. Equip testing and analysis personnel with all appropriate project related reference material required to perform tests, analyze results, and provide documentation including, but not limited to:

a. Contract Drawings and Specifications.

b. Related construction change documentation.
c. Approved Shop Drawings.
d. Approved Operation and Maintenance Manuals.
e. Other pertinent information as required.

B. Equipment Monitoring and Testing Plans:

1. Approved in accordance with Shop Drawing submittal schedule.
2. Included as a minimum:

a. Qualifications of firm, field personnel, and analysis personnel doing the Work.

b. List and description of testing and analysis equipment to be utilized.

c. List of all equipment to be testing, including:

i Name and tag numbers identified in the Contract Documents.
ii Manufacturer's serial numbers.
iii Other pertinent manufacturer identification,

C. Instruments Used in Equipment and Connections Quality Control Testing:

1. Minimum calibration frequency:

a. Field analog instruments: Not more than 6 months.
b. Field digital instruments: Not more than 12 months.
c. Laboratory instruments: Not more than 12 months.
d. If instrument manufacturer's calibration requirements are more stringent, those requirements shall govern.

2. Carry current calibration status and labels on all testing instruments.
3. See individual testing programs for additional instrumentation compliance requirements.

D. Testing and Monitoring Program Documentation:

1. Provide reports with tabbed sections for each piece of equipment tested.

2. Include all testing results associated with each piece of equipment under that equipment's tabbed section.

a. Include legible copies of all forms used to record field test information.

3. Prior to start of testing, submit one (1) copy of preliminary report format for Engineer review and comment.

a. Include data gathering and sample test report forms that will be utilized.

4. In the final report, include as a minimum, the following information for all equipment tested:

a. Equipment identification, including:

i Name and tag numbers identified in the Contract Documents.
ii Manufacturer's serial numbers.
iii Other pertinent manufacturer identification.

b. Date and time of each test.

c. Ambient conditions including temperature, humidity, and precipitation.

d. Visual inspection report.

e. Description of test and referenced standards, if any, followed while conducting tests.

f. Results of initial and all retesting.

g. Acceptance criteria.

h. "As found" and "as left" conditions.

i. Corrective action, if required, taken to meet acceptance.

j. Verification of corrective action signed by the Contractor, equipment supplier, and Owner's representative.

k. Instrument calibration dates of all instruments used in testing.

5. Provide three (3) bound final reports prior to Project final completion.

E. Other Testing:

1. Perform tests and inspections not specifically listed but required to assure equipment is safe to energize and operate.

2. Subbase that supports the equipment base and that is made in the form of a cast iron or steel structure that has supporting beams, legs, and cross members that are cast, welded, or bolted shall be tested for a natural frequency of vibration after equipment is mounted.

a. The ratio of the natural frequency of the structure to the frequency of the disturbing force shall not be between 0.5 and 1.5.

F. Electric Motors:

1. General Requirements unless otherwise noted or specified:

a. Standards: NEMA MG 1.

b. Identify each motor by the driven machine identification.

c. An embossed or engraved stainless steel nameplate, with the required NFPA 70 and NEMA data, to be permanently attached to the motor.

d. Maximum motor loading shall not exceed motor nameplate horsepower rating, exclusive of service factor.

e. All motors shall be sized to carry continuously all loads, which may be imposed through their full range of operation.

f. NEMA MG 1, Design B (unless otherwise required), constant speed squirrel-cage induction type having normal starting torque with low starting current.

g. Suitable for the starting method indicated (e.g., full voltage, autotransformer, reduced voltage solid state, VFD, etc.).

h. Lifting devices: Motors weighing 265 LBS or more shall have suitable lifting eyes for installation and removal.

i. Grounding:

i Lug suitable to terminate ground wire in terminal box, sized as indicated on the Drawings.

j. Stator windings: Copper.

k. Rotor cage: Aluminum or copper.

l. Motor leads shall be non-wicking with permanent identifiers.

m. Totally enclosed motor to have one-way breather drains.

n. Efficiency:

i Meet the requirements of NEMA 1MG (NEMA Premium) efficiencies or provided motor labeled as "NEMA PREMIUM" efficient.

ii If motor type, horsepower or speed is not included in the NEMA requirements for NEMA Premium, provide manufacturer's "premium energy efficient" design.

o. Power factor:

i Minimum of 80 percent lagging at full load, except on motors with speed slower than 900 RPM.

p. Service factor:

i 100 hp or less: 1.15.
ii Greater than 100 hp: 1.0 unless noted otherwise.
iii Inverter duty: 1.0.

q. Standards: NEMA MG 1, UL 674, LU 1836.

2. Where used in conjunction with adjustable speed AC or DC drives, provide motors that are fully compatible with the speed controllers.

3. Design for full voltage starting.

4. Design for frequent starting duty equivalent to duty service required by driven equipment.

5. Design bearing life based upon actual operating load conditions imposed by driven equipment.

6. Size for altitude of project.

7. Furnish with stainless steel nameplates which include all data required by NEC Article 430.

8. Use of manufacturer's standard motor will be permitted on integrally constructed motor driven equipment specified by model number in which a redesign of the complete unit would be required in order to provide a motor with features specified.

9. AC electric motors less than 1/3 HP:

a. Single phase, 60 Hz, designed for the supply voltage shown on the Drawings.

b. Permanently lubricated sealed bearings conforming to ABMA standards.

c. Built-in manual reset thermal protector or integrally mounted manual motor starter with thermal overload element with stainless steel enclosure.

10. AC electric motors 1/3 to 1 HP:

a. Single or 3 PH, 60 Hz, designed for the supply voltage shown on the Drawings.

b. Permanently lubricated sealed bearings conforming to ABMA standards.

i For single phase motors, provide built-in manual reset thermal protector or integrally mounted manual motor starter with thermal overload element.

11. AC electric motors 1-1/2 to 10 HP:

a. Single or 3 PH, 60 Hz, designed for the supply voltage shown on the Drawings.

b. Permanently lubricated sealed bearings conforming to ABMA standards.

c. For vertical motors provide 15 year, average-life thrust bearings conforming to ABMA standards.

12. AC electric motors greater than 10 HP:

a. Single or 3 PH, 60 Hz, designed for the supply voltage shown on the Drawings.

b. Oil or grease lubricated antifriction bearings conforming to ABMA standards.

i Design bearing life for 90 percent survival rating at 50,000 HRS of operation for motors up to and including 100 HP.

ii For motors greater than 100 HP, design bearing life for 90 percent survival rating at 100,000 HRS of operation.

c. For vertical motors provide 15 year, average-life thrust bearings conforming to ABMA standards.

d. Thermal protection:

i For motors 50 HP and above controlled from a variable frequency drive and for all other motors 100 HP and above, provide integral thermal detectors with normally closed contacts that will open on overtemperature or resistance type temperature detector (RTD) complete with monitor and alarm panel having a normally closed contact that will open on overtemperature.

- Two (2) thermal sensing devices per phase in each phase hot-spot location.
- Monitor and alarm panel:

- For constant speed motors, install panel in and energize from the motor starter equipment.
- For variable speed motors, install panel in and energize from the variable speed drive equipment.

13. Severe duty motor to have the following minimum features:

a. All cast iron construction.
b. Gasketed conduit box.
c. Epoxy finish for corrosion protection.
d. Hydroscopic varnish on windings for corrosion protection.
e. Drain plug and breather.

G. Induction Motors, 600 Volt and Less:

1. Horizontal Shaft:

a. Electrical rating:

i Appropriate for the voltage system indicated, 3 PH, 60 Hz.

ii Dual voltage rated motors (e.g., 230/460 V) are acceptable, provided all leads are brought out to the terminal box and permanently marked.

b. Enclosed:

i Cast iron (exception: fan covers can be steel).
ii Type: TEFC unless otherwise specified.

c. Terminal box:

i Gasketed.

ii Diagonally split.

iii Field adjactable in 90-degree increments.

iv Oversized by NEMA standards. Box shall be suitable for the size and number of conduits indicated on the Drawings.

v Located on "F1" side unless specifically indicated to be on the "F2" side.

vi Separate terminal box with terminal blocks for winding thermal protection devices (RTD's) if applicable. Condulets with terminal blocks at bearing

thermal protection devices as required.

d. Bearings:

i 5 HP and less: Lubricated-for-Life ball bearings.
ii Greater than 5 HP:

- Relubricatable.
- Antifriction.
- Minimum rated ABMA L-10 life of 10 years or 100,000 HRS.

e. Insulation:

i Class F insulation with Class B temperature rise at nameplate horsepower.
ii VPI with non-hydroscopic varnish or epoxy.

f. Accessories: See the ACCESSORIES Article in Part 2.
g. Modifications:

i Inverter duty:

- At a minimum, applied to motors connected to a VFD.
- Windings insulated for 1600 peak volts and voltage rise times of 0.1 microseconds.
- Nameplate identification of meeting NEMA MG 1 Part 31 requirements.
- Having the following minimum turndown ratio without the use of a blower to provide continuous supply of cooling air over the motor.
    - Variable torque: 10:1.
    - Constant torque: 6:1.
- Insulated drive end bearing on all motors.
- Motors 100 HP and larger, insulated non-drive end bearings.
- Shaft grounding ring on all motors:
    - Factory installed, maintenance free, circumferential, bearing protection ring with conductive microfiber shaft contacting material.

- Electro Static Technology AEGIS SGR Bearing Protection Ring or approved equal.

ii Severe duty (includes requirements of Inverter Duty motors if applicable):

- Standard: IEEE 841.
- All cast iron enclosure.
- Terminal box threaded and gasketed.
- Internal and external epoxy base paint system.
- Drain and breather.

2. Vertical Solid or Hollow Shaft:

a. Electrical rating:

i Appropriate for the voltage system indicated, 3 PH, 60 Hz.

ii Dual voltage rated motors (e.g., 230/460 V) are acceptable, provided all leads are brought out to the terminal box and permanently marked.

b. Enclosure:

i Cast iron.
ii Type: TEFC unless otherwise specified.

c. Terminal box:

i Gasketed.

ii Diagonally split.

iii Oversized by NEMA standards. Box shall be suitable for the size and number of conduits indicated on the Drawings.

iv Separate terminal box with terminal blocks for winding thermal protection devices (if applicable). Condulets with terminal blocks at bearing thermal protection devices (if applicable).

d. Bearings (Solid Shaft):

i Relubricatable.
ii Antifriction.
iii Minimum rated AMBA L-10 life of 10 years or 100,000 HRS.

e. Bearings (Hollow Shaft):

i Relubricatable.
ii Antifriction.
iii Oil or grease lubricated thrust bearings.
iv Grease lubricated guide bearings.
v Minimum rated ABMA L-10 life of 10 years or 100,000 HRS.

f. Non-reverse ratchets.

g. Insulation:

i Class F Insulation with Class B temperature rise at nameplate horsepower.

ii VPI with non-hydroscopic varnish or epoxy.

h. Accessories: See the ACCEWSSORIES Article in PART 2.

i. Modifications:

i Inverter duty:

- At a minimum, applied to motors connected to a VFD.
- Windings insulated for 1600 peak volts and voltage rise times of 0.1 microseconds.
- Nameplate identification of meeting NEMA MG 1 Part 31 requirements.
- Having the following minimum turndown ratio without the use of a blower to provide continuous supply of cooling air over the motor.
    - Variable torque: 10:1.
    - Constant torque: 6:1.
- Insulated drive end bearing on all motors.
- Motors 100 HP and larger the non-drive end shall have an insulated bearing carrier.
- Shaft grounding ring on all motors:
    - Factory installed, maintenance free, circumferential, bearing protection ring with conductive microfiber shaft contacting material.

- Electro Static Technology AEGIS SGR Bearing Protection Ring or approved equal.

ii Severe duty (includes requirements of Inverter Duty motors if applicable):

- Standard: IEEE 841.
- All cast iron enclosure.
- Terminal box threaded and gasketed.
- Internal and external epoxy base paint system.
- Drain and breather.

iii Explosion proof rated motors shall be furnished for motors installed in Class I, Division 1 hazardous locations. Motors installed in Class I, Division 2 locations shall either be rated explosion proof, or shall have non arc-producing devices and motor frame temperatures shall not exceed the Temperature Code for the particular gas under normal operating conditions.

3. Motors to meet NEMA MG 1 (NEMA Premium) efficiencies.

4. Motor enclosure and winding insulation application:

a. The following shall apply unless modified by specific Specification Sections:

MOTOR LOCATION	MOTOR ENCLOSURE / WINDING INSULATION
Unclassified Indoor Areas	TEFC, Standard Insulation
Wet indoor Areas	TEFC, Standard Insulation
Wet outdoor Areas	TEFC, Extra Dip and Bake for Moisture
Corrosive Areas	TEFC, Severe/Chemical Duty

NOTE: Provide TENV motors in the smaller horsepower ratings where TEFC is not available.

5. Provide oversize conduit box complete with clamp type grounding terminals inside the conduit box.

H. Induction Motors, Greater than 600 Volt

1. Same as Induction Motors, 600 Volt and Less except for the following:

a. Windings: Form wound.
b. Insulation:

i Vacuum Pressure Impregnation (VPI) or Continuous Resin Flow Impregnation (CRFI).

ii Epoxy encapsulated.

iii NEMA MG 1 Type II terminal housing suitable for shielded cable terminations.

iv Surge protection: Three (3) surge arrestors and a surge capacitor mounted in terminal box.

v Bearing RTDs.

vi Bearing vibration detectors.

vii Accessory leads wired to separate terminal boxes.

viii Separate terminal boxes or boxes with a barrier shall be used to separate accessories leads of 50 V and less and accessories leads of higher voltage.

I. Submersible Motors: Refer to individual narrow-scope specification sections for submersible motor requirements.

2.3 COMPONENTS:

A. Gear Drives and Drive Components:

1. Size drive equipment capable of supporting full load including losses in speed reducers and power transmission.

2. Provide nominal input horsepower rating of each gear or speed reducer at least equal to nameplate horsepower of drive motor.

3. Design drive units for 24 HR continuous service, constructed so oil leakage around shafts is precluded.

4. Utilize gears, gear lubrication systems, gear drives, speed reducers, speed increasers and flexible couplings meeting applicable standards of AGMA.

5. Gear reducers:

a. Provide gear reducer totally enclosed and oil lubricated.

b. Utilize antifriction bearings throughout.

c. Provide worm gear reducers having a service factor of at least 1.20.

d. Furnish other helical, spiral bevel, and combination bevel-helical gear reducers with a service factor of at least 1.50.

2.4 ACCESSORIES:

A. Thermal Protection (as applicable): Unless otherwise specified or indicated on the Drawings, motors 50 HP up to but not including 200 HP controlled from a variable frequency drive, and all other motors 200 HP and above up to 400 HP, shall be provided with integral thermostats embedded in the motor windings. Motors 200 HP and above controlled from a variable frequency drive and all other motors 400 HP and above shall be provided with RTD's embedded in the motor windings.

1. Thermostats:

a. One (1) winding thermostat per phase for shutdown.
b. Snap action, bi-metallic, temperature-actuated switch type.
c. Normally closed, wired in series.
d. Automatic reset.
e. Switch point shall be pre-calibrated by the manufacturer.

2. RTD's:

a. One (1) winding RTD per phase imbedded in windings.
b. One (1) RTD per bearing (as required per individual equipment specification).
c. 100 ohm platinum.

B. Space Heaters:

1. Where specified or indicated on the Drawings, provide motor space heaters sized to prevent condensation. Heaters are to be silicone rubber type manufactured by sandwiching a resistance wire network between two pieces of high-temperature silicon rubber and bonding the silicone rubber pieces together.

2. 120 V rated, wired to a separate space heater conduit box.

3. Provided on:

a. All motors 10 HP and larger mounted outdoors.
b. Indoor motors in humid environments as indicated in individual equipment specification.

C. Guards:

1. Provide each piece of equipment having exposed moving parts with full length, easily removable guards, meeting OSHA requirements.

2. Interior applications:

a. Construct from expanded galvanized steel rolled to conform to shaft or coupling surface.

b. Utilize non-flattened type 16 GA galvanized steel with nominal 1/2 IN spacing.

c. Connect to equipment frame with hot-dip galvanized bolts and wing nuts.

3. Exterior applications:

a. Construct from 16 GA stainless steel or aluminum.
b. Construct to preclude entrance of rain, snow, or moisture.
c. Roll to conform to shaft or coupling surface.
d. Connect to equipment frame with stainless steel bolts and wing nuts.

D. Anchorage:

1. Cast-in-place anchorage:

a. Provide ASTM F593, Type 316 stainless steel anchorage for all equipment.

b. Configuration and number of anchor bolts shall be per manufacturer's recommendations.

c. Provide two (2) nuts for each bolt.

2. Drilled anchorage:

a. Adhesive anchors per Specification Section 05505.
b. Epoxy grout per Specification Section 03308.
c. Threaded rods same as cast-in-place.

E. Data Plate:

1. Attach a stainless steel data plate to each piece of rotary or reciprocating equipment.

2. Permanently stamp information on data plate including manufacturer's name, equipment operating parameters, serial number and speed.

F. Gages:

1. Provide gages in accordance with Division 17.

2. Provide at the following locations:

a. Inlet and outlet of all reciprocating, centrifugal and positive displacement mechanical and process equipment.
b. At locations identified on Drawings.

3. Utilize tapping sleeves for mounting per Specification Section 15060.

G. Lifting Eye Bolts or Lugs:

1. Provide on all equipment 50 LBS or greater.
2. Provide on other equipment or products as specified in the narrow-scope Specification Sections.

H. Platforms and Ladders:

1. Design and fabricate in accordance with OSHA Standards.

2. Fabricate components from aluminum unless specified or shown otherwise.

3. Provide platform surface: Non-skid grating, unless specified in narrow-scope specification sections.

2.5 FABRICATION:

A. Design, fabricate, and assemble equipment in accordance with modern engineering and shop practices.

B. Manufacture individual parts to standard sizes and gages so that repair parts, furnished at any time, can be installed in field.

C. Furnish like parts of duplicate units to be interchangeable.

D. Ensure that equipment has not been in service at any time prior to delivery, except as required by tests.

E. Furnish equipment which requires periodic internal inspection or adjustment with access panels which will not require disassembly of guards, dismantling of piping or equipment or similar major efforts.

1. Quick opening but sound, securable access ports or windows shall be provided for inspection of chains, belts, or similar items.

F. Provide common, lipped base plate mounting for equipment and equipment motor where said mounting is a manufacturer's standard option.

1. Provide drain connection for 3/4 IN PVC tubing.

G. Machine the mounting feet of rotating equipment.

H. Fabricate equipment which will be subject to Corrosive Environment in such a way as to avoid back to back placement of surfaces that cannot be properly prepared and painted.

1. When such back to back fabrication cannot be avoided, provide continuous welds to seal such surfaces from contact with corrosive environment.

2. Where continuous welds are not practical, after painting seal the back to back surfaces from the environment in accordance with Specification Section 07900.

I. Critical Speed:

1. All rotating parts accurately machined and in as near perfect rotational balance as practicable.

2. Excessive vibration is sufficient cause for equipment rejection.

3. Ratio of all rotative speeds to critical speed of a unit or components: Greater than 1.2.

J. Control Panels Engineered and Provided with the Equipment by the Manufacturer:

1. Manufacturer's standard design for components and control logic unless specific requirements are specified in the specific equipment Specification Section.

2. NEMA or IEC rated components are acceptable, whichever is used in the manufacturer's standard engineered design, unless specific requirements are required in the specific equipment Specification Section.

3. Affix entire assembly with a UL 508A label "Listed Enclosed Industrial Control Panel" prior to delivery.

a. Control panels without an affixed UL 508A label shall be rejected.

2.6 SHOP OR FACTORY PAINT FINISHES:

A. Electrical Equipment:

1. Provide factory-applied paint coating system(s) for all electrical equipment components except those specified in Specification Section 09905 to receive field painting.

a. Field painted equipment: See Specification Section 09905 for factory applied primer/field paint compatibility requirements.

B. Field paint other equipment in accordance with Specification Section 09905.

1. See Specification Section 09905 for factory applied primer/field paint compatibility requirements.

2.7 SOURCE QUALITY CONTROL:

A. Test motors in accordance with NEMA, IEEE and manufacturer procedures.

1. The test shall include but not necessarily be limited to the following:

    a. Routine test:

        i No-load current and speed at rated voltage and frequency.
        ii Locked rotor current.
        iii Winding resistance.
        iv Vibration check.
        v High potential

    b. Complete test (in addition to the routine tests):

        i Rated load temperature rise.
        ii Winding resistance.
        iii Slip test, measured in percent slip.
        iv Locked rotor amperes (3 PH, full voltage).
        v Locked rotor torque.
        vi Breakdown torque.
        vii Efficiencies tabulated at 100, 75, and 50 percent of full load.
        viii Power factor tabulated at 100, 75, and 50 percent of full load.

B. Motor to be tested:

1. All motors, at a minimum, to receive a routine test.
2. Motors 200 HP and above shall have a complete test performed.

C. The Owner reserves the right to select and have tested any motor included within the project.

1. If motor passes testing requirements, the Owner shall be responsible for any shipping and testing costs incurred.

2. Costs shall be determined by current freight rates and manufacturer's published rates at the time of the test.

3. If motor fails test, Supplier shall be responsible for all costs incurred.

4. If two (2) successive motors fail the test, the Owner has the right to reject any or all motors from that manufacturer.

5. The Owner also reserves the right to witness any routine or complete tests at the Owner's expense.

6. Notify the Owner a minimum of 14 days in advance of the testing.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install equipment as shown on Drawings and in accordance with manufacturer's directions.

B. Utilize templates for anchorage placement for slab-mounted equipment.

C. For equipment having drainage requirements such as seal water, provide 3/4 IN PVC or clear plastic tubing from equipment base to nearest floor or equipment drain.

1. Route clear of major traffic areas and as approved by Engineer.

D. DO NOT construct foundations until major equipment supports are approved.

E. Extend all non-accessible grease fittings using stainless steel tubing to a location which allows easy access of fittings from closest operating floor level.

F. Equipment Base:

1. Construct level in both directions.
2. Take particular care at anchor bolt locations so these areas are flat and level.

G. Machine Base:

1. Mount machine base of rotating equipment on equipment base.

a. Level in both directions, using a machinist level, according to machined surfaces on base.

2. Level machine base on equipment base and align couplings between driver and driven unit using steel blocks and shims.

a. Size blocks and shims to provide solid support at each mounting bolt location.

i Provide area size of blocks and shims approximately 1-1/2 times area support surface at each mounting bolt point.

b. Provide blocks and shims at each mounting bolt.

i Furnish blocks and shims that are square shape with "U" cut out to allow blocks and shims to be centered on mounting bolts.

c. After all leveling and alignment has been completed and before grouting, tighten mounting bolts to proper torque value.

H. Couplings:

1. Align in the annular and parallel positions.

a. For equipment rotating at 1200 rpm or less, align both annular and parallel within 0.001 IN tolerance for couplings 4 IN size and smaller.

i Couplings larger than 4 IN size: Increase tolerance 0.0005 IN per inches of coupling diameter, i.e., allow 6 IN coupling 0.002 IN tolerance, and allow a 10 IN coupling 0.004 IN tolerance.

b. For equipment rotating at speeds greater than 1200 rpm allow both annular and parallel positions within a tolerance rate of 0.00025 IN per inch coupling diameter.

2. If equipment is delivered as a mounted unit from factory, verify factory alignment on site after installation and realigned if necessary.

3. Check surfaces for runout before attempting to trim or align units.

I. Grouting:

1. After machine base has been shimmed, leveled onto equipment base, couplings aligned and mounting bolts tightened to correct torque value, place a dam or formwork around base to contain grouting between equipment base and equipment support pad.

a. Extend dam or formwork to cover leveling shims and blocks.
b. Do not use nuts below the machine base to level the unit.

2. Saturate top of roughened concrete subbase with water before grouting.

a. Add grout until entire space under machine base is filled to the top of the base underside.

b. Puddle grout by working a stiff wire through the grout and vent holes to work grout in place and release any entrained air in the grout or base cavity.

3. When the grout has sufficiently hardened, remove dam or formwork and finish the exposed grout surface to fine, smooth surface.

a. Cover exposed grout surfaces with wet burlap and keep covering sufficiently wet to prevent too rapid evaporation of water from the grout.

b. When the grout has fully hardened (after a minimum of seven (7) days) tighten all anchor bolts to engage equipment base to grout, shims, and equipment support pad.

c. Recheck driver-driven unit for proper alignment.

3.2 INSTALLATION CHECKS:

A. For all equipment specifically required in detailed specifications, secure services of experienced, competent, and authorized representative(s) of equipment manufacturer to visit site of work and inspect, check, adjust and approve equipment installation.

1. In each case, representative(s) shall be present during placement and start-up of equipment and as often as necessary to resolve any operational issues which may arise.

B. Secure from equipment manufacturer's representative(s) a written report certifying that equipment:

1. Has been properly installed and lubricated.

2. Is in accurate alignment.

3. Is free from any undue stress imposed by connecting piping or anchor bolts.

4. Has been operated under full load conditions and that it operated satisfactorily.

a. Secure and deliver a field written report to Owner immediately prior to leaving jobsite.

C. No separate payment shall be made for installation checks.

1. All or any time expended during installation check does not qualify as Operation and Maintenance training or instruction time when specified.

3.3 IDENTIFICATION OF EQUIPMENT AND HAZARD WARNING SIGNS:

A. Identify equipment and install hazard warning signs in accordance with Specification Section 10400.

3.4 FIELD PAINTING AND PROTECTIVE COATINGS:

A. For required field painting and protective coatings, comply with Specification Section 09905.

3.5 WIRING CONNECTIONS AND TERMINATION:

A. Clean wires before installing lugs and connectors.

B. Coat connection with oxidation eliminating compound for aluminum wire.

C. Terminate motor circuit conductors with copper lugs bolted to motor leads.

D. Tape stripped ends of conductors and associated connectors with electrical tape.

1. Wrapping thickness shall be 150 percent of the conductor insulation thickness.

E. Connections to carry full ampacity of conductors without temperature rise.

F. Terminate spare conductors with electrical tape.

3.6 FIELD QUALITY CONTROL:

A. Furnish equipment manufacturer services as specified in the individual equipment Specifications.

B. Inspect wire and connections for physical damage and proper connection.

C. After installation and prior to energizing the motor, provide insulation resistance test of all motors 125 HP and above.

1. Conduct test with 500 or 1000 Vdc megger.
2. Test each phase separately.
3. Disconnect all extraneous leads to the motor.
4. Comply with NEMA MG 1 safety requirements and test procedures.

D. Bump motor to check for correct rotation:

1. Ensure motor has been lubricated.
2. Check prior to connection to driven equipment.

3.7 DEMONSTRATION:

A. Demonstrate equipment in accordance with Specification Section 01650.

END OF SECTION

SECTION 11296

SURGE ANTICIPATOR VALVES

PART 1 GENERAL

1.1 SUMMARY

A. Furnish and install surge anticipator valve (SRV-01) at pump discharge header complete as shown on the plans and as specified herein.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Water Works Association (AWWA).
2. American National Standard Institute.

1.3 SUBMITTALS

A. Submit under provisions of Division 01.

B. The following submittals are required, at a minimum:

1. Shop Drawings: See Specification Section 15100.
2. Operation and Maintenance Manuals:

a. See Division 01 for requirements for the contents of Operation and Maintenance Manuals.

C. Include any other information necessary for the Engineer to determine compliance with the specifications.

D. All deviations from Contract Documents shall be clearly identified and approved in writing by the Engineer.

E. Partial or incomplete submittals will not be reviewed by Engineer.

1.4 WARRANTY

A. The manufacturer shall provide a warranty on equipment against manufacturer's defects for twelve (12) months, commencing on the date of Owner-accepted substantial completion of the project. If the equipment should fail during the warranty period due to a defective part, it shall be replaced and the unit restored at no cost to the owner, including both service and parts.

1.5 EQUIPMENT LIST:

A. Surge Relief Valves shall be as follows:

SCHEDULE OF SURGE RELIEF VALVES						
Location	**Tag Number**	**Diameter (Size)**	**Low pressure pilot (CRA) psi range**	**High pressure pilot (CRL) psi range**	**Body Pattern**	**Appurtenances**
Raw Water Pump Station	SRV-01	12″	20-105	20-200	Globe	Limit Switch X105L

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Cla-Val model 52-03BKC X 105LCW.
2. Singer Surge Anticipating Relief Valve
3. Engineer-approved equivalent.

2.2 GENERAL

A. Valve shall control high pressures and power failure surges in pump discharge lines by releasing water from line under system pressure that exceeds the high pressure control setting, and also by opening a preset amount when sensed pressure decreases below a preset minimum in anticipation of a surge.

B. Valve shall be hydraulically operated, single diaphragm-actuated. The valve shall consist of three major components: the body with seat installed, the cover with bearings installed and the diaphragm assembly. The diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve separating operating pressure from line pressure. Packing glands and/or stuffing boxes are not permitted and there shall be no pistons operating the main valve or pilot controls.

C. Valve shall meet NSF-61/ANSI standards for drinking water.

D. End connections shall be 150 pound flanges.

E. Contractor shall supply and install pilot lines. Contractor shall supply and install stainless steel pilot pipe or tubing, minimum ¾″ inside diameter, to connect the sensing/pilot supply connection to the main header as shown.

F. Materials:

1. Main valve body and cover: ductile iron
2. Trim (disc guide, seat, and cover bearing): 316 stainless steel
3. Disc: Buna-N®
4. Diaphragm: nylon reinforced Buna-N®
5. Stem, nut, and spring: 316 stainless steel
6. Pilot system materials: lead free bronze with 316 stainless steel trim

G. Coating: FDA Fusion Bonded Epoxy Resin Process Applied 5-7 Mils thick.

H. Valve size and options shall be as listed in the Schedule below.

I. Valve shall include security cap to prevent unwarranted changes to the pressure relief set point.

J. Valve shall include isolation ball valves and pressure gauges.

2.3 MAINTENANCE MATERIALS

A. Provide one (1) set of any special tools required for operation or maintenance for each type valve.

PART 3 EXECUTION

3.1 INSTALLATION

A. See Specification Sections 11005 and 15100.

B. Contractor shall install valve in direct accordance with manufacturer's instructions.

3.2 VALVE STARTUP, TESTING AND TRAINING

A. A factory-trained representative from the manufacturer shall adjust and test valve function after it has been installed and the pump station is fully operational, as well as provide comprehensive hands-on instruction of valve operation and maintenance to the Owner's staff. Total time onsite for valve adjustment, testing and training shall a minimum of four (4) hours with a minimum of one (1) hour devoted to instruction of valve operation and maintenance.

3.3 EQUIPMENT STORAGE

A. The Contractor shall be responsible for receipt, protection and storage in accordance with manufacturer's recommendations of all items shipped to the site from the time of delivery until installation is completed and the units and equipment are ready for operation. The equipment shall be suitably covered and protected at all times.

END OF SECTION

SECTION 11297

PUMP CONTROL VALVES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Pump control valves for transfer pump station (PVC-01, 02, and 03).

1.2 DESCRIPTION:

A. Globe-type control valve with solenoid valve control and limit switch to transmit valve position. Design shall include a built-in check valve.

B. The valve shall be designed for operation during pump starting and stopping. Valve shall be globe-type with 12 inch diameter flanged ends, 150 lb pressure class, 120 volt solenoid.

1.3 SUBMITTALS:

A. Submit manufacturer's information in accordance with Section 01300.

B. Submit operation and maintenance information in accordance with Section 01300.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Cla-Val Co. Model 60-BTKC with CSM11-HC.

B. Singer Booster Pump Control Valve.

C. Engineer Approved Equivalent.

2.2 MATERIALS:

A. Body: Ductile Iron.

B. Disc Retainer and Diaphragm Washer: Cast Iron.

C. Pilot Control: Low-lead Bronze.

D. Trim (Disc Guide Seat and Cover Bearing): Stainless Steel.

E. Gaskets and Diaphragm: Buna N.

F. Disc: Buna-N Rubber.

G. Diaphragm: Nylon Reinforced Buna-N Rubber.

2.3 ACCESSORIES:

A. Provide brass/bronze strainers at each connection to the process fluid.

2.4 SOLENOID VALVE:

A. Solenoid shall be NEMA Type 3 with aluminum body and stainless steel trim. Solenoid control power shall be 120 VAC 60 Hz. Solenoid valve shall have a manual override feature to enable operation without electric power.

2.5 NSF 61: Certification required.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install in accordance with manufacturer's instructions.

B. Contractor shall install valve in direct accordance with manufacturer's instructions.

3.2 VALVE STARTUP, TESTING AND TRAINING

A. A factory-trained representative from the manufacturer shall adjust and test valve function after it has been installed and the pump station is fully operational, as well as provide comprehensive hands-on instruction of valve operation and maintenance to Owner's staff. Total time onsite for valve adjustment, testing and training shall a minimum twelve (12) hours (1 ½ 8-hour days) with a minimum of two (2) hours devoted to instruction of valve operation and maintenance.

3.3 EQUIPMENT STORAGE

A. The Contractor shall be responsible for receipt, protection and storage in accordance with manufacturer's recommendations of all items shipped to the site from the time of delivery until installation is completed and the units and equipment are ready for operation. The equipment shall be suitably covered and protected at all times.

END OF SECTION

SECTION 11311

VERTICAL TURBINE PUMPS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. This Section specifies vertical turbine pumps (P-01, P-02, and P-03) for the Northeast Pump Station:

B. Furnish, install, test and place in satisfactory operation the vertical turbine pumps as shown in the drawings and specified herein.

C. See the pump schedule at the end of this section.

1.2 REFERENCES:

A. NSF 61: ANSI/NSF 61 National Sanitation Foundation Standard 61, Drinking Water Treatment Components.

B. American Society Of Mechanical Engineers (ASME): B16.1, Cast Iron Pipe Flanges and Flanged Fittings - Classes 25, 125 and 250.

C. Society of Automotive Engineers (SAE).

D. American Iron and Steel Institute (AISI)

E. Safe Drinking Water Act (SDWA)

1.3 SUBMITTALS:

A. Submit under provisions of Section 01300.

B. Product Data:

1. Submit product data for approval. As a minimum, include the following:

a. Manufacturer's standard descriptive bulletins, listing data including materials of construction and parts list.

b. Dimensional drawings of equipment.

c. Pump performance curves showing performance of pumps to be provided. Include curves for operation at 100% power and reduced power for pumps with VFDs. All extraneous information and curves shall be deleted. Specified operating points shall be indicated on the curve. Curves shall be 8-1/2 inch by 11 inch format. One pump application per curve. The performance curve shall indicate the following:

i Pump performance over the entire range from shutoff head to maximum flow.

ii Horsepower versus capacity over entire range.

d. Motor performance data, wiring diagrams, one-line diagrams and conduit entry dimensions and details.

C. Operation and Maintenance Information: Submit operation and maintenance information to include: procedures for routine maintenance; parts lists with illustrations; lubrication identification and recommendations.

1.4 WARRANTY

A. The manufacturer shall provide a warranty on equipment against manufacturer's defects for twelve (12) months, commencing on the date of Owner-accepted substantial completion of the project. If the equipment should fail during the warranty period due to a defective part, it shall be replaced and the unit restored at no cost to the owner, including both service and parts.

1.5 PERFORMANCE REQUIREMENTS:

A. Performance characteristics shall be such as to ensure stable operation and steady flow through the range of operating conditions. Pump curves shall rise continuously to shutoff. Pumps shall be capable of meeting the operating conditions shown in the schedule below.

B. Pump Characteristics:

1. Pump selection design point shall be within plus or minus 5 percent of the best efficiency point for the pump.

2. The submitted curve shall not exceed 95% of the nameplate horsepower rating at any point on the curve. When tested the pump shall not overload the nameplate horsepower of the motor at any point of operation.

PART 2 PRODUCTS:

2.1 MANUFACTURER:

A. Pumps and accessories:

1. Flowserve of Smith Pump
2. Hydroflo of Precision Pump Systems
3. Or Engineer pre-approved equal.

2.2 EQUIPMENT:

A. All wetted components of pumps shall consist of materials and coatings that comply with the Safe Drinking Water Act and are NSF 61 certified. **The maximum (average) chloride and total chlorine concentrations in the**

chloraminated potable water are estimated to be 350 - 400 mg/L (250 - 300 mg/L) and 8 - 10 (5 – 7) mg/L, respectively; wetted materials shall be selected to minimize chloride-related corrosion. If any of wetted materials listed below are not compatible with the given chloride and chlorine concentrations, pump supplier shall offer an alternate material that is compatible.

B. Bowl Assembly: The suction bell, suction bowl, intermediate bowls, and discharge adaptor shall be flanged-type from a close grained cast iron, and shall conform to ASTM A48, Class 30. Bowls shall have glass (enamel) or porcelain waterways per Owner selection. Intermediate bowls shall be of identical design for interchangeability.

1. The suction bowl shall be provided with a non-soluble grease packed bronze bearing, and a bronze or stainless-steel sand collar shall be incorporated in the pump design to protect the bearing from abrasives. The bearing housing shall have a sufficient opening at the bottom for easy removal of the bearing.

2. Impellers: The impellers shall be constructed from C958 nickel-aluminum-bronze. Either enclosed or open type impellers are acceptable. The impellers shall be free from defects and must be accurately cast, machined, balanced, and filed for optimum performance, and minimum vibration. Impellers shall be dynamically balanced per ISO 1940 G6.3. Impellers are to be standard product of the pump manufacturer and shall not contain special workmanship to temporarily increase efficiency. They shall be securely fastened to the bowl shaft with taper locks of Type 416 stainless steel. Impeller clearance shall be adjustable by means of a top shaft adjusting nut.

3. Wear rings: If of the enclosed impeller type, pumps 6 inches and larger shall be fitted with replaceable lead-free bronze (B271 Alloy C952) or stainless steel (CA-15) wear rings, in the suction bowl and intermediate bowls. Wear rings shall have the minimum practical clearance to the mating cylindrical surface of the impeller to provide adequate sealing independent of vertical positioning of the impellers. Integral wear rings are not acceptable.

4. Bowl Shaft: The bowl shaft shall be constructed from ASTM A582 Type 416 stainless steel. It shall be supported by water lubricated bearings suitable for application.

C. Column Assembly:

1. Water Lubricated Pumps: Pumps shall have intermediate column lengths with lineshaft bearing spacing not to exceed 8 feet. C927 Bronze or CA-15 stainless steel centering spiders of the drop-in-type shall be furnished for shaft stabilization at each column pipe coupling. Bearings shall be made of ARHT retained in the spider by a shoulder on each end of the bearing.

D. Column pipe: The column pipe shall be type A53 steel, grade A-B steel. Wall thickness shall be adequate for the bowl pressures under all operating conditions. Inside diameter of the pipe shall be such that the head losses shall not be over 5 feet per 100 feet of pipe. Pumps shall have intermediate column sections of a maximum length of 10 feet each. For dry pit installations, column pipe connections shall be flanged with Buna-N O-rings. For wet pit installations, either flanged or threaded sleeve coupling type connections are acceptable. For threaded connections, pipe ends shall be machined with 8 threads per inch with 3/16-inch taper and faced parallel to butt against centering spiders.

E. Line Shaft: Line shaft shall be of ample size to operate the pump without distortion or vibration. Diameter of the shaft shall be such that it is adequate to withstand the maximum torque and tensile forces imposed upon it. Shaft shall be furnished in interchangeable sections not over 8 feet in length, and shall be coupled with extra-strong threaded steel coupling machined from solid bar steel. Line shaft and couplings shall be Type 416 or Type 17-4PH stainless steel.

F. Discharge Head: The discharge head shall be ASTM A36 fabricated steel and A53 Gr. B pipe, designed to move resonant frequencies outside of the operating speed range. The discharge head shall have an ANSI class discharge flange rated for the expected operating pressure, but not rated less than the shut-off head for the pump provided. The flanges shall extend beyond the head base such that the pump can be removed without disturbing adjacent piping. The top shall have a register to ensure alignment of the pump driver. The discharge head shall include the head shaft, which extends through the pump driver. A base plate shall be provided such that the head can be seated on a flat, level surface. The head shaft shall terminate above the packing assembly, so that the driver can be removed without lifting over the shaft.

G. Mechanical Seal: A mechanical split seal shall be provided as part of the stuffing box: Flowserve PSS 4 split mechanical seal or approved equal. The mechanical seal shall be equipped with carbon and silicon carbon seal faces. The seal shall have a flushing/venting port, with FKM/EDPM secondary seals. The seal shall be anchored to the stuffing box with 18-8 stainless steel fasteners. Seal design shall not require external lubrication water. Seal lubrication shall be accomplished internally using pumped water, which shall be returned to the pump can through an NPT connection through the pump head base plate.

H. Fasteners: All fasteners shall be Type 316L stainless steel, including anchor bolts, other bolts, washers, and nuts.

I. Strainer: the pump suction bell shall be fitted with a heavy gauge wire woven basket type strainer, of Type 316L stainless steel. The strainer shall have a net inlet area equal to at least four times the suction pipe area. The maximum opening shall not be more than 75% of the minimum opening of the water passage through the bowl and impeller. The strainer shall be secured to the suction bell by means of Type 316L stainless steel cap screws, bolts, or clips as required.

J. Suction Barrels (Pump Cans): Quantity five (5) prefabricated stainless steel pump suction barrels shall be provided as shown on the plan sheets. They shall be constructed of 3/8" thick wall, low carbon Type 316 stainless steel. Mill test reports will be furnished if requested. The top surface shall have a minimum surface finish of 125 RMS and be perpendicular to the barrel vertical centerline within a tolerance of ± .020 inch. The top flange shall be minimum 1" thick with four threaded bolt holes and will include an o-ring groove with o-ring for sealing purposes. The barrel inlet shall be as shown on the plan sheets and shall be a flanged AWWA C207 Table 1 Class D Type 316L stainless steel weld flange. The bolting to attach the discharge head to the suction barrel shall be 18-8 SST and shall be furnished by the barrel manufacturer. The barrel length shall be as shown on the plan sheet and shall have a bottom cap plate of equal or greater thickness than top flange. The suction barrels shall be provided with a vent connection as shown on the drawings.

The installing Contractor must ensure that the top flange of the suction barrels is level to within .002 of an inch per foot of diameter. The Contractor must ensure that the level does not change during or after the concrete pour. The Contractor "must" us a machinist level to verify levelness. A carpenter's level will not be acceptable.

K. Driver: The pump driver shall meet the criteria listed in the "Performance Requirements" Section and the Schedule below. The power required to operate the bowl assembly, power losses in thrust bearings, and mechanical losses in shafting shall all be included in determining the driver load. The driver shall be sized not to have its nameplate rating overloaded at any operating condition from shut off to open flow. The driver shall house the pump thrust bearing that is to be rated for the maximum down thrust of the entire pump. The bearing shall also be capable of handling a momentary up thrust force equivalent to a maximum of 30 percent of its down thrust rating.

1. Electric Motor: The motor shall be a heavy duty squirrel cage induction type, NEMA design B vertical hollow shaft motor, with a non-reverse ratchet to prevent reverse rotation. A suitable thrust bearing shall be incorporated in the upper end of the motor adequate to receive the entire hydraulic thrust load of the pump unit plus the weight of the rotating parts under all conditions of operation.

2. For variable speed units the motor shall be Inverter Duty per NEMA MG1 part 31 for variable torque applications and provided with provisions to prevent premature bearing failure. At a minimum these provisions shall include a shaft grounding ring or brush, and an insulated end bearing.

3. Enclosure: WPI

4. Insulation Class: F

5. Service Factor: 1.15

6. Speed: 1800 rpm

7. Power Supply: 460 V, 60 Hz, 3 phase

2.3 PAINTS AND COATINGS:

A. All paints and coatings on wetted parts of pump (bowl, shaft, column, inside of head, etc.) and suction barrel/pump cans shall be suitable and NSF 61 certified as approved for potable water service. See Specification Section 09800, Painting.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install the equipment as indicated and in accordance with the manufacturer's written instructions.

3.2 EQUIPMENT STORAGE

A. The Contractor shall be responsible for receipt, protection and storage in accordance with manufacturer's recommendations of all items shipped to the site from the time of delivery until installation is completed and the units and equipment are ready for operation. The equipment shall be suitably covered and protected at all times.

3.3 FIELD QUALITY CONTROL:

A. Provide services of factory-trained manufacturer's representative to inspect installation and test pump operation after pump station, pipeline and elevated storage is a fully operational system so that potable water can be pumped from the WTP clearwells to the new elevated storage tank. Representative shall demonstrate satisfactory system operation and provide a minimum of four (4) hours of hands-on instruction to Owner's personnel on pump operation and maintenance. Site visit by manufacturer's representative shall be at least one full 8- hour working day for pump installation inspection and a total of two (2) additional 8-hour days for testing of P-01, P-02 and P-03 pump operation, as well as Owner instruction.

3.4 FIELD VIBRATION/OPERATION TEST:

A. Under the supervision of the manufacturer's representative, operate each pumping unit throughout its full range of operating heads. Unit shall be checked for excessive noise or vibration, misalignment, and any other operational problems.

B. Pumps and motors shall be tested per Hydraulic Institute Standard test method 1U at factory.

C. Record the following data during test and submit to Engineer:

1. Discharge pressure
2. Suction pressure (dry pit application only if available)
3. Motor voltage and current

4. Kilowatt consumption
5. Vibration levels in two axes at motor base. Measurements shall be made inline with pump discharge and at 90 degrees from discharge.
6. Shaft speed

Application/Location	**NE Transfer Pump Station**
Tag Number(s)	P-01 P-02 P-03
Number of Pumps	3
Environment	Indoor
Installation	Pump Cans
Primary Design Point: Capacity, each pump TDH	 3,000 gpm 350 feet
Secondary Design Point: Capacity, each pump TDH	 3,500 gpm 245 feet
Minimum Shut-off Head	425 feet
Minimum pump efficiency*	82%
Column pipe size	12 inches
Nominal discharge flange size	12 inches
Lubrication	Water
Column Pipe Coupling	Flanged
Operation	Constant Speed
Motor	350 h.p. Constant Speed
Motor Ambient Temperature Rating	40 °C

* Pump efficiency is not to be confused with bowl efficiency. The stated efficiency is for the entire pumping unit including the column assembly, head and bowl assembly.

END OF SECTION

SECTION 11313

SUMP PUMPS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Electrically-operated sump pumps for pumping water.

1.2 SUBMITTALS:

A. Submit under provisions of Section 01300.

B. Product Data:

1. Submit product data for approval. As a minimum, include the following:

a. Manufacturer's standard descriptive bulletins.

b. Pump performance curve showing performance of pump to be provided. All extraneous information and curves shall be deleted. Specified operating points shall be indicated on the curve. The performance curve shall indicate the following:

i Pump performance over the entire range from shutoff head to maximum flow.

ii Horsepower vs capacity over entire range.

iii Curves shall be 8-1/2 inch by 11 inch format. One pump per curve.

c. Operation and Maintenance Information:

d. Submit operation and maintenance information to include: procedures for routine maintenance; parts lists with illustrations; lubrication identification and recommendations.

PART 2 PRODUCTS

2.1 SCHEDULE:

DESIGNATION	NO.	CAPACITY, GPM	TDH, FT.	DISCHARGE
Meter Vault Sump Pump	SP-01	25	15	1½" FNPT
Valve Vault	SP-02	20	35	2" FNPT
Surge Anticipator Valve Vault	SP-03	25	15	1½" FNPT

2.2 MANUFACTURERS:

A. Pumps and accessories:

Pentair Hydromatic SHEF Series with float switch – SHEF 45 for valve vault, and SHEF 30 for meter vault and surge valve vault.

2.3 EQUIPMENT:

A. General:

The equipment shall have the following features:

1. Solids handling capacity 3/4-inch.
2. Oil-cooled motor.
3. Shaded pole motor, 115 volts AC, single phase.
4. Motor housing cast iron.
5. Impeller cast iron for valve vault and thermoplastic vortex for meter vault.
6. Carbon and ceramic mechanical seal.
7. Integral float switch attached to pump for meter vault and separate float switch for valve vault.

2.4 MOTORS:

A. Motors shall be suitable for operation on 115 volts AC, 60 Hertz, single phase.

B. Provide enough feet electric cable attached to pump motors for connection to electrical outlet as shown on electrical drawings.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install the equipment as indicated and in accordance with the manufacturer's instructions.

3.2 FIELD TESTING:

A. Demonstrate proper operation of the pump and control by filling the sump with water and allowing the pump to operate. Cycle the pump on and off several times.

END OF SECTION

SECTION 13000

PROCESS CONTROL SYSTEMS - GENERAL PROVISIONS

PART 1 GENERAL

1.1 SCOPE OF WORK:

A. Process Control System Integrator (PCSI)

1. The General Contractor shall procure the services of a single PCSI to investigate, field verify, select, furnish, configure, customize, debug, install all control related equipment, materials, and labor and connect, calibrate, and place into operation all instrumentation, field mounted controllers, and control hardware, except for those services and materials specifically noted as being provided by the Application Service Provider (ASP), required to achieve a fully integrated and operational system as specified herein, and as indicated in the specifications and as shown on the P&ID and electrical drawings.

2. Equipment furnished under this contract as described in the specifications and as shown on the P&ID and electrical drawings shall be integrated into the overall Process Control System (PCS).

B. Application Service Provider (ASP)

1. Signature Automation, LLC shall be the Applications Service Provider (ASP). All work performed by the ASP shall be included under the SCADA Allowance shown on the Bid Form.

2. The ASP shall furnish all PCS programming work (PLC, OIT, SCADA, and HMI) required to achieve a fully integrated and operational system as specified herein.

3. Programmable Logic Controller (PLC), Operator Interface Terminal (OIT), Human Machine Interface (HMI) and Supervisory Control And Data Acquisition (SCADA) software purchase, installation and configuration, and other software configuration, including but not limited to loading of software on existing SCADA computers, operating system software configuration, ethernet and/or fiber optic configuration/communication (cable and conduit to be furnished and installed by the Electrical Contractor), configuration of Ethernet/Fiber Optic switches shall be provided by the ASP.

4. The ASP shall perform all work including:

a. PLC programming, testing of PLC logic, and start-up/training activities associated with programmed portions of the PLC.

b. Programming of the existing SCADA HMI, database development, and start-up/training activities associated with the configured portions of the HMI system.

c. SCADA historian programming to add historical data collection, trending, and calculations.

d. The PCSI and ASP shall coordinate, and schedule all required construction activities including startup, testing, inspection and training with the General Contractor, OWNER, and ENGINEER.

1.2 RELATED WORK:

A. General provisions of the Contract are included in Division 01 of the Specifications.

B. Specific control system and instrumentation materials and requirements are included in related sections of Division 13 and 16.

1.3 SUBMITTAL REQUIREMENTS:

A. General

1. Refer to Division 01 for general submittal requirements.

B. Final System Documentation

1. Submit in accordance with Division 01 O&M requirements.

2. The Final System Documentation shall consist of operations and maintenance manuals as specified herein. The manuals shall be bound in three-ring binders, maximum size of 3 inches, with drawings reduced to 11x17 (inch), then folded to 8.5x11 (inch) for inclusion.

Each section shall have a uniquely numbered tab divider, and each component within each section shall have a separate binder tab divider.

3. The operations and maintenance manuals shall be prepared specifically for this installation and shall include catalog data sheets, drawings, equipment lists, descriptions, parts lists and operating and maintenance instructions, at a minimum, contain the following information:

a. Table of Contents

i. A Table of Contents shall be provided for the entire manual with the specific contents of each volume clearly listed. The complete Table of Contents shall appear in each volume.

b. Instrument and Equipment Lists

i. The following lists shall be developed in Excel and provided not only as a hard copy in O&M, but also

electronically on a secure flash drive.

ii. An instrument list for all devices supplied including tag number, description, specification section and paragraph number, manufacturer, model number, serial number, range, span, location, manufacturer phone number, local supplier name, local supplier phone number, completion year replacement cost, and any other pertinent data.

iii. An equipment list for all non-instrument devices supplied listing description, specification section and paragraph number, manufacturer, model number, serial number, location, manufacturer phone number, local supplier name, local supplier phone number, completion year replacement cost, and any other pertinent data.

c. Data Sheets with Vendor Operations and Maintenance Information

i. ISA S20 style data sheets shall be provided for all field instruments.

ii. Cover page for each device, piece of equipment, and OEM software that lists, at a minimum, date, specification number, product name, manufacturer, model number, location(s), and power required. Preferred format for the cover page is ISA S20, general data sheet; however, other formats will be acceptable provided they contain all required information.

iii. Final vendor O&M documentation for each device, piece of equipment, or OEM software shall be either new documentation written specifically for this project or modified standard vendor documentation. All standard vendor documentation furnished shall have all portions that apply clearly indicated with arrows or circles. All portions that do not apply shall be neatly lined out or crossed out. Groups of pages that do not apply at all to the specific model supplied shall be removed.

iv. For any component requiring dip switch settings or custom software configuration, that information shall be included along with the corresponding data sheets and O&M information.

v. Complete parts list with stock numbers, including spare parts.

d. Operations and Maintenance manuals shall be constructed in accordance with Division 01 and shall include the following information:

i. Manufacturer's contact address and telephone number for parts and service.

ii. Instruction books and/or leaflets.

iii. Recommended renewal parts list.

iv. Record documents for the information required by the Submittals section above.

e. Software Programs

i. Provide native backup files of the programming code for each new controller.

- Programming code shall be fully annotated with comments describing the functionality of each section and group of coding.

ii. Provide native backup files of any modified SCADA HMI software files.

f. Communication Equipment

i. Provide documentation and backup files for all communications programming code, including all parameter settings.

g. As-Built Drawings

i. Complete as-built drawings, including all drawings and diagram specified in this section under the "Submittals" section. These drawings shall include all termination points on all equipment the system is connected to, including terminal points of equipment not supplied by the PCSI.

ii. As-built documentation shall include information from submittals, as described in this Specification, updated to reflect the as-built system. Any errors in or modifications to the system resulting from the Factory and/or Functional Acceptance Tests shall be incorporated in this documentation.

h. Original Licensed Software

i. Submit original software media of all software provided under this Contract. Submit original paper based and

electronic documentation for all software provided. Submit license agreement information including serial numbers, license agreements, User Registration Numbers and related information. All software provided under this Contract shall be licensed to the OWNER at the time of purchase. Provide media in software sleeves within O&M manual.

i. Electronic O&M Information

i. In addition to the hard copy of O&M data, provide an electronic version of all equipment manuals on a secure flash drive. Electronic documents shall be supplied in Adobe Acrobat (PDF) format.

ii. Provide electronic files for all custom-developed manuals. Text shall be supplied in both Microsoft Office format and Adobe Acrobat format.

iii. Provide electronic files for all drawings produced. Drawings shall be in AutoCAD ".dwg" format and in Adobe Acrobat format. Drawings shall be provided using the AutoCAD eTransmit feature to bind external references, pen/line styles, and fonts into individual zip files along with the drawing file.

iv. Each computer system hardware device shall be backed up onto a secure flash drive after Substantial Completion and shall be turned over to the OWNER.

v. If specified in the training section, provide digital copies of all training videos. Videos shall be in a format that is readable by standard DVD players and by standard PC DVD drives. Format and shall be a minimum of 800 by 900 pixels and shall include sound.

1.4 COORDINATION MEETINGS:

A. Refer to Division 01 Section for coordination meeting requirements.

B. PCSI Kick-off Meeting

1. The purpose of the meeting shall be to discuss the PCSI's and ASP's project plan and schedule, to summarize the PCSI's understanding of the project; discuss any proposed substitutions or alternatives; schedule testing and delivery deadline dates; provide a forum to coordinate hardware and software related issues; and request any additional information required from the OWNER. Prepare and distribute an agenda for this meeting a minimum of one week before the scheduled meeting date. The meeting will last up to one-half (1/2) business day.

C. PCSI Coordination Meeting

1. The PCSI shall decide for the meetings and prepare and send a proposed agenda to all participants at least one week before scheduled meetings. The PCSI shall be responsible for promptly preparing and distributing meeting minutes to all attendees.

2. The PCSI shall prepare meeting minutes and distribute them to all attendees and others affected by any decisions made at the meetings. The meeting minutes shall be distributed within one week following the meeting.

3. The meetings shall be held at the OWNER's facility, General Contractor's field office, or at the project site (as coordinated with the ENGINEER and OWNER) and shall include, at a minimum, attendance by the OWNER, ENGINEER, General Contractor's project engineer, PCSI/ASP project engineer, and the electrical subcontractor.

   a. The Field Startup Coordination Meeting shall be held no more than one month prior to site testing for each location.

   b. A typical agenda may include, but shall not be limited to, the following:

      i. Review of work progress.

      ii. Field observations, problems, and decisions.

      iii. Identification of problems which may impede planned progress.

      iv. Review of submittal schedule and submittal status.

      v. Review of offsite fabrications and delivery schedules.

      vi. Maintenance of progress schedule.

      vii. Corrective measures to regain projected schedules.

      viii. Planned activities for subsequent work period.

      ix. Coordination of projected progress.

      x. Maintenance of quality and work standards.

      xi. Effect of proposed changes on progress schedule and coordination.

      xii. Other business relating to work.

1.5 QUALITY ASSURANCE:

A. The Process Control System Integrator (PCSI) shall be a "systems integrator" regularly engaged in the design and the installation of instrumentation systems and their associated subsystems as they are applied to the municipal water and wastewater industry. For the purposes of this Specification Section, a "systems integrator" shall be interpreted to mean an organization that complies with the following criteria:

1. Employs personnel on this project who have experience installing and configuring process instrumentation and implementation of the specific programmable controllers, computers, and software proposed for this project. Key personnel shall hold ISA CCST Level 1 certification or have a minimum of five years of verifiable plant start-up experience. Key personnel shall include, as a minimum, the lead field technician.

2. Employs a registered professional Control Systems Engineer or Electrical Engineer in the state of Texas to supervise or perform the work required by this Specification Section.

3. Has successfully completed work of similar or greater complexity on at least three previous projects within the last five years. Successful completion shall be defined as a finished project completed on time, without any outstanding claims or litigation involving the PCSI. Potential references shall be for projects where the PCSI's contract was of similar size to this Project.

4. Has been in the water/wastewater industry performing the type of work specified in this specification section for a minimum of five continuous years.

B. The PCSI shall maintain a permanent, fully staffed and equipped service facility within 200 miles of the project site with full-time employees capable of designing, fabricating, configuring, installing, calibrating, and testing the systems specified herein. At a minimum, the PCSI shall be capable of responding to on-site problems within 12 hours of notice. Provide an on-site response within four hours of notification starting at two months before scheduled start-up to two months after start-up completion.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Delivery, storage, and handling shall be in accordance with Division 01, General Requirements.

1.7 WARRANTY:

A. Provide warranty per Division 01.

PART 2 PRODUCT

Not used.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS – INSTALLATION:

A. The ASP shall support the PCSI, Contractor, and suppliers by providing guidance related to control system installation requirements defined within the contract documents.

B. The PCSI shall provide, install, and coordinate the overall implementation of the control system components defined within the contract documents. The ASP shall purchase and install all PLC, OIT, HMI, and SCADA software.

3.2 GENERAL REQUIREMENTS – TESTING:

A. The ASP and PCSI shall provide all testing, testing procedures, testing forms, and testing coordination with the OWNER/ENGINEER.

B. The PCSI shall supervise and/or perform the requirements of this Section. As part of these services, the PCSI shall include, for those equipment items not manufactured by him/her, the services of an authorized manufacturer's representative to check the equipment installation and place that portion of the equipment in operation. The manufacturer's representative shall be thoroughly knowledgeable about the installation, operation, and maintenance of the manufacturer’s equipment.

C. The PCSI and ASP shall provide all test equipment and staff necessary to perform the testing as specified herein:

1. All Process Control System hardware and software shall be thoroughly tested to verify proper operation as an integrated system.

2. Any defects or problems found during the testing activities shall be corrected and then retested to demonstrate proper operation.

3. Check and confirm the proper installation of all instrumentation and control components and all cable and wiring connections between the various system components prior to placing the various processes and equipment into operation.

4. Conduct a complete system checkout and adjustment, tuning of control loops, checking operation functions, and testing of final control actions. All problems encountered shall be promptly corrected to prevent any delays in startup of the various unit processes.

5. The PCSI and ASP working together shall be responsible for initial operation of the Process Control System and shall make any required changes, adjustment or replacements for operation, monitoring, and control of the various processes and equipment necessary to perform

the functions intended.

D. The PCSI shall provide the following documentation for use during the testing activities.

1. Complete panel schematic and internal point-to-point wiring interconnect Drawings.

2. Complete electrical control schematics in accordance with JIC standards.

3. Complete panel layout Drawings.

4. Complete field wiring diagrams.

5. Complete instrument loop diagrams.

6. Completed Calibration/Recalibration Certificates for all field and panel devices that require adjustment or calibration.

E. Contractor shall provide one set of the above-listed documentation for the OWNER's personnel, one set for the ENGINEER's use, one set for field use, and the required number of sets for the Contractor's use.

F. The Drawings corrected and modified during testing shall form the basis for the "As-Built" Record Drawing requirement.

G. Contractor shall furnish to ENGINEER two copies of an installation inspection report certifying that all equipment has been installed correctly and is operating properly. The report shall be signed by authorized representatives of both Contractor and the system supplier.

H. As part of the requirement of this Specification Section, it is the responsibility of the PCSI and ASP to provide a complete operational control system. Confirmation of an Operational control system is dependent upon results derived from test procedures as specified in this Section.

I. The PCSI and ASP shall test the system so that the OWNER/Engineer can verify all the points in the new process control system. The PCSI and ASP shall coordinate the Operational Readiness Tests (ORT) and Functional Demonstration Tests (FDT) with the OWNER/ENGINEER.

J. At a minimum, the testing shall include the following:

1. Factory Testing

   a. Unwitnessed Factory Test (UFT)
   b. System Integration Test (SIT)

2. Field Testing

   a. Operational Readiness Test (ORT)

b. Functional Demonstration Test (FDT)
c. 30-day Site Acceptance Test (SAT)

K. Each test shall be in the cause and effect format. The person conducting the test shall initiate an input (cause) and, upon the system's or subsystem's producing the correct result (effect), the specific test requirement will have been satisfied.

L. All tests shall be conducted in accordance with prior OWNER/ENGINEER approved procedures, forms, and all checklists as submitted by the PCSI and ASP. Each test to be performed shall be described and a space provided after it for sign-off by the appropriate parties after its satisfactory completion. The PCSI shall include "punchlist" forms with the test procedures to document issues that arise during the testing. Punchlist forms, at a minimum, shall include a specification cross reference; an issues description field; a resolution description field; and a sign-off area for the PCSI/ASP, OWNER, and ENGINEER.

M. Copies of the signed-off test procedures, forms, and checklists will constitute the required testing documentation. The test result forms shall be submitted to the OWNER/ENGINEER for approval within 10 days of completion of each test.

N. The PCSI shall provide all special testing materials and equipment. Wherever possible, perform tests using actual process variables, equipment, and data. Where it is not practical to test with real process variables, equipment, and data, the PCSI and ASP shall provide suitable means of simulation. These simulation techniques shall be defined in the test procedures.

O. The PCSI and ASP shall coordinate all required testing with the Contractor, all affected Subcontractors, the ENGINEER, and the OWNER.

P. The PCSI shall furnish the services of field service engineers, all special calibration and test equipment, and labor to perform the field tests.

Q. The OWNER/ENGINEER reserves the right to test or retest all specified functions, whether explicitly stated on the Test Procedures, as required, to determine compliance with the functional requirements of the overall system. Such testing required to determine compliance with the specified requirements shall be performed at no additional cost to the OWNER. The OWNER/ENGINEER's decision shall be final regarding the acceptability and completeness of all testing.

R. Correction of Deficiencies

1. All deficiencies in workmanship and/or items not meeting specified testing requirements shall be corrected to meet specification requirements at no additional cost to the OWNER.

2. Testing, as specified herein, shall be repeated after correction of deficiencies is made until the specified requirements are met. This work shall be performed at no additional cost to the OWNER.

3.3 FACTORY TESTING - UNWITNESSED FACTORY TEST (UFT):

A. Application Service Provider (ASP)

1. Prior to field testing, the ASP shall test all PLC, OIT, SCADA and HMI applications at the ASP's facility to ensure the system will operate as specified. All analog and discrete input/output points not interconnected at this time shall be simulated to ensure proper operation of all alarms, monitoring devices/functions, and control devices/functions.

2. An I/O point checkout shall be performed to verify proper operation of the input/output points. The verification of the signals will be accomplished via the use of the PLC programming software. At a minimum, the I/O checkout shall consist of four steps.

a. Digital input signals: Verification of proper alarming, statuses, etc., shall be performed utilizing the tools available in the PLC programming software.

b. Analog input signals: Verify at zero percent, 25 percent, 50 percent, 75 percent, and 100 percent of full scale. The appropriate scaled value shall be verified utilizing the tools available in the PLC programming software.

c. Digital output signals: Initiate by the user by writing to the signals utilizing the PLC programming software.

d. Analog output signals: Initiated by the user by writing to the signals utilizing the PLC programming software. Verify at zero percent, 25 percent, 50 percent, 75 percent, and 100 percent of full scale.

B. Process Control System Integrator (PCSI)

1. All panels, consoles, and assemblies, provided by the PCSI, shall be inspected and tested to verify their conformance with related submittals, Specifications, and Drawings.

2. Tests to be performed shall include, but not be limited to, the following. Each of these tests shall be specifically addressed in the Test Procedure submittal.

a. All panels and enclosures being provided shall undergo a thorough inspection to verify the integrity of the cabinet enclosures, frame structures, paint work and finish, etc. Additionally, the PCSI shall review the panel drawings with the OWNER/ENGINEER to ensure they accurately reflect the panel layout and wiring.

b. Panel wire pull tests shall be performed on all wiring to ensure it has been connected to the appropriate torque to prevent wires from coming loose.

c. For panels provided in new enclosures, heat loading tests shall be performed to ensure proper cooling/ventilation is being provided.

C. All control panels provided or modified shall be included in these tests. Upon successful completion of the UFT, the Contractor shall submit a record copy of the PCSI and ASP test results to the OWNER/ENGINEER and coordinate the scheduling of the ORT.

3.4 FACTORY TESTING – SYSTEM INTEGRATION TEST (SIT):

A. Before scheduling the SIT, the PCSI/ASP shall determine through their own UFT and through their internal quality assurance program that the equipment is ready for shipment to the job site.

B. All system tests performed and specified for the UFT shall be repeated in the presence of the OWNER/ENGINEER.

C. The SIT will be conducted at the PCSI facility. The PCSI/ASP shall notify the OWNER/ENGINEER in writing that the system is ready for the SIT. The OWNER/ENGINEER shall schedule a test date within 14 days of receipt of the "Ready to Test" letter. At the time of notification, the PCSI/ASP shall submit any revisions to the detailed test procedure previously approved by the OWNER/ENGINEER.

D. The purpose of the SIT is to verify the functionality, performance, and stability of the hardware and software. The system must operate continuously throughout the SIT without failure, except where initiated per the established test procedures. Any unanticipated failures may, at the OWNER/ENGINEER's option, result in the overall SIT being deemed unsuccessful. Successful completion of the SIT, as determined by the OWNER/ENGINEER, shall be the basis for approval of the system to be shipped to the job site.

E. The various tests performed during the SIT shall be designed to demonstrate that hardware and software fulfill all the requirements of the specifications and Contract Drawings. The test conditions shall resemble as closely as possible the actual installed conditions. Any additional hardware or software that may be required to successfully verify system operation shall be supplied at no cost to the OWNER.

F. Tests to be performed during the SIT shall include, but not be limited to, the following:

1. Perform a system audit to verify all components have been staged for the test.

2. Inspect the system inventory to verify all components have been documented properly with correct model numbers, serial numbers, etc.

3. For each hardware enclosure, inspection shall include, but not be limited to, cabinet enclosures, frame structure, paint work and finish, dimensions, and hardware operability (i.e., fans, door hinges, keylocks, etc.).

4. For each subpanel, inspection shall include, but not be limited to, I/O subsystem physical layout, power supply sizing and mounting, cable routing, wire runs across hinges properly installed, fans and blowers unobstructed and mounted to maximize air flow, power conditioning correctly installed, and overall layout and installation of components meets manufacturer's recommendations and standard industry-accepted practices.

5. Demonstrate operability of all equipment.

6. 100 percent point check of I/O, including wiring. Analog signals shall include verification of zero percent, 25 percent, 50 percent, 75 percent, and 100 percent of scale. Additionally, out-of-range testing (over and under scale) shall be accomplished.

7. Demonstrate the ability to monitor and change at least 20 pieces of digital and analog data in each PLC from the HMI software at all operator workstations.

8. Demonstrate the operability of all mass storage equipment.

9. Demonstrate communication failure and system restart.

10. Demonstrate total power failure and recovery. The UPS shall be removed for this test.

11. Demonstrate the ability of the UPS's to meet the runtime requirements upon loss of power.

12. Demonstrate logical failure conditions for control strategies (i.e., instrument failures, equipment failures, loss of communication between the Process I/O Server and the PLC, loss of peer-to-peer communication, etc.).

G. During the test, for a period of time equal to at least 20 percent of the test duration, the OWNER/ENGINEER shall have unrestricted access to the system to perform any additional testing desired or to re-test any previously tested components.

H. All analog control panels shall be included in these tests.

I. All deficiencies identified during these tests shall be corrected and re-tested prior to completing the SIT as determined by the OWNER/ENGINEER.

J. The following documentation shall be made available to the OWNER/ENGINEER at the test site both before and during the SIT:

1. All Contract Drawings and Specifications, addenda, and change orders.

2. Master copy of the test procedure.

3. Bill of material of the computer/PLC/LAN equipment and software to be tested including make, model, and serial number.

4. Design-related hardware submittal applicable to the equipment being tested.

5. Software licenses.

6. Software documentation submittal.

K. The daily schedule during these tests shall be as follows:

1. Morning meeting to review the day's test schedule.

2. Scheduled tests and sign-offs.

3. End of day meeting to review the day's test results and to review or revise the next day's test schedule.

4. Unstructured testing period by the witnesses.

L. All test data and procedures followed during testing shall be logged, and certified copies of the logs shall be provided to the OWNER/ENGINEER.

3.5 FIELD TESTING - OPERATIONAL READINESS TEST (ORT):

A. Following installation of the process control system components and prior to startup and the Functional Demonstration Test, the entire system shall be certified (inspected, wired, calibrated, tested, etc., and documented) that it is installed and ready for the ORT as defined below.

B. Loop/Component Inspections and Tests: The entire system shall be checked for proper installation, calibrated, and adjusted on a loop-by-loop and component-by-component basis to ensure that it is in conformance with related submittals and these Specifications.

1. The Loop/Component Inspections and Tests shall be implemented using OWNER/ENGINEER approved forms and checklists.

a. Each loop shall have a Loop Status Report to organize and track its inspection, adjustment, and calibration. These reports shall include the following information and check-off items with spaces for sign-off by the system supplier:

i. Project name, test date, PCSI/ASP name, and lead PCSI/ASP technician name.

ii. Loop number.

iii. Tag number for each component.

iv. Check-offs/sign-offs for each component: Tag/identification; installation; termination (wiring and tubing); scale, range, and setpoint as applicable; and calibration/adjustment (four-point for analog, setpoint for switches) rising and falling.

v. Check-offs/sign-offs for the loop: Panel interface terminations; I/O interface terminations; I/O signal operation; inputs/outputs operational (received/sent, processed, adjusted); total loop operation; process controller scaling and adjustment; and space for comments.

vi. Tag/identification.

vii. Installation.

viii. Termination – wiring.

ix. Calibration/adjustment – Check-offs/sign-offs for the loop.

x. Panel interface terminations.

xi. I/O interface terminations.

xii. I/O signal operation.

xiii. Inputs/outputs operational: Received/sent, processed, and adjusted.

xiv. Total loop operation: Provide space for comments.

b. Each active Analog subsystem element and each I/O module shall have a Component Calibration Sheet. These sheets shall have the following information, spaces for data entry, and a space for sign-off by the PCSI.

i. Project name.

ii. Loop number.

iii. Component tag number of I/O module number.

iv. Component code number analog system.

v. Manufacturer (for Analog system element).

vi. Model number/serial number (for Analog system).

vii. Summary of functional requirements shall include, but not be limited to, scale and chart ranges of indicators, recorders, and transmitters/converters; functions of computing elements; and parameters of controllers (i.e., proportional, integral, derivative, reverse/forward acting, etc.).

- Indicators: Scale.
- Transmitters/Converters: Scale.
- Computing Elements: Function.
- Controllers: Action (direct/reverse) control Modes (PID).
- Switching Elements: Unit range, differential (FIXED/ADJUSTABLE), Preset (AUTO/MANUAL).
- I/O Modules: Input or output.

2. Calibrations

a. Analog Devices: Required and actual inputs and outputs at 0, 25, 50, 75, and 100 percent of span, rising and falling.

b. Discrete Devices: Required and actual trip points and reset points.

c. Controllers: Mode settings (PID).

d. I/O Modules: Required and actual inputs or outputs for 0, 25, 50, 75, and 100 percent of span, rising and falling.

i. Provide space for comments.
ii. Space for sign-off by the PCSI.

C. The PCSI shall maintain the Loop Status Reports sheets at the job site and make them available to the OWNER/ENGINEER at any time.

D. These inspections, calibrations, and tests do not require witnessing. However, the OWNER/ENGINEER will review Loop Status Sheets and spot check the PCSI/ASP test process periodically. Any deficiencies found shall be corrected by the PCSI/ASP prior to commencement of the Functional Acceptance Test.

E. Prior to checkout of the I/O to the SCADA HMI, the PCSI and ASP shall thoroughly test all I/O from the field devices to the PLC terminals, and verify the PLC is powered up and the PLC is communicating to the SCADA servers. After the PCSI and ASP has successfully tested all I/O from the field devices

to the PLC terminals, the PCSI and ASP shall test all I/O from the SCADA HMI to the field devices.

F. Computer-Manual (i.e., Remote-Manual) start/stop, open/close commands of all devices controlled by the SCADA system shall be verified by the PCSI and ASP during the ORT.

G. For all panels with enclosures (new and existing) modified by this Contract, heat load tests shall be performed to ensure proper cooling/ventilation is being provided.

H. Upon successful completion of the ORT, the Contractor shall submit a record copy of the PCSI and ASP test results to the OWNER/ENGINEER and request the scheduling of the FDT as noted in the following section.

3.6 FIELD TESTING - FUNCTIONAL DEMONSTRATION TEST (FDT):

A. Prior to startup and the 30-day Site Acceptance Test, the entire installed instrument and control system shall be certified that it is ready for operation. All preliminary testing, inspection, and calibration shall be complete as defined in the ORT. The FDT will be a joint test by the PCSI, ASP and the equipment suppliers. PCSI shall coordinate with the OWNER/ENGINEER to allow for OWNERS/ENGINEER presence during this test.

B. The Midland NE Transfer Pump Station (TPS), Transfer Pipeline and Elevated Storage Tank (EST) must be fully operational and ready for continuous water transfer prior to the start of the FDT. Upon successful startup of the entire NE water transfer system, the entire system including the process control system shall operate for a continuous 100 hours without failure before the FDT is started.

C. Once a process area has been started up and is operating, a witnessed FDT shall be performed on that system to demonstrate that it is operating and is in compliance with these Specifications. A witnessed FDT shall be performed on each process area. Each specified function shall be demonstrated on a paragraph-by-paragraph, loop-by-loop, and site-by-site basis.

D. Loop-specific and non-loop-specific tests shall be the same as specified under ORT, except that the entire installed system shall be tested, and all functions demonstrated using live field-based data to the greatest extent possible.

E. Updated versions of the documentation specified to be provided for during the factory tests shall be made available to the OWNER/ENGINEER at the job site both before and during the tests. In addition, one copy of all O&M Manuals shall be available for reference at the job site, both before and during testing.

F. During the FDT, a demonstration of communication failure and recovery shall be accomplished. This test shall be scheduled and coordinated with OWNER's personnel to minimize the impact on plant operations.

G. Punchlist items and resolutions noted during the test shall be documented on the Punchlist/Resolution form. In the event of rejection of any part or function test procedure, the PCSI and ASP shall perform repairs, replacement, and/or retest within 10 days.

H. Upon successful completion of the FDT, the Contractor shall submit a record copy of the PCSI and ASP test results to the OWNER/ENGINEER and request the scheduling of the SAT as noted in the following section.

3.7 FIELD TESTING - 30-DAY SITE ACCEPTANCE TEST (SAT):

A. After completion of the Operational Readiness and Functional Demonstration Tests, the PCSI and ASP shall be responsible for operation of the entire system for a period of 30 consecutive days (Site Acceptance Test – SAT), under conditions of full plant process operation, without a single non-field-repairable malfunction.

B. During this test plant operation, PCSI and ASP personnel shall be present from 8 am to 5 pm on the first day of the SAT and as required during the remainder of the SAT to address any potential issues that would impact the overall system operation. The PCSI and ASP are expected to provide personnel for this test who have an intimate knowledge of the hardware, software, field wiring, and network configuration of the system.

C. The PCSI and ASP is expected to provide personnel for this test who have an intimate knowledge of the software programming of the system. When PCSI and ASP personnel are not on site, the PCSI and ASP shall provide cell phone/pager numbers that OWNER personnel can use to ensure that support staff is available by phone and/or on site within four hours of a request by operations staff.

D. While this test is proceeding, the OWNER/ENGINEER shall have full use of the system. Only plant operating personnel shall be allowed to operate equipment associated with live plant processes. Plant operations shall remain the responsibility of OWNER, and the decision of plant operators regarding plant operations shall be final.

E. Any malfunction during the tests shall be analyzed and corrections made by the PCSI or ASP for programming, hardware, software, field wiring, and network configuration issues. The OWNER/ENGINEER will determine whether any such malfunctions are sufficiently serious to warrant a repeat of this test.

F. Any malfunction during this 30 consecutive day test period which cannot be corrected by the PCSI or ASP personnel within 24 hours of occurrence, or more than two similar failures of any duration, will be considered as a non-field-repairable malfunction.

G. The PCSI or ASP shall perform repairs or replacement within 10 days in the event of rejection of any part or function of the hardware, software, field wiring, and network configuration systems.

H. After successful completion of repairs by the PCSI and/or ASP and the OWNER/ENGINEER have accepted and signed off on the repairs, the SAT will be re-started from the beginning of the 30-day period.

I. All database, process controller logic, and graphical interface system errors must be functioning as required per the specifications prior to the start of each test period. The 30-day test will not be considered successful until all database points and logic functions are tested and verified to be correct.

J. The total availability of the system shall be greater than 99.5 percent (99.5%) during this test period. Availability shall be defined as:

Availability in percent = 100 * (Total Testing Time – Down Time) / Total Testing Time

K. Down times due to power outages or other factors outside the normal protection devices or backup power supplies provided shall not contribute to the availability test times above.

L. Throughout the duration of the 30-day SAT, no software or hardware modifications shall be made to the system without prior approval from the OWNER/ENGINEER.

M. Upon successful completion of the 30-day operation test and subsequent review and approval of complete system final documentation, the system shall be considered substantially complete and the warranty period shall commence.

N. Certification of Installation: Following successful completion of the 30-day test, the Contractor shall issue a Certification of Installation. Certification shall be on Contractor corporate letterhead and signed by an officer of the firm. Certification shall state that the contract, including process control system, has been completed in conformance with plans and specifications. Certification shall be submitted to the OWNER/ENGINEER as specified herein.

3.8 GENERAL REQUIREMENTS – TRAINING:

A. PCSI shall provide a minimum of four (4) hours of onsite training on the O&M of all field instrumentation and control equipment, detailed explanation of the control strategy, and detailed demonstration of local manual control at MCC and field control panels.

B. The ASP onsite training shall cover plant operation with the automatic control system using the OIT, SCADA HMI display screens, including at a minimum all the following items:

1. Basics of OIT and SCADA HMI control and navigation.

2. Alarming and Interlocks.

3. Auto functionality of automated processes and OIT and SCADA HMI control.

4. Failure modes of OIT and SCADA HMI equipment and operator responses.

A minimum of two (2) 2-hour training sessions are required.

C. PCSI and ASP training personnel shall be intimately familiar with both the Control System and the Plant Process and shall be familiar with the designed operations of the plant and how the control system executes the operation.

D. The PCSI and ASP shall, at a minimum, distribute the Final O&M Manual as a teaching aid during the Plant Operator field training sessions.

END OF SECTION

SECTION 13320

INSTRUMENTATION SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Instrumentation Devices.

B. Control Panels including PLC/HMI.

C. Appendices:

1. Appendix A Control Strategies.

1.2 SUBMITTALS:

A. Product Data: Under provisions of Section 1300:

1. Block Diagram: A diagram showing all major PLC components. Identify components by manufacturer and model number. Include diagram of interconnecting cables.

2. Descriptive Information: Catalog information, descriptive literature, performance specifications, internal wiring diagrams, power and grounding requirements, power consumption, and heat dissipation for all elements specified herein. Clearly mark all options and features proposed for this project.

3. Schematics, wiring diagrams, and other documentation to show details and operation of proposed system.

4. Outline Drawings: Equipment envelope drawings showing: external dimensions, enclosure materials, conduit connections, and installation requirements.

5. Input/Output List: For each I/O point, list the point type, tag number of the source or final control element, equipment description, PLC number, PLC terminal identification, and PLC address.

6. Installation Details: Any modifications or further details as may be required to supplement the Contract Documents and adequately define the installation of the PLC elements.

B. Operation and Maintenance Information, including As-Built Drawings and Schematics. Information to include detailed descriptions of system operations.

C. Vendor Qualifications showing compliance with paragraph 2.2.

D. Instrumentation and control system integrator shall take responsibility for installing and configuring all instrumentation and control-related equipment.

Via the SCADA allowance, the City of Midland's SCADA integrator (Signature Automation) shall install all PLC/HMI software and provide all programming and testing of PLC/HMI (RTU-1) after control equipment and instrumentation is installed.

PART 2 PRODUCTS

2.1 STANDARDS:

A. All aspects of Instrumentation and Control System shall comply with the applicable standards of the Instrumentation Society of America.

B. Instrument installations shall comply with manufacturer's written installation instructions and American Petroleum Institute RP550.

2.2 ACCEPTABLE MANUFACTURERS AND VENDORS:

A. Control system integrator shall demonstrate at least five (5) years experience in design, manufacture, and installation of similar instrumentation systems. **NOTE: Control system integrator is not responsible for programming PLC and HMI and related testing. The City of Midland's SCADA Integrator (Signature Automation) shall install all PLC/HMI software and provide programming and testing after equipment is installed via a separate SCADA allowance. Refer to Section 13000 for more detail on the SCADA Integrator responsibilities.**

2.3 SYSTEM DESCRIPTION:

A. PLC Control Panel Cabinet (RTU-1)

1. The PLC control panel cabinet (RTU-1) shall be a NEMA 12 carbon steel enclosure suitable for use inside climate-controlled room. The front panel of the cabinet shall contain operator interface and push buttons, as detailed within this specification. The PLC based control panel shall also include an operator interface display mounted on the front of the control panels. The internal portion of the cabinet shall contain all rack mounted PLC equipment, power supply, processor and interface cards. Relays, terminal strips and surge suppressors shall also be contained within the cabinet. Terminal strips for all field wiring shall be furnished within the panel.

2. Circuit breakers shall be provided within the panel. A duplex outlet and fluorescent panel light shall be included within the panel.

3. One surge suppression device on the 120 VAC main supply line shall be installed.

4. On all analog input signals, current isolators shall be installed to galvanically separate external and internal 4-20 mA current loops.

5. All analog inputs and outputs shall also be protected from surges.

6. All digital outputs shall be provided with isolated relay contacts.

B. Devices for Operator Interface

External face mounted devices for operator interface shall be as follows:

1. Push buttons and selector switches shall be SQ-D class 9001 30 mm, Telemecanique XB2 22 mm, or Engineer Approved Equivalent.

2. Color Touchscreen Operator Interface Display (HMI) shall be included and mounted on the front of the enclosure and be rated with same NEMA rating as the control panel. The Display shall allow the operator to view and modify system variables within the PLC. The display shall be a minimum of 12" and be capable of communicating via Ethernet to the PLC located within the cabinet. The unit shall include a real-time clock with battery back-up, color touchscreen. HMI display shall be Schneider Harmony or Engineer Approved Equivalent. Note: The PLC/HMI software shall be supplied separately by the SCADA integrator under the SCADA allowance.

C. PLC-based Control Panel I/O Field Interface Signals

1. All PLC ladder logic shall reside within the PLC based control panel. The PLC ladder logic shall perform all necessary monitoring and control for the new Transfer Pump Station and associated equipment.

2. All necessary I/O cards shall be supplied to monitor and control the field signals. All PLC and I/O racks shall be supplied with 10% spare I/O.

3. All I/O (Analog Inputs, Analog Outputs, Digital Inputs, and Digital Outputs) shall be confirmed for proper operation from the PLC to the terminals within PLC control panel.

D. Control Panel Components

PLC control panel shall consist of the following components:

1. NEMA 12 freestanding control panel
2. PLC CPU Card
3. PLC I/O Racks
4. PLC Field Interface Cards
5. HMI
6. Power Supply
7. Signal Isolators
8. Surge Protectors
9. Circuit Breakers
10. Terminal Strips
11. Miscellaneous Wire and Conduit

E. Programmable Logic Controller (PLC)

1. Programmable Logic Controller with the required memory and functional capacity to perform the specified sequence of operation

with the scheduled input and output points.

2. PLC shall be designed for up to 1024 points of I/O. The PLC shall provide enhanced processing and communication options and shall be a chassis mounted modular system.

3. The PLC shall have a variety of processors available. Each processor shall be capable of being programmed via a USB port with a PC. The processor shall have an embedded web-server supplied with pre-developed and installed system diagnostics screens viewable from any commercial web-browser. The processor shall have a USB terminal port, and a multi-protocol serial port capable of Modbus communication. The processor shall accept an SD memory card with sufficient memory for required application and data files.

4. PLC shall support 10/100Mb Modbus TCP Ethernet, ASi V2 Master, Modbus, ASCII, CANopen, and Unitelway without the need for third party modules.

5. The PLC shall have a configurable alarming capability. Each alarm point can be configured to display an alphanumeric message in the alarm buffer. The alarm buffer can be displayed via a web page, or on an operator interface screen.

6. Unterminated connector cables shall be available for interfacing to the discrete and analog cards. These cables shall have one end terminated to HE10 terminal block modules. The other end shall be unterminated to allow custom interface to panel devices.

   Terminated connector cables shall be available for interfacing to the discrete and analog cards. These cables shall have one end terminated to interface to terminal block, or FCN socket, cards. The other end shall be terminated to interface with HE10 terminal block modules.

7. PLC shall be Modicon MD M340 platform or Engineer Approved Equal.

F. The control cabinet shall be provided with a universal power supply (UPS) double conversion online. The UPS shall be sized to provide power to the PLC, HMI, DC power supplies and instruments. All ancillary equipment within the RTU-1 (e.g. lights, power receptacles) shall not be powered from the UPS. The UPS shall provide 15 minutes of backup power at half load. The UPS shall have an internal automatic static bypass switch such that an overload condition shall transfer load to incoming line power. An external maintenance bypass switch shall be installed in order to service the UPS without losing power to the control panel components. The following UPS status/alarms shall be wired to the PLC and transmitted to the plant SCADA system: external maintenance bypass status, static bypass status, common alarm, power failure. The UPS shall be Sola Hevi-Duty, American Power Conversion or equal.

G. INSTRUMENTS:

Provide the instruments listed in the Section 13321, complete and ready and in operation.

PART 3 EXECUTION

3.1 I&C SYSTEM INTEGRATOR RESPONSIBILITY:

Provide cable, instrumentation, interface devices, hardware, and other labor, supervision, and engineering required to provide a complete and workable control system. Conduit and wiring to and from the MCP shall be provided by others; however, it is the responsibility of the of I&C system integrator to terminate all wiring inside the MCP.

System integrator shall provide all inspection/testing of control wiring from the field back to the PLC, I/O signals, control loops, instrument functionality, PLC/HMI functionality, etc. The Operational Readiness Test (ORT) and Functional Demonstration Test (FDT) described in Section 13000 provides more detail on inspection/testing required by the control system integrator, as well as the required coordination between the control system integrator and the SCADA integrator.

3.2 INSTRUMENT INSTALLATION:

Install and connect instruments in accordance with American Petroleum Institute recommended practice 550 and the manufacturer’s directions and recommendations.

3.3 TRAINING:

Provide four (4) hours of onsite training for Owner's personnel in operation and maintenance of the instrumentation and RTU-1 control panel equipment. PLC/HMI software and related control functionality training shall be done separately by the SCADA integrator under the SCADA allowance.

END OF SECTION

SECTION 13320

APPENDIX A

CONTROL STRATEGIES

The following describes the General Control System operational requirements and goals. Contractor shall develop the Control System as required to fulfill the items described in this Section and/or shown.

Control System Overview:

The Midland NE Transfer Pump Station (TPS) shall be controlled and monitored by a new PLC/HMI (RTU-1/HMI-1) located inside the new TPS electrical room that shall communicate with the existing Midland Water Treatment Plant (WTP) SCADA system via fiber cable. All pump station functionality and system monitoring established at RTU-1 HMI shall be duplicated at the WTP SCADA computer. The major components of the control system are:

1. Programmable Logic Controller and Cabinet (RTU-1)
2. Human-Machine Interface (HMI-1)
3. Motor Control Center (MCC-1)
4. Instrumentation

The text discussion that follows is intended to assist the reader in interpreting the contract documents and, electrical drawings, and P&IDs. All specifications and drawings are intended to be complimentary to each other and not exclusive. Items shown and described in one place in the documents shall be considered as if shown in all appropriate locations.

1. Three (3) new vertical turbine pumps (P-01, P-02, and P-03) are included in this design and shall operate in a lead, lag and standby configuration. An operator adjustable PLC timer (24-hour default setpoint) shall be programmed to automatically change the lead, lag, and standby pump assignments in a sequential manner to balance the run times. The standby pump shall start automatically with the failure of either the lead or lag pump, or when a pump in operation is placed in HAND. The operator shall also be able to manually assign the lead, lag and standby pumps from HMI-1.

   MCC-1 in the electrical room shall contain the control panels for the three pumps, each with an HOA (HAND-OFF-AUTO) switch and status lights. In HAND, each pump shall operate until manually turned OFF. In AUTO, each pump shall operate as programmed at the RTU-1 PLC. An HOA switch shall also be included for each pump at the RTU-1 PLC/HMI to allow for remote manual start/stop of the pump via a dry-contact discrete output signal. Pump and alarm status values generated at MCC-1 for each pump and transmitted to RTU-1 are as follows:

   a) HOA switch position (dry-contact discrete input signal)
   b) PUMP RUN (dry-contact discrete input signal)
   c) PUMP STOP (dry-contact discrete input signal)
   d) SOFT START FAIL (dry-contact discrete input signal)
   e) HIGH MOTOR/BEARING TEMPERATURE ALARM (digital input signal from RTD)
   f) HIGH PRESSURE ALARM (dry-contact discrete input signal)
   g) PCV OPEN (dry-contact discrete input signal)
   h) PCV CLOSED (dry-contact discrete input signal)
   i) PCV OPEN FAIL (dry-contact discrete input signal)
   j) PCV CLOSE FAIL (dry-contact discrete input signal)

k) PUMP SYSTEM READY (dry-contact discrete input signal)

Automatic start/stop of the pumps shall be based on the EST level setpoints based on EST level reading obtained from the WTP SCADA computer. The operator adjustable level setpoints shall be as follows:

High Level Alarm Setpoint = 50 ft Default
Lead Pump Stop Setpoint = 48 ft Default
Lag Pump Stop Setpoint = 46 ft Default
Lead Pump Start Setpoint = 10 ft Default
Lag Pump Start Setpoint = 8 ft Default
Low Level Alarm Setpoint = 6 ft Default

Each pump shall include a solenoid actuated pump control valve (PCV-01, 02, and 03) that slowly opens and closes the valve in conjunction with pump start and stop, respectively, to prevent surge conditions from developing in the transfer pipeline. Initiation of pump start/stop shall occur via dry-contact discrete output signals from RTU-1 to MCC-1. A pressure switch shall be included on the discharge of each pump that is electrically interlocked with the pump operation. To prevent the pressure switch from stopping the pump during pump startup, an adjustable delay timer is included in the pump control circuit design.

All pumps shall include an RTU-1 PLC interlock with the clearwell low-level lockout setpoint transmitted to RTU-1 from the WTP SCADA computer.

2. A surge anticipator valve (SRV-01) shall be installed in the valve vault located inside the TPS building. The surge valve is hydraulically operated based on low pressure condition in the pump station discharge header. When the surge valve opens, a dry contact discrete signal from the valve position switch shall be sent to RTU-1 PLC/HMI-1. The RTU-1 PLC shall be programmed to monitor the surge valve position and open/close the surge relief line drain valve (BV-01) once the surge valve has closed after a surge event. Dry-contact discrete output signals from RTU-1 shall automatically open/close the motorized drain valve (BV-01) based upon an operator adjustable PLC timer (5-minute default timer setpoint).

   The motorized drain valve (BV-01) shall include a local control panel on inside of building wall mounted near the surge valve vault. The control panel shall include an HA (HAND-AUTO) switch, O/C (OPEN-CLOSE) switch, POWER ON light, VALVE OPEN light, VALVE CLOSED light. When valve is in HAND, the operator shall have the ability to manually open/close the valve via the spring-loaded O/C switch (allows the valve to be partially opened/closed). When the switch is in AUTO, the valve shall operate automatically according the RTU-1 PLC program. The valve shall be controlled and monitored at the RTU-1 PLC/HMI-1 via dry-contact discrete signals. Valve HA and O/C switches shall also be included at RTU-1 PLC/HMI-1 to allow for remote manual open/close. The position of the HA switch and valve open and close positions shall be monitored at the RTU-1 PLC/HMI-1.

3. A magnetic flowmeter (FE-01) shall be installed in the flowmeter vault outside of the TPS pump station building. The flowmeter shall be scaled from 0.6 – 18 MGD or 420 – 12,500 gpm as selected by OWNER. The flowmeter shall be wired to a flow indicating transmitter (FIT-01) located inside the TPS pump station building on the north wall that communicates the flow reading to RTU-1 via a 4-20mA signal.

   An operator adjustable low flowrate alarm (0.7 MGD or 490 gpm default setpoint) and high flowrate alarm (10 MGD or 6,950 gpm default setpoint) shall be programmed at the RTU-1 PLC/

HMI. The low flow rate alarm shall only be active when one or more of the TPS pumps are in operation and low flowrate alarm time delays shall be established for TPS pump start and stop. A PLC-level interlock shall be established between low flowrate alarm and pump station operation; all pumps shall be stopped when low flow conditions occurs.

4. The TPS pressure transmitter (PE/PIT-01) shall be installed on the pump station discharge header pipe inside the surge relief valve vault. Pressure transmitter shall be scaled from 0.0 to 200.0 psig. Pressure transmitter reading shall be communicated from PIT-01 to RTU-1 via a 4-20mA signal.

   An operator adjustable low-pressure alarm (PAL 10 psig default setpoint) and high-pressure alarm (PAH 150 psig default setpoint) shall be programmed at the RTU-1 PLC/HMI-1.

5. One (1) monochloramine/ammonia analyzer (AE/AIT-01), two (2) total chlorine analyzers (AE-02 and AE-03/AIT-02), and two (2) turbidity analyzers (AE-04 and AE-05/AIT-03) shall be installed on the instrument panel inside the TPS building and piped to receive sample water from the pump station discharge header. The monochloramine/ ammonia analyzer includes a built-in controller/transmitter (AIT-01) that shall transmit total ammonia and monochloramine readings via two (2) 4-20mA signals. Both chlorine analyzers shall be hard-wired to a single controller (AIT-02) located on the instrument panel that communicates chlorine readings to RTU-1 via two 4-20mA signals. In addition, both turbidity analyzers shall be hard-wired to a single controller (AIT-03) located on instrument panel that communicates turbidity readings to RTU-1 via two 4-20mA signals.

   Operator adjustable low and high value alarms shall be programmed for each analyzer at the RTU-1 PLC/HMI-1. Exact default low and high value alarms TBD.

6. The flowmeter, suction line valve, and surge valve vaults shall each include a float switch (LSH-01 for suction line vault, LSH-02 for flowmeter vault, and LSH-03 for the surge valve vault) to alarm a flooded vault condition. Each float switch shall be wired to send a dry contact discrete signal to RTU-1.

SECTION 13321

MONITORING AND SENSING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Magmeter, pressure gauges, pressure analyzer, pressure switches, total chlorine analyzers, ammonia chloramine analyzer, and turbidimeters.

1.2 RELATED SECTIONS:

A. Division 16 – Electrical

1.3 SUBMITTALS:

A. In accordance with Section 01300, submit complete descriptive literature for each component.

PART 2 PRODUCTS

2.1 MAGNETIC FLOW METERS:

A. Acceptable manufacturers:

1. McCrometer ULTRAMAG UM-08 with Signal Converter.
2. ABB WaterMaster Mag Meter
3. Endress-Hauser Proline Mag Meter
4. Or Engineer Approved Equal.

B. Design and fabrication:

1. Meter shall be a velocity sensing electromagnetic type flanged tube meter with sealed housing for 300 PSI working pressure.

2. Meter Tube: 30-inch with AWWA Class F steel flanges rated for 300 psig. Tube shall be 316 SS and lined with NSF 61 approved fusion bonded epoxy. Electrodes shall be constructed of 316 SS.

3. Meter shall include a digital indicating transmitter having a range of 0.6 to 18 MGD or 420 – 12,500 gpm) and be equipped with a 9-digit digital totalizer reading in units of MG.

4. Mag Shield shall be welded to the tube providing a completely sealed environment for all coils, electrode connections and wiring harness capable of NEMA 6P/IP68 operation.

5. The meter assembly shall operate within a range of 0.2 FPS to 6 ft/s.

6. Operating pressure:

   a. Maximum of 300 psi.

7. Process temperature range: 35°F to 100°F. Ambient temperature range: 10°F to 120°F

8. Grounding requirements: 316 SS grounding rings shall be supplied with meter tube.

9. Accuracy:

   a. Accuracy: ±0.5% of actual flow.
   b. Repeatability: ±0.1%.

10. 4-20 mA DC isolated output, suitable for proportional output of flow measurement to PLC/SCADA system.

11. Power supply 100-240VAC/60 Hz or 10 -35VDC.

12. Magmeter shall be installed in meter vault with transmitter in sealed IP67 rated enclosure attached to wall inside of transfer pump station building (refer to electrical drawings for exact location). Sensor cable shall be adequate for distance from sensor to transmitter.

13. Transmitter electronics shall use microprocessor-based architecture and be configured using parameters. Device shall include four separate digital programmable outputs.

14. Provide configuration / diagnostic tool.

Schedule of Flow Transmitters

TAG NUMBER	SERVICE	SPAN
FE/FIT-01	Transfer Pump Station Discharge Line (Potable Water)	0.6 – 18 MGD (420 – 12,500 gpm)

2.2 PRESSURE GAUGES:

A. Acceptable manufacturers:

1. Ashcroft.
2. Ametek.
3. Rosemount.

B. Materials:

1. Bourdon tube, socket/process connection, connecting tube: 316 stainless steel.
2. Case: Phenolic.
3. Pressure snubber:

a. Filter disc: 316 stainless steel.
b. Housing: 316 stainless steel.

C. Accessories:

1. Utilize pressure snubbers with porous metal discs to provide pulsation dampening on gauge.

D. Design and fabrication:

1. All components suitable for service at:

a. 250 Deg F.
b. The maximum process temperature to which the gauge is to be exposed.

2. Provide viewer protection from element rupture.

3. Calibrate gauges at jobsite for pressure and temperature in accordance with manufacturer's instructions.

4. Unless otherwise required by codes, provide stem mounted or flush mounted, as required, and as follows:

Tag Number	DIAL SIZE	PROCESS CONNECTION	SERVICE	OPERATING PRESSURE
PG-01, PG-02, PG-03	4-1/2 IN	½" MNPT	Transfer Pump Discharge (Potable Water)	200 PSIG
PG-04, PG-05, PG-06, PG-07	4-1/2 IN	½" MNPT	Sample Line to Instruments and Water Line to Hose Bibbs (Potable Water)	150 PSIG

5. Equip with white faces, black numerals and black pointers.

6. Gauge tapping position to be clear of equipment functions and movements, and protected from maintenance and operation of equipment. Gauge to be readable from an accessible standing position.

7. Gauge accuracy: 1 percent of full range.

8. Select gauge range so that:

a. The normal operating value is in the middle third of the dial.
b. Maximum operating pressure does not exceed 75 percent of the full-scale range.

9. Provide pressure gauges on discharge of each pump or otherwise specified.

2.3 PRESSURE INDICATING TRANSMITTERS:

A. Acceptable manufacturers:

1. Endress & Hauser Cerabar S PMP71
2. Or Engineer Approved Equal

B. Materials:

1. Isolating diaphragm: 316 stainless steel.
2. Process adapter: 316 stainless steel ½" MNPT.
3. Housing: Aluminum.
4. Fill fluid: Silicone

C. Design and fabrication:

1. 2-wire, piezoresistive pressure transmitter with integrally mounted 4-line LCD scaled in units of psig.

2. Pressure transmitter shall be capable of handling surge pressures to 400 psig without damage to instrument.

3. Smart transmitter utilizing microprocessor-based electronics and self-diagnostic capability. The transmitter shall be programmable via Hall magnetic switch external pushbuttons without pressure source or hand-held device.

4. Output: 4-20 mA DC proportional to pressure measurement with HART protocol.

5. Unit shall use DC loop-power supply 10.5 to 45 VDC with self-diagnostic capability and a non-volatile memory.

6. Adjustable zero and span.

7. The unit shall be rated for process temperature inclusive of 35°F to 100°F and an ambient environment of 10 degrees F to 120 degrees F.

8. Damping: Adjustable between 0 and 60 seconds.

9. Reference accuracy shall be +/- .05% of calibrated span including non-linearity hysteresis and non-reproducibility in accordance with IEC 60770. Total performance accuracy including non-linearity hysteresis and non-reproducibility in addition to thermal change of the zero point shall be +/- .2% URL.

Schedule of Pressure Transmitters for Water Service (PE/PIT)		
TAG NUMBER	SERVICE	SPAN
PE/PIT-01	Transfer Pump Discharge (Potable Water)	0 - 200 psi

2.4 PRESSURE SWITCHES:

A. Acceptable manufacturers:

1. Ashcroft B-Series
2. Or Engineer Approved Equal

B. Materials:

1. Diaphragm: 316 stainless steel.
2. Process adapter: 316 stainless steel ½" MNPT.
3. Housing: Aluminum.

C. Design and fabrication:

1. Diaphragm piston actuator type.
2. Switch shall be field adjustable.
3. Enclosure rating shall be NEMA 4X IP66.
4. Electrical output shall SPDT.
5. Electrical termination shall be ¾" FNPT.

Schedule of Pressure Transmitters for Water Service (PE/PIT)		
TAG NUMBER	SERVICE	SPAN
PSH-01, PSH-02, PSH-03	Transfer Pump Discharge (Potable Water)	0 - 200 psi

2.5 FLOAT SWITCHES:

A. Acceptable manufacturers:

1. High level float switches:

a. Anchor Scientific, Eco-Float Model G

B. Design and fabrication:

1. The float switch shall be mercury-free for controlling liquid levels.

2. Device shall be a snap-action float switch, activated by a steel ball rolling back and forth within a switching tube in a polypropylene 3" diameter x 4.25" long plastic float housing.

3. Minimum differential between "on" and "off" of approximately 3.5 inches.

4. Switch shall be attached to a stainless-steel sump pump discharge pipe at each vault.

5. Electrical rating 7A @ 115VAC.

6. Cable length shall be as required for application.

7. Circuit configuration shall be normally open (NO).

TAG NUMBER	SERVICE
LSH – 01 ,02, and 03	Vault Flood Indication

2.6 CHLORINE RESIDUAL SENSORS AND TRANSMITTERS:

A. Acceptable manufacturers:

1. Total and residual chlorine analyzer:

a. Hach CL17SC

B. Design and fabrication:

1. Method of measurement shall be colorimetric employing the DPD method. Analyzer shall operate with an LED light source at a peak wavelength of 510 nm.

2. Analyzer shall include pump, colorimetric measuring cell with viewing window, flow meter and total chlorine buffer/indicator solutions.

3. Analyzer housing shall be NEMA 4X (IP66) with gasketed door and include wall mount kit.

4. Capable of measurement every 2.5 minutes that is displayed on Hach SC200 controller.

5. Shall operate on 115 VAC power.

6. The analyzer must perform a self-test and auto-blanking between analysis points to compensate for sample color, turbidity, and changes in light intensity due to voltage fluctuations or light source aging.

7. Analyzer controller shall be a Hach SC200 and have two (2) standard isolated analog outputs, selectable as 0/4 to 20mA, field programmable over any portion of the analyzer range. The analyzer shall have four standard SPDT relay alarms, with contacts. Alarm options include low and high setpoint, low and high deadband, and on/off delay. **One (1) controller shall be shared for two (2) total chlorine analyzers.**

8. Include 6-months of buffer and indicator solutions. Each replacement set of solutions shall provide a minimum of 30 days of operation.

9. Analyzer shall include installation kit, tubing kit, cell cleaning kit, calibration verification kit, de-gassing standpipe installation kit and any other accessories for a fully functional system.

Schedule of Chlorine Analyzers			
TAG NUMBER	SERVICE	SPAN	TYPE
AE-02 and 03 AIT-02	Transfer Pump Station Water (Chloraminated Potable Water)	0-10 PPM	Total chlorine

2.7 AMMONIA MONOCHLORAMINE SENSOR AND TRANSMITTER:

A. Acceptable manufacturers:

1. Hach 5500 SC Ammonia Chloramine Analyzer
2. Design and fabrication:

a. The analyzer shall measure total ammonia and monochloramine in drinking water and determine free ammonia concentration. The chemical analysis shall be a modified phenate method to measure monochloramine concentration directly by colorimetry. In parallel analysis, an excess of hypochlorite at the correct pH generates total ammonia values measured directly by colorimetry. Immediately after, the analyzer calculates the free ammonia values out of the difference between the directly measured parameters.

b. The analyzer shall operate with an LED light source at a peak wavelength of 650nm.

c. Analyzer shall be of a microprocessor-controlled design to continually monitor concentration of free and total ammonia and monochloramine in a sample stream. The analyzer also has the capability to intake grab samples for internal measurement and dispense grab samples for external verification.

d. Analyzer housing shall be NEMA 12 (IP62) with gasketed door and include wall mount kit.

e. The analyzer shall be capable of a continual measurement of every 4.5 minutes or a user selectable interval between measurements of 4.5 to 240 minutes.

f. The display screen shall be a colored 5.7" LCD screen, and shall include a dashboard view, with measurements recent calibration information, and reagent status.

g. The analyzer must be able to conduct 2-point automatic calibration using installed standards.

h. Shall operate on 100 - 240 VAC 60 Hz power.

i. The analyzer must perform a self-test and auto-blanking between analysis points to compensate for sample color, turbidity, and changes in light intensity due to voltage fluctuations or light source aging.

j. Four analog 0/4-20 mA outputs and four SPDT relays shall be provided.

k. Include 6-months of reagents, standards and cleaning solution. Each replacement set of reagents shall provide a minimum of 30 days of operation.

Schedule of Ammonia Chloramine Analyzers

TAG NUMBER	SERVICE	SPAN	TYPE
AE/AIT-01	Transfer Pump Station Water (Chloraminated Potable Water)	0-2 PPM as N	Free Ammonia Total Ammonia Monochloramine

2.8 Turbidity Analyzer:

A. Acceptable manufacturers

1. Potable water service:

a. Hach TU 5300 Laser Turbidimeter

B. Design and fabrication:

1. Sensor: Low range online laser turbidimeter consisting of a Class 1 650nm laser light source and 360° x 90° detection system with predictive diagnostics designed to continuously monitor turbidity in a sample stream.

2. Continuous particle removal using a vortex created by the fluid path.

3. Analyzer controller shall be a Hach SC200 and have two (2) standard isolated analog outputs, selectable as 0/4 to 20mA, field programmable over any portion of the analyzer range. The analyzer shall have four standard SPDT relay alarms, with contacts. Alarm options include low and high setpoint, low and high deadband, and on/off delay. **One (1) controller shall be shared for two (2) total chlorine analyzers.**

4. 100 - 240 VAC 60 Hz or 24 VDC power requirement.

5. Required options include flow sensor, automatic cleaning module, bubble trap, turbidimeter maintenance kit, and glass calibration /verification rod.

6. Provide with 6-months supply of calibration standards.

Schedule of Turbidimeters		
TAG NUMBER	SERVICE	RANGE
AE-04 and 05 AIT-03	Transfer Pump Station Water (Potable Water)	0-5 NTU

2.9 PIPE, TUBING, AND FITTINGS:

A. Acceptable Manufacturers:

1. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

a. Tube fittings:

i Parker CPI.
ii Swagelok.

B. Submit requests for substitution in accordance with Specification Section 01640.

C. Instrument Tubing and Fittings:

1. Material:

a. Tubing: ASTM A269, Grade TP 316 stainless steel.
b. Straight fittings: 316 stainless steel per ASME SA-479 or ASTM A276.
c. Shaped bodies: ASME SA-182 F316 stainless steel.

2. Design and fabrication:

a. Tubing:

i Seamless.
ii Fully annealed.
iii Maximum hardness: 80 Rb.
iv Free from surface scratches and imperfections.
v Diameter: 1/2 IN OD unless specified otherwise.
vi Wall thickness:

- Meet requirements of paragraph 122.3 of ASME B31.1.
- Minimum 0.049 IN for 1/2 IN OD tubing.

b. Fittings:

i Flareless.
ii Compression type.

D. Instrument Piping:

1. For applications where the instrument is supported solely by the sensing line, (e.g. pressure gauge directly mounted to process line) utilize piping as specified below.

a. Diameter: 1/2 IN unless specified otherwise.
b. Schedule 80.
c. 316 stainless steel.

2.10 INSTRUMENT VALVES:

A. Process instrument multi-valve manifolds, isolation, vent and blow-down valves:

1. Acceptable manufacturers:

a. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

i Whitey Co.
ii Anderson-Greenwood USA, Inc.

b. Submit requests for substitution in accordance with Specification Section 01640.

2. Materials:

a. Packing:

i 450 DegF and above: Graphite.
ii Below 450 DegF: Graphite or Teflon.

b. Body: 316 stainless steel per ASTM A479.
c. Stem: 316 stainless steel per ASTM A276.
d. Ball: 316 stainless steel per ASTM A276.
e. Support rings: 316 stainless steel per ASTM A276.
f. Seats:

i Metal:

- 316 stainless steel per ASTM A276.

ii Soft:

- Teflon, Delrin, or equivalent.
- Only utilized on applications where manufacturer's temperature and pressure ratings exceed process design conditions.

3. Design and fabrication:

a. Either of the following:

i Ball valve with 1/4 turn activation.
ii Free-swiveling ball stem.

b. Provide body wall thickness sufficient for process design conditions per ASME B31.1.

c. Temperature: Manufacturer's temperature rating for all components shall exceed process design conditions.

B. Isolation Valves in Copper Instrument Air Tubing:

1. Acceptable manufacturers:

a. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

i Whitey Co.
ii Or equal.

b. Submit requests for substitution in accordance with Specification Section 01640.

2. Materials:

a. Packing: Graphite or Teflon.
b. Body: Brass per ASTM B16.
c. Stem: 316 stainless steel per ASTM A276.
d. Ball: 316 stainless steel per ASTM A276.
e. Support rings: 316 stainless steel per ASTM A276.
f. Seats:

i Metal:

- 316 stainless steel per ASTM A276.

ii Soft:

- Teflon, Delrin, or equivalent.
- Only utilized on applications where manufacturer's temperature and pressure ratings exceed process design conditions.

3. Design and fabrication:

a. Ball valve with 1/4 turn activation.
b. Provide body wall thickness sufficient for process design conditions per ASME B31.1.

2.11 ACCESSORIES:

A. Furnish all mounting brackets, hardware and appurtenances required for mounting primary elements and transmitters.

1. Materials, unless otherwise specified, shall be as follows:

a. Bolts, nuts, washers, expansion anchors: 316 stainless steel.
b. Mounting brackets:

i Standard: 316 stainless steel.
ii Highly corrosive areas: Aluminum.

c. Mounting plates, angles:

i Standard: Carbon steel.
ii Corrosive areas: 316 Stainless steel.

d. Instrument pipe stands:

i Standard: Hot-dip galvanized 2 IN schedule 40, ASTM A106, Grade B carbon steel.
ii Corrosive areas: 316 stainless steel.

B. Tubing Support Angles and Brackets

1. Any of the following materials are acceptable:

a. Aluminum support with dielectric material between support and tubing.
b. Type 316 stainless steel.
c. Fiberglass.

C. Tubing Tray or Channel: Aluminum

1. Provide dielectric material between tray or channel and tubing.

D. Provide handheld communicator compatible with all intelligent transmitters furnished. Hand held communicator shall provide capability to check calibration, change transmitter range, and provide diagnostics. If these features are provided with the intelligent transmitter, the hand held communicator is not required.

E. Cable lengths between sensors and transmitters shall be continuous (without splices) and as required to accommodate locations as shown on Drawings.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install products in accordance with manufacturer's instructions.

B. Install instrument mounting pipe stands level and plumb.

C. Instrument Valves:

1. Orient stems for proper operation.

2. Install arrays orderly and neat in appearance with true horizontal and vertical lines.

3. Provide a minimum of 2 IN clearance between valve handle turning radii where there are multiple valve handles appearing in a straight line.

4. Valves shall have bonnets and any soft seals removed during welding or soldering into the line. When cool, reassemble the valves.

5. Support each valve individually. The tubing system does not qualify as support for the valve.

D. Locate instrument piping and tubing so as to be free of vibration and interference with other piping, conduit, or equipment.

E. Keep foreign matter out of the system.

F. Remove all oil on piping and tubing with solvent before piping and tubing installation.

G. Plug all open ends and connections to keep out contaminants.

H. Tubing Installation:

1. General:

a. Install such that tube shows no sign of crumpling, bends of too short a radius, or flattening, etc.

b. Make tube runs straight and parallel or perpendicular to the floor, equipment and piping runs.

c. For liquid and steam applications, slope continuously from the process to the instrument with a minimum slope of 0.50 IN per foot.

d. For gas and air applications, slope continuously from the instrument to the process with a minimum slope of 0.50 IN per foot.

e. If the sensing line cannot be continuously sloped, install high point vents and low point drains.

f. Keep instrument tubing clean during all phases of work.

g. Blow out with clean, dry, oil-free air immediately before final assembly.

h. Cut by sawing only and debur.

2. Bending:

a. Make each bend with tube bender of the correct size for the tube.

b. Make all bends smooth and continuous.

c. Rebending is not permitted.

d. Make bends true to angle and radius.

e. Maintain a true circular cross section of tubing without buckling or undue stretch of tube wall.

f. Allowable tolerance for flattening out of tubing bends: Maximum of 8 percent of the OD for stainless steel tubing.

g. Minimum bending radius for stainless steel tubing:

TUBE OD INCHES	MINIMUM BENDING RADIUS, INCHES
1/4	9/16
3/8	15/16
1/2	1-1/2

h. Minimum bending radius for type L, hard (drawn) copper.

TUBE OD INCHES	MINIMUM BENDING
3/8	1-3/4
1/2	2-1/2

3. Tubing support:

a. Intermittently support by clamping to support angle.

b. Install supports to be self-draining, supported by hangers, or cantilevered from walls or structural beams.

c. Support at 5 FT-0 IN maximum spans for horizontal or vertical runs.

d. Use tubing trays in areas where spans between supports are greater than 5 FT and for all signal tubing support.

e. Support each tubing tray at 10 FT maximum spans.

f. Align tubing in orderly rows and retain in the tray by bolted clips. The use of spring or speed clips is not acceptable.

g. Maintain order of the tubing throughout the length of the tray.

h. Locate angle, channel and tray installation to protect tubing from spills and mechanical damage.

i. Locate support members to clear all piping, conduit, equipment, hatchways, monorails, and personnel access ways and allow access for equipment operation and maintenance.

j. Support trays to prevent torsion, sway or sag.

k. Permanently attach supports to building steel or other permanent structural members.

l. Arrange supports and trays so that they do not become a trough or trap.

4. Routing and orientation:

a. Route to maintain a minimum headroom clearance of 8 FT.

b. Locate and orient valves and specialties so that they are accessible for operation and maintenance from the operating floor. Do not route through or over equipment removal areas, below monorails or cranes nor above or below hatches.

5. Expansion and vibration provisions:

a. Provide horizontal expansion loops at the process connections.

b. Route tubing parallel to relative motion through sleeved supports that allow linear tube movement.

c. Cold springing of tubing to compensate for thermal expansion is prohibited.

d. Utilize flexible hoses to connect pneumatic tubing to air users which may move or vibrate.

I. Air Supply:

1. Connect all instruments requiring air to air supply piping and tubing. Provide connections as follows:

a. Terminate branch supply line not more than 36 IN from the device with a 1/2 IN isolation valve.

b. For remaining line, use 1/4 or 3/8 IN tubing of a length to allow for normal equipment movement and vibration.

c. Use flexible hoses to connect pneumatic tubing to air users which may experience significant movement or vibration.

d. Make branch connections to individual instruments from the top of the supply header.

e. Purge instrument air piping of extraneous material by blowing clean, dry, oil-free air through the system prior to final connection.

J. Threaded Connection Seals:

1. Use Tite-Seal or acceptable alternate.
2. Use of lead base pipe dope or Teflon tape is not acceptable.
3. Do not apply Tite-Seal to tubing threads of compression fittings.

K. Capillary Tubing:

1. Route capillary tubing in tubing tray.
2. Install capillary tubing with a 2 IN minimum bend radius which does not kink or pinch the capillaries.
3. Do not cut or disconnect at any point.
4. Coil excess capillary tubing and secure at the instrument.

L. Instrument Mounting:

1. Mount all instruments where they will be accessible from fixed ladders, platforms, or grade.

2. Mount all local indicating instruments with face forward toward the normal operating area, within reading distance, and in the line of sight.

3. Mount instruments level, plumb, and support rigidly.

4. Mount to provide:

a. Protection from heat, shock, and vibrations.
b. Accessibility for maintenance.
c. Freedom from interference with piping, conduit and equipment.

3.2 DEVICE OPERATION:

Demonstrate device operation and calibration in conjunction with overall instrumentation system testing, checkout, and operator training.

END OF SECTION

SECTION 14630

BRIDGE CRANE

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. The WORK of this Section includes providing an electrically operated bridge crane of the low headroom type, designed for travel in both directions and mounted on structural sections.

B. Bridge crane to be provided in this project includes one (1) bridge crane rated at three (3) tons.

1.2 REFERENCES:

A. CMAA – Crane Manufacturer's Association of America.

B. OSHA – Occupational Safety and Health Administration.

1.3 SUBMITTALS:

A. Submit under provisions of Section 01300.

B. Provide Operation and Maintenance information that includes parts list, operation instructions, illustrations, drawings, safe procedures for operation, lubrication, and preventative maintenance procedures.

1.4 QUALITY ASSURANCE:

A. Equipment shall comply with latest OSHA standards and CMAA specifications.

B. Provide services of manufacturer's factory service engineer specifically trained in the installation, operation, and maintenance of bridge cranes. Service engineer to supervise installation, inspect and approve installation, supervise initial adjustment, supervise and assist in testing, instruct owner and owner's representative in proper start-up and O&M.

1.5 QUALIFICATIONS:

A. Supplier/Manufacturer: Company specializing in performing the work of this Section with a minimum of five (5) years experience.

B. Structural connections to be designed under the direct supervision of a Professional Structural Engineer licensed in the State of Texas.

1.6 WARRANTY:

A. The manufacturer shall provide a warranty on equipment against manufacturer's defects for twelve (12) months, commencing on the date of Owner-accepted substantial completion of the project. If the equipment should fail during the warranty period due to a defective part, it shall be replaced and the unit restored at no cost to the owner, including both service and parts.

1.7 DELIVERY AND STORAGE:

A. Delivery, storage, and handling shall be in full accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Ace-Gaffey (Ace Industries, Inc.), 1-800-233-8179

B. Or Engineer-Approved Equivalent.

2.2 GENERAL REQUIREMENTS:

A. Requirements:

1. The bridge crane system shall be controlled from a pendant pushbutton station and shall include safety devices and overload protection.

2. The power supply shall be from enclosed, UL-approved conductor bar systems.

3. The rails shall be standard I-beams, or fabricated steel sections anchored to the structure as indicated and as required by the UBC for seismic loads.

4. The track deflection shall not exceed 1/800 of the span, or 1-1/4 inches, whichever is less.

5. The crane system, except the tracks, shall be the product of a crane manufacturer regularly engaged in the manufacture of such equipment.

B. Site Conditions: The bridge crane shall be capable of service in an indoor environment lacking climate control.

C. Design Criteria: The bridge crane system shall comply with the following:

1. Bridge Crane (Refer to drawings):

a. Type of Crane - top running

b. Type of Bridge - single girder
c. Capacity (tons) - 3-ton
d. Maximum Lift (feet) – 19′-8″
e. Length of Track (feet) – 56′-0″
f. Length of Bridge (feet) - 61′-7″
g. Span Between Rails (feet) 61′-0″
h. Speed Control – Bridge and Trolley: Variable Speed
– Hoist: Two Speed
i. Lifting Speed (fpm) – 20 / 3.3 FPM
j. Trolley Speed (fpm) – 26 – 65 FPM VFD
k. Bridge Speed (fpm) – 100 FPM VFD
l. Hoist Motor (hp) – 7.5 / 1.0 HP
m. Trolley Motor (hp) – 1.0 HP
n. Bridge Motor (hp) - (2) 1.0 HP
o. Power Supply (V-ph-Hz) - 480-3-60
p. Coating – Factory Installed 2-part epoxy or System No. 1 per Specification 09800.

2.3 FABRICATION:

A. Hook and Wire Rope:

1. The lifting hook shall be fabricated of drop-forged, heat-treated stainless steel and shall include 360-degree swivel on a shielded roller thrust bearing with safety spring latch.

2. The wire ropes shall be fabricated of Type 316 stainless steel with stainless steel center complete and shall include swaged fittings.

B. Hoist and Drive:

1. The hoisting drum shall be deep grooved flanged drum with at least 2 full turns of rope remaining on the drum at the lowest hook position and shall include heavy-duty pre-lubricated sealed bearings.

2. The drum shall be driven by a helical gear reducer with external spur drum gear enclosed in an oil-tight housing.

3. The housing motor shall be a standard, 30-minute duty- motor, 1750 rpm, with NEMA-type shaft extension.

4. The hoisting mechanism shall include dc magnet-actuated disc motor brake with hook drift.

5. The motor shall be rated at minimum of 150 percent of full load torque, with gravity type upper and lower hook limit switch, and an overload cut-off switch designed to interrupt the raising circuit.

C. Trolley Assembly:

1. The trolley assembly shall be a top-running type with structural frame welded into an assembly for proper wheel and bearing alignment.

2. The trolley assembly shall be supported by trolley wheels with tapered tread surfaces hardened to 375 to 425 Brinell.

3. Each wheel shall be supported on tapered roller bearings suitable to take radial and thrust loads.

4. The wheel mounting shall be designed so that axles and wheels can be removed without affecting alignment.

5. The wheel tread shall be smooth, true, and uniform within 0.010-inch tread diameter on all wheels.

D. Trolley Drive:

1. The trolley shall be driven by a 30-minute-duty-cycle rated motor with oil-tight gear reducer conforming to NEMA Specifications.

2. The trolley VFD shall be programmed to include cushion start and allow for smooth travel and load control.

3. The driver shall provide synchronous drive from gear reducer to both drive wheels.

4. The trolley drive shall include integrally mounted spring set and an electrically-released drag brake.

E. Crane Bridge Assembly:

1. The crane bridge assembly shall be a single beam top-running type.

2. The bridge beam shall be designed in accordance with the specifications of the Crane Manufacturers Association of America.

3. It shall be fabricated of standard structural shapes complying with AISC Specifications.

4. At full load, the beam shall be designed to limit the deflection to 1/600 of the span, but not to exceed 1-1/4-inch maximum deflection.

5. An ASCE rail shall be provided on top of the beam securely fastened in place to maintain center distance.

6. Provision shall be made to prevent creeping of bridge rails by means of positive stops at the ends of the rails.

7. Crane shall be reinforced with outrigger to provide squareness with end truck, adequate lateral stiffness with a minimum lateral moment of inertia of 1/20 that of the vertical beam.

8. Outrigger shall be designed to support squaring shaft and the crane drive motor and gear reducer assembly.

F. End Trucks:

1. The end trucks shall be traversed by stable assembly of structural shapes welded together to provide proper wheel and bearing alignment.

2. The end truck wheel base shall be minimum of 1/7 of the crane span.

3. One wheel of each end truck shall be geared and meshed with the pinion mounted on the crane squaring shaft.

4. The crane and trucks shall contain diaphragm members welded to truck frames to maintain alignment and distribute truck loads on inner and outer truck members.

5. The truck shall be designed so that, in case of a wheel axle or wheel failure, the drop of the load will be limited to one inch.

6. The end trucks shall be fastened to the bridge beams with bolts to ensure alignment.

G. Crane Wheels:

1. Crane wheels shall have tread surfaces hardened to 375 to 425 Brinell.

2. Treads shall be tapered to provide proper running alignment.

3. Each wheel shall be supported on tapered roller bearings mounted on stationary axles, designed for radial and thrust loads.

4. The wheels shall be lubricated at the factory with a sodium base grease, and shall include adequate reservoir of lubricant to eliminate the need for field lubrication.

5. Wheel axles must have mounting nuts for bearing adjustment.

6. Wheel mounting shall be designed so that axles and wheels can be removed without disturbing alignment.

7. Wheel treads shall be smooth, true, and uniform within 0.01-inch tread diameter on all wheels.

H. Crane Drive:

1. The crane drive motors shall be totally enclosed, 30-minute cycle rated.

2. The motors shall be integral with a fully enclosed oil splash lubricated gear reduction.

3. The motors and the gear reduction shafts shall be supported by permanently lubricated precision ball or roller bearings.

4. The crane drives shall include integrally-mounted spring set electrically released dc rectified disc brake.

I. Bearing Life:

1. Bearings in crane wheels and bearings supporting the drive and gear reduction shafts shall be designed for 5,000 hrs L-10 bearing life minimum.

J. Gearing:

1. Gears shall be cut from solid blanks with 20-degree pressure angle involute shape for high strength and shall comply with AGMA specifications for load ratings.

2. Gears operating at higher than 20 fpm pitch line speed shall be fully enclosed in oil-tight housings and lubricated by splash principle.

3. Gear teeth shall have ductile cores and be surface hardened to RC40 minimum.

4. The gear shall provide for a minimum service of 4,000 hr.

K. Bridge Stops:

1. The bridge shall be provided with bumpers capable of stopping the crane (not including the lifted load) at a rate of deceleration not to exceed 3 fps^2 when traveling in either direction at 20 percent of rated speed.

2. The bumpers shall have sufficient energy absorbing capacity to stop the crane when traveling at a speed of at least 40 percent of the rated load speed.

3. Bridge trucks shall be equipped with sweeps which extend below the top of the rail and project in front of the crane wheel.

L. Runway Beams and Rails:

1. The runway beams and rails shall comply with the indicated requirements.

2. The rails shall be an ASCE type securely fastened into the runway beams.

3. The runway beams shall be designed from an ASTM A36 structural steel shape and shall have a maximum deflection not to exceed 1/800 of the span.

4. The beams shall be equipped with stops on both ends capable of withstanding the impact of the fully loaded crane at 50 percent of rated speed, and shall be field-adjustable.

5. Necessary column supports or clamps, hanger rods, bolts, and fittings shall be provided.

M. Electrical Controls:

1. Electrical controls shall be variable/multiple-speed as specified.

2. Bridge control shall include a mainline magnetic contactor, manually-operated fused mainline disconnect with lock-out provisions, branch circuit fuses, reversing bridge control, and transformer with fused secondary.

3. Bridge control shall be mounted on bridge in an enclosure, NEMA 4/12 rated, actuated from a pendant pushbutton station suspended from movable trolley, by means of a retractable cable to permit operation at 4 feet above all floor levels.

4. Motors shall include cushion start.

N. Conductor and Wirings:

1. The runway shall be provided with a conductor bar type electrification.

2. The bridge shall have a rigid truck festoon type electrification.

3. Other wiring of the crane shall be in rigid or flexible conduit and in accordance with National Electrical Code and complying with Fire Underwriters specifications.

4. When a crane is shipped knocked down, the wiring shall terminate in terminal boxes and the wire end shall be provided with permanent marking tags.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Verify that field conditions are acceptable and are ready to receive work.

B. Beginning of installation means erector accepts existing conditions.

3.2 ERECTION:

A. Allow for erection loads, and for sufficient temporary bracing to maintain to maintain structure safe, plumb, and in true alignment until completion of erection and installation.

B. Do not field-cut or alter structural members.

3.3 FIELD TESTING:

A. Demonstrate proper operation with full test load. Traverse entire area with load.

B. Manufacturer shall demonstrate operation of all limit switches.

3.4 SERVICES OF MANUFACTURER:

A. The authorized manufacturer's representative shall visit the site for not less than 8 hours.

3.5 CERTIFICATION:

A. Provide certification that cranes are in accordance with standards and regulations.

END OF SECTION

SECTION 15000

GENERAL PROVISIONS FOR MECHANICAL

PART 1 GENERAL

1.1 CHECKING DOCUMENTS:

A. The drawings and the specification are numbered consecutively. The contractor shall check the drawings and specifications thoroughly and shall notify the Engineer of any discrepancies or omissions of sheets or pages. Upon notification, the Engineer will promptly provide the Contractor with any missing portions of the drawings or specifications. Discrepancies or omissions of sheets or pages of the contract documents will not relieve the Contractor of his duty to provide all work required by the complete contract documents.

1.2 GENERAL:

A. In general, the lines and ducts and units to be installed by the various trades under these specifications shall be run as indicated, as specified herein, as required by particular conditions at the site, and as required to conform to the generally accepted standards as to complete the work in a neat and satisfactorily workable manner. The following is a general outline concerning the running of various lines and ducts and is to be excepted where the drawings or conditions at the building necessitate deviating from these standards.

B. All piping and ductwork for the mechanical trades shall be concealed in chases in finished areas, except as indicated on the drawings. Horizontal lines run in areas that have ceilings shall be run concealed in those ceilings, unless otherwise specifically indicated or directed.

C. Piping and ductwork may be run exposed in machinery and equipment spaces, where serving as connections to motors and equipment items in finished rooms where exposed connections are required, and elsewhere as indicated on the drawings or required.

D. The Contractor shall thoroughly acquaint himself with the details of the construction and finishes before submitting his bid, as no allowances will be made because of the Contractor's unfamiliarity with these details. Place all inserts in masonry walls while they are under construction. All concealed lines shall be installed as required by the pace of the general construction to precede that general construction.

E. The mechanical and electrical plans do not give exact locations, etc., and do not show all the offsets, control lines, pilot lines and other installation details, The Contractor shall carefully lay out his work at the site to conform to the Engineering and structural conditions, to provide proper grading of lines, to avoid all obstruction, to conform to details of installation supplied by the manufacturers of the equipment to be installed, and thereby to provide an integrated, satisfactorily operating installation.

F. The mechanical plans do not give exact location of outlets, fixtures, equipment items, etc. The exact location of each item shall be determined by reference to the general plans and to all detail drawings, equipment drawings, roughing-in drawings, etc., by measurements at the building, and in cooperation with other sections. Minor relocations necessitated by the conditions at the site or as directed by the Engineer shall be made without any additional cost to the Owner.

G. The Contractor shall be responsible for the proper fitting of his material and apparatus into the space. Should the particular equipment which any bidder proposes to install require other space conditions than those indicated on the drawings, he shall arrange for such space with the Engineer before submitting his bid. Should changes become necessary on account of failure to comply with this clause, the Contractor shall make such necessary changes at his (the Contractor's) own expense.

H. The Contractor shall submit working scale drawings of all his apparatus and equipment which in any way varies from these specifications and plans, which shall be checked by the Engineer before the work is started, and interferences with the structural conditions shall be corrected by the Contractor before the work proceeds.

I. Order of precedence shall be observed in laying out the pipe, ductwork, material in order to fit the material into the space above the ceiling and in the chases and walls. The following order shall govern:

1. Items affecting the visual appearance of the inside of the building such as lighting fixtures, diffusers, grilles, outlets, panelboards, etc. Coordinate all items to avoid conflicts at the site.

2. Large ducts and pipes with critical clearances.

3. Water lines, and other lines whose routing is not critical and whose function would not be impaired by bends and offsets.

J. Piping and ducts serving outlets on items of equipment shall be run in the most appropriate manner. Where the equipment has built-in chases, the lines shall be contained therein. Where the equipment is of the open type, the lines shall be run as close as possible to the underside of the top and in a neat and inconspicuous manner.

K. Exceptions and inconsistencies in plans and specifications shall be brought to the Engineer's attention before the contract is signed. Otherwise, the Contractor shall be responsible for any and all changes and additions that may be necessary to accommodate his particular apparatus, material or equipment.

L. The Contractor shall distinctly understand that the work described herein and shown on the accompanying drawings shall result in a finished and working job, and any item required to accomplish this intent shall be included whether specifically mentioned or not.

M. Each bidder shall examine the plans and specifications for the General Construction. If these documents show any item requiring work under Division 15 and that work is not indicated on the respective "M" or "P" drawings, he shall notify the Engineer in sufficient time to clarify before bidding. If no notification so received, the Contractor is assumed to require no clarification, and shall install the work as indicated on the General Plans in accordance with the specifications.

1.3 DIMENSIONS:

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings. Any difference which may be found shall be submitted to the Engineer for consideration before proceeding with the work.

1.4 MOTORS:

A. All motors furnished under any of the several sections of these specifications shall be of recognized manufacturers of adequate capacity for the loads involved and wound for the current characteristics shown on the electrical drawings. All motors shall conform to the standards of the manufacture and performance of the National Electrical Manufacturer's Association. They further shall be listed by Underwriters Laboratories.

1.5 MANUFACTURER'S DIRECTION:

A. All manufactured articles shall be applied, installed and handled as recommended by the manufacturer.

1.6 MATERIALS AND WORKMANSHIP:

A. All materials shall be new unless otherwise specified and of the quality specified. Materials shall be free from defects. All materials of a type for which the Underwriters Laboratories have established a standard shall be listed by the Underwriters Laboratories and shall bear their label.

B. Wherever the make of material or apparatus required is not definitely specified, the Contractor shall submit a sample to the Engineer before proceeding.

C. The Engineer reserves the right to call for samples for any item of material offered in substitution, together with a sample of the specified material, when, in the Engineer's opinion, the quality of the material and/or the appearance is involved and it is deemed that an evaluation of the two materials may be better made by visual inspection. This shall be limited to plumbing brass, grilles, registers, ceilings outlets and similar items an shall not be applicable to major manufacturers' items of equipment.

D. The Contractor shall be responsible for transportation of his materials to and on the job, and shall be responsible for the storage and protection of these materials and work until the final acceptance of the job.

E. The Contractor shall furnish all necessary scaffolding, tackle, tools and appurtenances of all kinds, and all labor required for the safe and expeditious execution of his contract.

F. The workmanship shall in all respects be of the highest grade and all construction shall be done according to the best practice of the trade.

1.7 SUBSTITUTION OF MATERIAL:

A. See Section 01600.

B. Where a definite material or only one manufacturer's name is mentioned in these specifications, it has been done in order to establish a standard. The product of the particular manufacturer mentioned is of satisfactory construction and any substitution must be of quality equal to or exceeding the named article. No substitution shall be made without review by the Engineer, who will be the sole judge of equality.

C. The Contractor shall submit for approval a complete list of the materials he proposes to use. This list shall give manufacturers' names and designations corresponding to each and every item and the submission shall be accompanied by complete descriptive literature and/or any supplementary data, drawings, etc., necessary to give full and complete details.

D. Should a substitution be acceptable under the provisions of the conditions of these specifications, and should this substitute prove to be defective or otherwise unsatisfactory for the service for which it is intended within the guarantee period, the Contractor who originally requested the substitution shall replace the substitute material with the specified material.

1.8 SHOP DRAWINGS:

A. See Section 01300.

B. Wherever shop drawings are called for in these specifications, they shall be furnished by the Contractor for the work involved after review by the Engineer as to the make and type of material and in sufficient time so that no delay or changes will be caused. This is done in order to facilitate progress on the job and failure on the part of the Contractor to comply shall render him liable to stand the expense of any and all delays, changes in construction, etc., occasioned by his failure to provide the necessary details. Also, if the Contractor fails to comply with this provision, the Engineer reserves the right to deal directly with the manufacturer he selects and secure any details he might deem necessary. Should there be any charges in connection with this, they shall be borne by the Contractor.

C. Shop drawings will be reviewed by the Engineer for general compliance with the design concept of the project and general with the information given in the contract documents. Review by the Engineer and any action by the Engineer in marking shop drawings is subject to the requirements of the entire contract documents. The Contractor will be held responsible for quantities, dimensions which shall be confirmed and correlated at the job site, fabrication processes, and techniques of construction, coordination of all trades, and the satisfactory performances of his work.

D. Shop drawings submitted shall not consist of manufacturers' catalogues or tear sheets that contain no indication of the exact item offered. Rather, the submission of individual items shall designate the exact item offered and shall clearly identify the item with the project.

E. All shop drawings shall be submitted at one time and shall consist of a bound catalogue of all shop drawings under each section properly indexed and certified that the Contractor has checked them.

F. The omission of any material from the shop drawings which has been shown on the contract drawings or specified, even though reviewed by the Engineer, shall not relieve the Contractor from furnishing and erecting same.

1.9 LAWS, CODES AND ORDINANCES:

A. All work shall be executed in strict accordance with all local, state and national codes, ordinances and regulations governing the particular class of work involved, as interpreted by the inspecting authority. The Contractor shall be responsible for the final execution of the work under this heading to suit those requirements. Where these specifications and the accompanying drawings conflict with these requirements, the Contractor shall report the matter to the Engineer, shall prepare any supplemental drawings required illustrating how the work may be installed so as to comply and, on approval, make the changes at no cost to the Owner. On completion of the various portions of the work the installation shall be tested by the constituted authorities, approved and, on completion of the work, the Contractor shall obtain and deliver to the Owner a final certificate of acceptance.

1.10 TERMINOLOGY:

A. Wherever the words "furnish, "provide", "furnish and install", "provide and install", and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalogue number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" conveys a mandatory condition to the contract.

D. "This section" always refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. "Concealed" areas are those areas which cannot be seen by the building occupants from the floor with all building components in place. "Exposed" areas are all areas which are exposed to view by the building occupants, including mechanical rooms.

G. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

1.11 PAINTING:

A. All painting shall be done by the Contractor under Division 9. Following is a general outline of the required painting of Mechanical work under Divisions 15.

1. When the factory finish on any apparatus or equipment is marred, it shall be touched up and then given one coat of half flat half enamel, followed by a coat of machinery enamel of a color to match the original. Paint factory primed surfaces.

2. Paint all exposed pipe, hangers and supports.

3. Paint all insulated surfaces exposed to view, including piping, equipment, etc. Sand surfaces until a smooth, non-grainy surface is obtained.

1.12 ROUGH-IN AND FINAL CONNECTIONS FOR EQUIPMENT:

A. The shop drawings for all equipment are hereby made a part of these specifications. The Contractor under each section of the specification shall rough-in for the specifications or by the owner. The Contractor shall refer to all drawings and other sections of the specifications for the scope of work involved for the new required equipment connections for the Owner furnished equipment.

B. Should any of the equipment furnished require connections of a nature different from that shown on the drawings, report the matter to the Engineer and finally connect as directed by the Engineer.

C. Should any shop drawings not be available for equipment furnished under other contracts or by the Owner, the Contractor under each section of these specifications shall bid the work as detailed on the drawings.

D. Minor differences in the equipment furnished and that indicated on the drawings will not constitute grounds for additional payment to the Contractor.

1.13 PIPE IDENTIFICATION:

A. The Contractor shall mark all accessible piping systems.

1.14 IDENTIFICATION AND LABELING:

A. The Contractor shall make it possible for the personnel operating and maintaining the equipment and systems in this project to readily identify the various pieces of equipment, valves, piping, etc., by marking them. All items of equipment such as fans, pumps, etc., shall be clearly marked. The item of equipment shall indicate the same number as shown on the drawings. For example, pumps shall be identified as P-1, P-2, P-3, etc.; exhaust fans will be EF-1, EF-2, EF-3, etc.; Fan Coil Units will be FC-1, FC-2, etc.

1.15 OPERATING MANUALS:

A. Prepare and submit 3 copies of the operating manuals bound in hard covered three ring binders three weeks prior to completion of the work. The Engineer will check the manuals and any additional material necessary to complete the manuals shall be furnished and inserted by the Contractor.

B. Manuals shall contain the following data:

1. Catalogue data of all equipment.
2. Shop drawings of all equipment.
3. Wiring diagrams.
4. Recommended maintenance schedule for equipment.
5. Parts list for all items.
6. Name and address of each vendor.

1.16 GUARANTEE:

A. Unless a longer guarantee is hereinafter called for, all work, material and equipment items shall be guaranteed for a period of one year after acceptance by the Owner. All defects in labor and materials occurring during this period, as determined by the Engineer, shall be repaired and/or replaced to the complete satisfaction of the Owner. Guarantee shall be in writing and in triplicate.

1.17 COMPLETION REQUIREMENTS:

A. Before acceptance and final payment the Contractor under each Division of the specifications shall furnish the following:

1. Accurate record drawings, shown in red ink on blue line prints, furnished for that purpose, all changes from the original plans made during installation of the work. Drawings shall be filed with the Engineer when the work is completed.
2. All manufacturers' operating manuals.
3. All operating manuals.
4. Guarantee.
5. Test and Balance Report.

END OF SECTION

SECTION 15050

BASIC MECHANICAL MATERIALS

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and the Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

A. This Section includes the following basic mechanical materials and methods to complement other Division 15 Sections.

1. Piping materials and installation instructions common to most piping systems.
2. Concrete equipment base construction requirements.
3. Equipment nameplate data requirements.
4. Labeling and identifying mechanical systems and equipment is specified in Division 15 Section "Mechanical Identification."
5. Nonshrink grout for equipment installations.
6. Field-fabricated metal and wood equipment supports.
7. Installation requirements common to equipment specification Sections.
8. Mechanical demolition.
9. Cutting and patching.
10. Touchup painting and finishing.

B. Pipe and pipe fitting materials are specified in piping system Sections.

1.3 DEFINITIONS:

A. Pipe, pipe fittings, and piping include tube, tube fittings, and tubing.

B. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below the roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.

C. Exposed Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

D. Exposed Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

E. Concealed Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

F. Concealed Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants, but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.4 SUBMITTALS:

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product data for following piping specialties:

1. Mechanical sleeve seals.
2. Identification materials and devices.

C. Samples of color, lettering style, and other graphic representation required for each identification material and device.

D. Shop drawings detailing fabrication and installation for metal and wood supports and anchorage for mechanical materials and equipment.

E. Coordination drawings for access panel and door locations.

F. Prepare coordination drawings according to Division 1 Section "Submittals" to a 1/4 inch equals 1 foot (1:48) scale or larger. Detail major elements, components, and systems of mechanical equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Show where sequence and coordination of installations are important to the efficient flow of the Work. Include the following:

1. Proposed locations of piping, ductwork, equipment, and materials. Include the following:

a. Planned piping layout, including valve and specialty locations and valve stem movement.

b. Planned duct systems layout, including elbow radii and duct accessories.

c. Clearances for installing and maintaining insulation.

d. Clearances for servicing and maintaining equipment, including space for equipment disassembly required for periodic maintenance.

e. Equipment service connections and support details.

f. Exterior wall and foundation penetrations.

g. Fire-rated wall and floor penetrations.

h. Sizes and location of required concrete pads and bases.

2. Scheduling, sequencing, movement, and positioning of large equipment into the building during construction.

3. Floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

4. Reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communication systems components, sprinklers, and other ceiling-mounted items.

G. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

1.5 QUALITY ASSURANCE:

A. Qualify welding processes and operators for structural steel according to AWS D1.1 "Structural Welding Code--Steel."

B. Qualify welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions of ASME B31 Series "Code for Pressure Piping."

2. Certify that each welder has passed AWS qualification tests for the welding processes involved and that certification is current.

C. ASME A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

D. Equipment Selection: Equipment of greater or larger power, dimensions, capacities, and ratings may be furnished provided such proposed equipment is approved in writing and connecting mechanical and electrical services, circuit breakers, conduit, motors, bases, and equipment spaces are increased. No additional costs will be approved for these increases, if larger equipment is approved. If minimum energy ratings or efficiencies of the equipment are specified, the equipment must meet the design requirements and commissioning requirements.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Deliver pipes and tubes with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and prevent entrance of dirt, debris, and moisture.

B. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. When stored inside, do not exceed structural capacity of the floor.

C. Protect flanges, fittings, and piping specialties from moisture and dirt.

D. Protect stored plastic pipes from direct sunlight. Support to prevent sagging and bending.

1.7 SEQUENCING AND SCHEDULING:

A. Coordinate mechanical equipment installation with other building components.

B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for mechanical installations.

C. Coordinate the installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

D. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.

E. Coordinate connection of electrical services.

F. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.

G. Coordinate requirements for access panels and doors where mechanical items requiring access are concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "Access Doors."

H. Coordinate installation of identifying devices after completing covering and painting where devices are applied to surfaces. Install identifying devices prior to installing acoustical ceilings and similar concealment.

PART 2 PRODUCTS

2.1 PIPE AND PIPE FITTINGS:

A. Refer to individual piping system specification Sections for pipe and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS:

A. Refer to individual piping system specification Sections in Division 15 for special joining materials not listed below.

B. Pipe Flange Gasket Materials: Suitable for the pressure, chemical, and thermal conditions of the piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3-mm) maximum thickness, except where thickness or specific material is indicated.

    a. Full-Face Type: For flat-face, Class 125 cast-iron and cast-bronze flanges.
    b. Narrow-Face Type: For raised-face, Class 250 cast-iron and steel flanges.

2. ASME B16.20 for grooved, ring-joint, steel flanges.

3. AWWA C110, rubber, flat face, 1/8 inch (3 mm) thick, except where other thickness is indicated; and full-face or ring type, except where type is indicated.

C. Flange Bolts and Nuts: ASME B18.2.1/B18.2.2 and ASTM F593/ASTM F594, 304 stainless steel, except where other material is indicated and shall be suited for pressure class of pipe.

D. Plastic Pipe Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, except where other type or material is indicated.

E. Solder Filler Metal: ASTM B 32.

1. Alloy Sn95 or Alloy Sn94: Tin (approximately 95 percent) and silver (approximately 5 percent), having 0.10 percent lead content.

2. Alloy Sn50: Tin (50 percent) and lead (50 percent).

3. Alloy E: Tin (approximately 95 percent) and copper (approximately 5 percent), having 0.10 percent maximum lead content.

4. Alloy HA: Tin-antimony-silver-copper-zinc, having 0.10 percent maximum lead content.

5. Alloy HB: Tin-antimony-silver-copper-nickel, having 0.10 percent maximum lead content.

6. Alloy Sb5: Tin (95 percent) and antimony (5 percent), having 0.20 percent maximum lead content.

F. Brazing Filler Metals: AWS A5.8.

1. BCuP Series: Copper-phosphorus alloys.
2. BAg1: Silver alloy.

G. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

H. Solvent Cements: Manufacturer's standard solvents complying with the following:

1. Acrylonitrile-Butadiene-Styrene (ABS): ASTM D 2235.
2. Chlorinated Poly(Vinyl Chloride) (CPVC): ASTM F 493.
3. Poly(Vinyl Chloride) (PVC): ASTM D 2564.
4. PVC to ABS Transition: Made to requirements of ASTM D 3138, color other than orange.

I. Plastic Pipe Seals: ASTM F 477, elastomeric gasket.

J. Flanged, Ductile-Iron Pipe Gasket, Bolts, and Nuts: AWWA C110, rubber gasket, 304 stainless steel bolts and nuts.

K. Couplings: Refer to Specification Section 02665.

2.3 PIPING SPECIALTIES:

A. Escutcheons: Manufactured wall, ceiling, and floor plates; deep-pattern type where required to conceal protruding fittings and sleeves.

1. Inside Diameter: Closely fit around pipe, tube, and insulation.

2. Outside Diameter: Completely cover opening.

3. Cast Brass: One-piece, with set-screw.

a. Finish: Rough brass.
b. Finish: Polished chrome plate.

4. Cast Brass: Split casting, with concealed hinge and set-screw.

a. Finish: Rough brass.
b. Finish: Polished chrome plate.

5. Stamped Steel: One-piece, with set-screw and chrome-plated finish.

6. Stamped Steel: One-piece, with spring clips and chrome-plated finish.

7. Stamped Steel: Split plate, with concealed hinge, set-screw, and chrome-plated finish.

8. Stamped Steel: Split plate, with concealed hinge, spring clips, and chrome-plated finish.

9. Stamped Steel: Split plate, with exposed-rivet hinge, set-screw, and chrome-plated finish.

10. Stamped Steel: Split plate, with exposed-rivet hinge, spring clips, and chrome-plated finish.

11. Cast-Iron Floor Plate: One-piece casting.

B. Dielectric Fittings: Assembly or fitting having insulating material isolating joined dissimilar metals to prevent galvanic action and stop corrosion.

1. Description: Combination of copper alloy and ferrous; threaded, solder, plain, and weld neck end types and matching piping system materials.

2. Insulating Material: Suitable for system fluid, pressure, and temperature.

3. Dielectric Unions: Factory-fabricated, union assembly for 250-psig (1725-kPa) minimum working pressure at a 180 deg F (82 deg C) temperature.

4. Dielectric Flanges: Factory-fabricated, companion-flange assembly for 150- or 300-psig (1035-kPa or 2070-kPa) minimum pressure to suit system pressures.

5. Dielectric-Flange Insulation Kits: Field-assembled, companion-flange assembly, full-face or ring type. Components include neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

a. Provide separate companion flanges and steel bolts and nuts for 150- or 300-psig (1035kPa or 2070kPa) minimum working pressure to suit system pressures.

6. Dielectric Couplings: Galvanized-steel coupling, having inert and noncorrosive, thermoplastic lining, with threaded ends and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C) temperature.

7. Dielectric Nipples: Electroplated steel nipple, having inert and noncorrosive thermoplastic lining, with combination of plain, threaded, or grooved end types and 300-psig (2070-kPa) working pressure at 225 deg F (107 deg C) temperature.

C. Mechanical Sleeve Seals: Modular, watertight mechanical type. Components include interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve. Connecting bolts and pressure plates cause rubber sealing elements to expand when tightened.

D. Sleeves: The following materials are for wall, floor, slab, and roof penetrations:

1. Steel Sheet-Metal: 24-gage (0.70mm) or heavier galvanized sheet metal, round tube closed with welded longitudinal joint.

2. Steel Pipe: ASTM A 53, Type E, Grade A, Schedule 40, galvanized, plain ends.

3. Cast-Iron: Cast or fabricated wall pipe equivalent to ductile-iron pressure pipe, having plain ends and integral water stop, except where other features are specified.

4. Wall Penetration Systems: Wall sleeve assembly, consisting of housing, gaskets, and pipe sleeve, with 1 mechanical-joint end conforming to AWWA C110 and 1 plain pipe-sleeve end.

   a. Penetrating Pipe Deflection: 5 percent without leakage.

   b. Housing: Ductile-iron casting having waterstop and anchor ring, with ductile-iron gland, steel studs and nuts, and rubber gasket conforming to AWWA C111, of housing and gasket size as required to fit penetrating pipe.

   c. Pipe Sleeve: AWWA C151, ductile-iron pipe.

   d. Housing-to-Sleeve Gasket: Rubber or neoprene push-on type of manufacturer's design.

5. Cast-Iron Sleeve Fittings: Commercially made sleeve having an integral clamping flange, with clamping ring, bolts, and nuts for membrane flashing.

   a. Underdeck Clamp: Clamping ring with set-screws.

6. PVC Plastic: Manufactured, permanent, with nailing flange for attaching to wooden forms.

7. PVC Plastic Pipe: ASTM D 1785, Schedule 40.

8. PE Plastic: Manufactured, reusable, tapered, cup-shaped, smooth outer surface, with nailing flange for attaching to wooden forms.

2.4 IDENTIFYING DEVICES AND LABELS:

A. General: Manufacturer's standard products of categories and types required for each application as referenced in other Division 15 Sections. Where more than one type is specified for listed application, selection is Installer's option, but provide single selection for each product category.

B. Equipment Nameplates: Metal nameplate with operational data engraved or stamped, permanently fastened to equipment.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data.

2. Location: An accessible and visible location.

C. Stencils: Standard stencils, prepared for required applications with letter sizes conforming to recommendations of ASME A13.1 for piping and similar applications, but not less than 1-1/4-inch (30-mm) -high letters for ductwork and not less than 3/4-inch (19-mm) -high letters for access door signs and similar operational instructions.

1. Material: Fiberboard.

2. Material: Brass.

3. Stencil Paint: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.

4. Identification Paint: Standard identification enamel of colors indicated or, if not otherwise indicated for piping systems, comply with ASME A13.1 for colors.

D. Snap-On Plastic Pipe Markers: Manufacturer's standard preprinted, semirigid snap-on, color-coded pipe markers, conforming to ASME A13.1.

E. Pressure-Sensitive Pipe Markers: Manufacturer's standard preprinted, permanent adhesive, color-coded, pressure-sensitive vinyl pipe markers, conforming to ASME A13.1.

F. Plastic Duct Markers: Manufacturer's standard laminated plastic, color coded duct markers. Conform to following color code:

1. Green: Cold air.
2. Yellow: Hot air.
3. Yellow/Green: Supply air.
4. Blue: Exhaust, outside, return, and mixed air.
5. For hazardous exhausts, use colors and designs recommended by ASME A13.1.
6. Nomenclature: Include following:

   a. Direction of air flow.
   b. Duct service (supply, return, exhaust, etc.).
   c. Duct origin (from).
   d. Duct destination (to).
   e. Design cfm.

G. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white (letter color) melamine subcore, except when other colors are indicated.

1. Fabricate in sizes required for message.

2. Engraved with engraver's standard letter style, of sizes and with wording to match equipment identification.

3. Punch for mechanical fastening.

4. Thickness: 1/16 inch (1.5 mm), except as otherwise indicated.

5. Thickness: 1/8 inch (3 mm), except as otherwise indicated.

6. Thickness: 1/16 inch (1.5 mm) for units up to 20 square inches (13,000 sq. mm) or 8 inches (200 mm) long; 1/8 inch (3 mm) for larger units.

7. Fasteners: Self-tapping stainless-steel screws or contact-type permanent adhesive.

H. Plastic Equipment Markers: Laminated-plastic, color-coded equipment markers. Conform to following color code:

1. Green: Cooling equipment and components.

2. Yellow: Heating equipment and components.

3. Yellow/Green: Combination cooling and heating equipment and components.

4. Brown: Energy reclamation equipment and components.

5. Blue: Equipment and components that do not meet any of the above criteria.

6. For hazardous equipment, use colors and designs recommended by ASME A13.1.

7. Nomenclature: Include following, matching terminology on schedules as closely as possible:

a. Name and plan number.
b. Equipment service.
c. Design capacity.
d. Other design parameters such as pressure drop, entering and leaving conditions, and rpm.

8. Size: Approximately 2-1/2 by 4 inches (65 by 100 mm) for control devices, dampers, and valves; and 4-1/2 by 6 inches (115 by 150 mm) for equipment.

I. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in mechanical identification, with corresponding designations indicated. Use numbers, lettering, and wording indicated for proper identification and operation/maintenance of mechanical systems and equipment.

1. Multiple Systems: Where multiple systems of same generic name are indicated, provide identification that indicates individual system

number as well as service such as "Boiler No. 3," "Air Supply No. 1H," or "Standpipe F12."

2.5 GROUT:

A. Nonshrink, Nonmetallic Grout: ASTM C 1107, Grade B.

1. Characteristics: Post-hardening, volume-adjusting, dry, hydraulic-cement grout, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000-psi (34.50-MPa), 28-day compressive strength.
3. Packaging: Premixed and factory-packaged.

PART 3 EXECUTION

3.1 PIPING SYSTEMS--COMMON REQUIREMENTS:

A. General: Install piping as described below, except where system Sections specify otherwise. Individual piping system specification Sections in Division 15 specify piping installation requirements unique to the piping system.

B. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings.

C. Install piping at indicated slope.

D. Install components having pressure rating equal to or greater than system operating pressure.

E. Install piping in concealed interior and exterior locations, except in equipment rooms and service areas.

F. Install piping free of sags and bends.

G. Install exposed interior and exterior piping at right angles or parallel to building walls. Diagonal runs are prohibited, except where indicated.

H. Install piping tight to slabs, beams, joists, columns, walls, and other building elements. Allow sufficient space above removable ceiling panels to allow for ceiling panel removal.

I. Install piping to allow application of insulation plus 1-inch (25-mm) clearance around insulation.

J. Locate groups of pipes parallel to each other, spaced to permit valve servicing.

K. Install fittings for changes in direction and branch connections.

L. Install couplings according to manufacturer's printed instructions.

M. Install pipe escutcheons for pipe penetrations of concrete and masonry walls, wall board partitions, and suspended ceilings according to the following:

1. Chrome-Plated Piping: Cast-brass, one-piece, with set-screw, and polished chrome-plated finish. Use split-casting escutcheons, where required, for existing piping.

2. Uninsulated Piping Wall Escutcheons: Cast-brass or stamped-steel, with set-screw.

3. Uninsulated Piping Floor Plates in Utility Areas: Cast-iron floor plates.

4. Insulated Piping: Cast-brass or stamped-steel, with concealed hinge, spring clips, and chrome-plated finish.

5. Piping in Utility Areas: Cast-brass or stamped-steel, with set-screw or spring clips.

N. Sleeves are not required for core drilled holes.

O. Permanent sleeves are not required for holes formed by PE plastic (removable) sleeves.

P. Install sleeves for pipes passing through concrete and masonry walls, concrete floor and roof slabs, and where indicated.

Q. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, concrete floor and roof slabs, and where indicated.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor level. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring where specified.

2. Build sleeves into new walls and slabs as work progresses.

3. Install large enough sleeves to provide 1/4-inch (6-mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

a. PVC Pipe Sleeves: For pipes smaller than 6 inches (150 mm).

b. Steel Pipe Sleeves: For pipes smaller than 6 inches (150 mm).

c. Steel Sheet-Metal Sleeves: For pipes 6 inches (150 mm) and larger that penetrate gypsum-board partitions.

d. Cast-Iron Sleeve Fittings: For floors having membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches (50 mm) above finished floor level. Flashing is specified in Division 7 Section "Flashing and Sheet Metal."

i Seal space outside of sleeve fittings with nonshrink, nonmetallic grout.

4. Except for below-grade wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using elastomeric joint sealants specified in Division 7 Section "Joint Sealants."

R. Above Grade, Exterior Wall, Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeve for 1-inch (25-mm) annular clear space between pipe and sleeve for installation of mechanical seals.

1. Install steel pipe for sleeves smaller than 6 inches (150 mm).
2. Install cast-iron wall pipes for sleeves 6 inches (150 mm) and larger.
3. Assemble and install mechanical seals according to manufacturer's printed instructions.

S. Below Grade, Exterior Wall, Pipe Penetrations: Install cast-iron wall pipes for sleeves. Seal pipe penetrations using mechanical sleeve seals. Size sleeve for 1-inch (25-mm) annular clear space between pipe and sleeve for installation of mechanical seals.

T. Below Grade, Exterior Wall, Pipe Penetrations: Install ductile-iron wall penetration system sleeves according to manufacturer's printed installation instructions.

U. Fire Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestopping sealant material. Firestopping materials are specified in Division 7 Section "Firestopping."

V. Verify final equipment locations for roughing in.

W. Refer to equipment specifications in other Sections for roughing-in requirements.

X. Piping Joint Construction: Join pipe and fittings as follows and as specifically required in individual piping system Sections.

1. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

2. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

3. Soldered Joints: Construct joints according to AWS "Soldering Manual," Chapter 22 "The Soldering of Pipe and Tube."

4. Brazed Joints: Construct joints according to AWS "Brazing Manual" in the "Pipe and Tube" chapter.

5. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full inside diameter. Join pipe fittings and valves as follows:

   a. Note the internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.

   b. Apply appropriate tape or thread compound to external pipe threads (except where dry seal threading is specified).

   c. Align threads at point of assembly.

   d. Tighten joint with wrench. Apply wrench to valve end into which pipe is being threaded.

   e. Damaged Threads: Do not use pipe or pipe fittings having threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

6. Welded Joints: Construct joints according to AWS D10.12 "Recommended Practices and Procedures for Welding Low Carbon Steel Pipe" using qualified processes and welding operators according to the "Quality Assurance" Article.

7. Flanged Joints: Align flange surfaces parallel. Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly using torque wrench.

8. Plastic Pipe and Fitting Solvent-Cement Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join pipe and fittings according to the following standards:

   a. Comply with ASTM F 402 for safe handling of solvent-cement and primers.

   b. Acrylonitrile-Butadiene-Styrene (ABS): ASTM D 2235 and ASTM D 2661.

   c. Chlorinated Poly(Vinyl Chloride) (CPVC): ASTM D 2846 and ASTM F 493.

d. Poly(Vinyl Chloride) (PVC) Pressure Application: ASTM D 2672.

e. Poly(Vinyl Chloride) (PVC) Non-Pressure Application: ASTM D 2855.

f. PVC to ABS (Non-Pressure) Transition: Procedure and solvent cement described in ASTM D 3138.

9. Plastic Pipe and Fitting Heat-Fusion Joints: Prepare pipe and fittings and join with heat-fusion equipment according to manufacturer's printed instructions.

a. Plain-End Pipe and Fittings: Butt joining.
b. Plain-End Pipe and Socket-Type Fittings: Socket joining.

Y. Piping Connections: Except as otherwise indicated, make piping connections as specified below.

1. Install unions in piping 2 inches (50 mm) and smaller adjacent to each valve and at final connection to each piece of equipment having a 2-inch (50-mm) or smaller threaded pipe connection.

2. Install flanges in piping 2-1/2 inches (65 mm) and larger adjacent to flanged valves and at final connection to each piece of equipment having flanged pipe connection.

3. Dry Piping Systems (Gas, Compressed Air, and Vacuum): Install dielectric unions and flanges to connect piping materials of dissimilar metals.

4. Wet Piping Systems (Water and Steam): Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.2 EQUIPMENT INSTALLATION--COMMON REQUIREMENTS:

A. Install equipment to provide the maximum possible headroom where mounting heights are not indicated.

B. Install equipment according to approved submittal data. Portions of the Work are shown only in diagrammatic form. Refer conflicts to the Architect.

C. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, except where otherwise indicated.

D. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

E. Install equipment giving right-of-way to piping systems installed at a required slope.

3.3 LABELING AND IDENTIFYING:

A. Piping Systems: Install pipe markers on each system. Include arrows showing normal direction of flow.

1. Stenciled Markers: Complying with ASME A13.1.

2. Plastic markers, with application systems. Install on pipe insulation segment where required for hot noninsulated pipes.

3. Locate pipe markers wherever piping is exposed in finished spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums), and exposed exterior locations as follows:

a. Near each valve and control device.

b. Near each branch, excluding short take-offs for fixtures and terminal units. Mark each pipe at branch, where flow pattern is not obvious.

c. Near locations where pipes pass through walls, floors, ceilings, or enter inaccessible enclosures.

d. At access doors, manholes, and similar access points that permit view of concealed piping.

e. Near major equipment items and other points of origination and termination.

f. Spaced at a maximum of 50-foot (15-m) intervals along each run. Reduce intervals to 25 feet (7.5 m) in congested areas of piping and equipment.

g. On piping above removable acoustical ceilings, except omit intermediately spaced markers.

B. Equipment: Install engraved plastic laminate sign or equipment marker on or near each major item of mechanical equipment.

1. Lettering Size: Minimum 1/4-inch (6-mm) -high lettering for name of unit where viewing distance is less than 2 feet (0.6 m), 1/2-inch (13-mm) -high for distances up to 6 feet (1.8 m), and proportionately larger lettering for greater distances. Provide secondary lettering 2/3 to 3/4 of size of principal lettering.

2. Text of Signs: Provide text to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to name of identified unit.

C. Duct Systems: Identify air supply, return, exhaust, intake, and relief ducts with duct markers; or provide stenciled signs and arrows, showing duct system service and direction of flow.

1. Location: In each space where ducts are exposed or concealed by removable ceiling system, locate signs near points where ducts enter into space and at maximum intervals of 50 feet (15 m).

D. Adjusting: Relocate identifying devices which become visually blocked by work of this Division or other Divisions.

3.4 PAINTING AND FINISHING:

A. Refer to Division 9 Section "Painting" for field painting requirements.

B. Damage and Touch Up: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.5 CONCRETE BASES:

A. Construct concrete equipment bases of dimensions indicated, but not less than 4 inches (100 mm) larger than supported unit in both directions. Follow supported equipment manufacturer's setting templates for anchor bolt and tie locations. Use 3000-psi (20.70-MPa), 28-day compressive strength concrete and reinforcement as specified in Division 3 Section "Cast-in-Place Concrete."

3.6 ERECTION OF METAL SUPPORTS AND ANCHORAGE:

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.

B. Field Welding: Comply with AWS D1.1 "Structural Welding Code--Steel."

3.7 ERECTION OF WOOD SUPPORTS AND ANCHORAGE:

A. Cut, fit, and place wood grounds, nailers, blocking, and anchorage to support and anchor mechanical materials and equipment.

B. Select fastener sizes that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood members.

C. Attach to substrates as required to support applied loads.

3.8 DEMOLITION:

A. Disconnect, demolish, and remove work specified under Division 15 and as indicated.

B. Where pipe, ductwork, insulation, or equipment to remain is damaged or disturbed, remove damaged portions and install new products of equal capacity and quality.

C. Accessible Work: Remove indicated exposed pipe and ductwork in its entirety.

D. Abandoned Work: Cut and remove buried pipe abandoned in place, 2 inches (50 mm) beyond the face of adjacent construction. Cap and patch surface to match existing finish.

E. Removal: Remove indicated equipment from the Project site.

F. Temporary Disconnection: Remove, store, clean, reinstall, reconnect, and make operational equipment indicated for relocation.

3.9 CUTTING AND PATCHING:

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of the trades involved.

B. Repair cut surfaces to match adjacent surfaces.

3.10 GROUTING:

A. Install nonmetallic nonshrink grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors. Mix grout according to manufacturer's printed instructions.

B. Clean surfaces that will come into contact with grout.

C. Provide forms for placement of grout, as required.

D. Avoid air entrapment when placing grout.

E. Place grout to completely fill equipment bases.

F. Place grout on concrete bases to provide a smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout according to manufacturer's printed instructions.

END OF SECTION

SECTION 15062

PIPE: DUCTILE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Ductile iron piping, fittings, and appurtenances.

B. Related Sections include but are not necessarily limited to:

1. Division 01 - General Requirements.
2. Section 15060 - Pipe and Pipe Fittings: Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Society of Mechanical Engineers (ASME):

a. B1.1, Unified Inch Screw Threads (UN and UNR Thread Form).

b. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

2. ASTM International (ASTM):

a. B695, Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.

3. American Water Works Association (AWWA):

a. C203, Standard for Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot Applied.

b. C606, Standard for Grooved and Shouldered Joints.

4. American Water Works Association/American National Standards Institute (AWWA/ANSI):

a. C105/A21.5, Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.

b. C110/A21.10, Standard for Ductile-Iron and Gray-Iron Fittings.

c. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

d. C115/A21.15, Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.

e. C150/A21.50, Standard for Thickness Design of Ductile-Iron Pipe.

f. C151/A21.51, Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.

5. Society of Automotive Engineers (SAE):

a. AMS-QQ-P-416, Cadmium Plating - Electro-deposited.

1.3 SUBMITTALS

A. Shop Drawings:

1. See Division 01 for requirements for the mechanics and administration of the submittal process.

2. Certification of factory hydrostatic testing.

3. If mechanical coupling system is used, submit piping, fittings, and appurtenant items which will be utilized to meet system requirements.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Couplings: Refer to Specification Section 02665.

2. Polyethylene encasement tape:

a. Chase (Chasekote 750).
b. Kendall (Polyken 900).
c. 3 M (Scotchrap 50).

3. Restrained pipe joints: (required for all buried ductile pipe)

a. American (Flex-Ring) - 4 IN to 54 IN.
b. U.S. Pipe (TR-Flex) - 4 IN to 54 IN.
c. Pipe fittings shall be either flange or MJ as indicated on drawings and/or Section 02665.

B. Submit request for substitution in accordance with Specification Section 01640.

2.2 MATERIALS

A. Ductile Iron Pipe:

1. AWWA/ANSI C115/A21.15.
2. AWWA/ANSI C150/A21.50.
3. AWWA/ANSI C151/A21.51.

B. Fittings and Flanges:

1. AWWA/ANSI C110/A21.10.
2. AWWA/ANSI C153.
3. AWWA/ANSI C115/A21.15.
4. Flanges drilled and faced per ASME B16.1 for both 125 and 250 psi applications.

C. Nuts and Bolts:

1. 316 Stainless steel.
2. Heads and dimensions per ASME B1.1.
3. Threaded per ASME B1.1.
4. Project ends 1/4 to 1/2 IN beyond nuts.

D. Gaskets: Gasket rings shall be used and shall be made of best quality rubber composition with thickness and pressure rating as required for the application. Brand and quality shall be approved by the Engineer.

E. If mechanical coupling system is used, utilize pipe thickness and grade in accordance with AWWA C606.

F. Polyethylene Encasement: See AWWA/ANSI C105/A21.5.

2.3 MANUFACTURED UNITS

A. Couplings: Refer to Specification Section 02665

2.4 LININGS AND COATINGS

A. Pipe and Fittings Interior:

1. Cement lined per AWWA C104 suitable for potable water service per NSF 61.

B. Pipe and Fittings Exterior:

1. Above-Grade Piping: Provide shop coat primer required for the coating system specified in Division 9.

2. Buried Piping: Provide shop applied 1-mil bituminous coating system per AWWA C151 for pipe and fittings.

C. Encasement for Underground Metal Piping: ASTM A 674 or AWWA C105.

1. Form: Sheet or tube.

2. Material: LLDPE film of 0.008-inch minimum thickness or high-density, cross-laminated PE film of 0.004-inch minimum thickness.

2.5 SOURCE QUALITY CONTROL

A. Factory Test:

1. Subject pipe to hydrostatic test of not less than 500 psi with the pipe under the full test pressure for at least 10 seconds.

PART 3 EXECUTION

3.1 INSTALLATION

A. Joining Method - Push-On Mechanical (Gland-Type) Joints:

1. Install in accordance with AWWA/ANSI C111/A21.11.

2. Assemble mechanical joints carefully according to manufacturer's recommendations.

3. If effective sealing is not obtained, disassemble, thoroughly clean, and reassemble the joint.

4. Do not overstress bolts.

5. Where piping utilizes mechanical joints with tie rods, align joint holes to permit installation of harness bolts.

B. Joining Method - Push-On Joints:

1. Install in accordance with AWWA/ANSI C151/A21.51.

2. Assemble push-on joints in accordance with manufacturer's directions.

3. Bevel and lubricate spigot end of pipe to facilitate assembly without damage to gasket.

a. Use lubricant that is non-toxic, does not support the growth of bacteria, has no deteriorating effects on the gasket material, and imparts no taste or odor to water in pipe.

4. Assure the gasket groove is thoroughly clean.

5. For cold weather installation, warm gasket prior to placement in bell.

6. Taper of bevel shall be approximately 30 degrees with centerline of pipe and approximately 1/4 IN back.

C. Joining Method - Flanged Joints:

1. Install in accordance with AWWA/ANSI C115/A21.15.

2. Extend pipe completely through screwed-on flanged and machine flange face and pipe in single operation.

3. Make flange faces flat and perpendicular to pipe centerline.

4. When bolting flange joints, exercise extreme care to ensure that there is no restraint on opposite end of pipe or fitting which would prevent uniform gasket compression or would cause unnecessary stress, bending or torsional strains to be applied to cast flanges or flanged fittings.

5. Allow one (1) flange free movement in any direction while bolts are being tightened.

6. Do not assemble adjoining flexible joints until flanged joints in piping system have been tightened.

7. Gradually tighten flange bolts uniformly to permit even gasket compression.

D. Joining Method - Mechanical Coupling Joint:

1. Arrange piping so that pipe ends are in full contact.

2. Groove and shoulder ends of piping in accordance with manufacturer's recommendations.

3. Provide coupling and grooving technique assuring a connection which passes pressure testing requirements.

E. Cutting:

1. Do not damage interior lining material during cutting.
2. Use abrasive wheel cutters or saws.
3. Make square cuts.
4. Bevel and free cut ends of sharp edges after cutting.

F. Install buried piping in accordance with applicable Division 2 specs and as shown on the drawings.

G. Install restrained joint systems where specified in Section 02665.

3.2 FIELD QUALITY CONTROL

A. Test piping systems in accordance with Section 02665.

END OF SECTION

SECTION 15066

PIPE: STAINLESS STEEL

PART 1 GENERAL

1.1 SUMMARY

A. General work included in this Section:

1. Stainless steel tubing, piping, fittings and appurtenances.

B. Related Sections include but are not necessarily limited to:

1. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American National Standards Institute (ANSI):

a. B16.5, Pipe Flanges and Flanged Fittings.
b. B31.1, Power Piping.
c. B36.19, Stainless Steel Pipe.

2. American Society for Testing and Materials (ASTM):

a. A182, Standard Specification for Forged or Rolled Alloy Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High Temperature Service.

b. A193 – Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.

c. A269, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

d. A320, Standard Specification for Alloy Steel Bolting Materials for Low Temperature Service.

e. A380 – Standard Specification for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems.

f. A530, Specification for General Requirements for Specialized Carbon and Alloy Steel Pipe.

g. A774, As-Welded Wrought Austenitic Stainless Steel Fittings for General Corrosive Service at Low and Moderate Temperatures.

h. A778, Welded Unannealed Austenitic Stainless Steel Tubular Products.

i. A967 – Standard Specification for Chemical Passivation Treatment for Stainless Steel Parts.

3. American Water Works Association (AWWA).

a. C207, Standard for Steel Pipe Flange for Waterworks Service, 4-inch through 144-inch.

b. C208, Standard for Dimensions for Fabricated Steel Water Pipe Fittings.

c. C220, Standard for Stainless Steel Pipe, 4-inch and Larger.

d. M11, Steel Pipe - A Guide for Design and Installation.

1.3 SUBMITTALS

A. Certification and Testing.

B. Shop Drawings consistent with Division 01 and including:

1. Installation instructions for expansion bellows.

2. Fabrication details and specifications for all work to be done under this Section.

3. Field welding procedures for all pipe, fittings and appurtenances covered under this Section and when authorized per Paragraph 3.3.B of this Section.

a. Submit at least 30 days prior to beginning welding operations.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Compression Fittings:

a. Imperial
b. Swagelok
c. Approved equal

2. Pressed Connection Piping:

a. Victaulic Press-fit
b. Viega ProPress

3. Expansion Joints (Air Piping):

a. Victualic
b. Anaconda
c. Pathway.

4. Expansion Couplings (Air Piping):

a. Straub
b. Engineer approved equal

5. Split Ring Couplings (Air Piping)

a. Victualic Depend-o-Lok
b. Approved equal

6. Anti-Sieze Compound

a. Nickel Anti-Seize Compound 725 by A.W. Chesterton
b. Permatex Nickel Anti-Seize Compound, ITW Devcon

B. Submit request for substitution in accordance with Division 01.

2.2 MATERIALS

A. Tubing: ASTM A269

1. Filler material: Extra low carbon (ELC) with 0.03 percent maximum carbon.
2. Type 316L.

B. Pipe:

1. ASTM A778, Type 316L (Sch 40 unless otherwise indicated).

C. Pipe Fittings:

1. ASTM A774, Type 316L (Sch 40 unless other indicated).

2. Wall thickness shall match the adjoining pipe.

3. Fittings shall be short radius, smooth formed (up to 24-inch) elbows, unless otherwise shown. Short radius is defined as the radius of the bend equals the diameter of the fitting.

4. Dimensions shall conform to AWWA C208.

D. Branch Connections

1. 3 IN and Smaller: Tee or reducing tee in conformance with the fittings above.

2. 4 IN and Larger: Butt-welded tee or reducing tee in accordance with the fittings above. Saddling/coping of branch connection is not permitted. Fabricated fittings are acceptable.

E. Flanges:

1. Flat faced.
2. Welding neck or slip on type.
3. ASTM A182, Type 316L, type to match piping system.

F. Nuts, Bolts and Washers:

1. ASTM A320, Type 316.
2. Two nuts provided for 1 IN DIA bolt applications and larger

G. Expansion Joints:

1. Bellows: Stainless steel, type to match piping system
2. Liner: Stainless steel, type to match piping system.
3. Flanges: Stainless steel, type to match piping system.
4. Control Tie-Rods: Stainless steel, type to match piping system.

H. Expansion Couplings:

1. Casing: Type 304 Stainless Steel
2. Bolts: Alloy steel or Type 316L Stainless Steel
3. Bars: Galvanized steel or Type 316L Stainless Steel
4. Anchor ring: Stainless Steel
5. Gasket: Nitrile or HNBR as appropriate up to 250 degree Fahrenheit

I. Split Ring Couplings:

1. Body and hardware: Stainless steel, type to match piping

J. Insulating Flange Sets:

1. 1/16 IN thick plastic.
2. Full length bolt sleeves.
3. 1/8 IN thick insulating washers and flat washers for each flange bolt.

2.3 FABRICATION

A. Shop welding of fabrications shall be done according to the procedures and by welders certified per ASME Section IX. Welds shall be done by an inert gas shielding process using only extra low carbon filler metals. Welds shall have a bead height of no more than 1/16 IN. Butt welds shall have 100 percent penetration to the interior backside of the weld joint.

B. All tube, piping, fitting product to be pickled subsequent to manufacturing and fabrication operations and prior to shipping.

1. Pickling solution of 6-10 percent nitric acid and 3-4 percent hydrofluoric acid.

2. Temperature and exact concentrations to be such only a modest etch is produced, but all oxidation and ferrous contamination is removed from metal surface.

3. All pickling solution residues are to be neutralized after pickling.

C. Diameter tolerance and wall thickness tolerance are to conform to ASTM A530. Wall thickness shall be as scheduled in Section 15060. Inside pipe diameter shall be a minimum of the nominal pipe diameter specified.

D. Joints.

1. Shop welded circumferential buttweld joints.
2. Flat faced flanges, Class 150.
3. ANSI B16.1, Class 150.

E. Expansion Joints:

1. Fabricate for 15 psi internal pressure and 250 Deg F operation.

2. Ensure aerial travel in expansion joints of 3.1 IN minimum for 15,000 cycles or 5.2 IN for 1000 cycles.

3. Furnish each assembly with minimum four control tie rods.

4. Fabricate with 125 LB flanged end connections.

F. Split Ring Couplings

1. Double arch cross section
2. Material thickness shall be 0.12 IN minimum
3. Rigid or expansion type as scheduled in 15060.
4. Restraint rings shall be factory welded to pipe.

2.4 Shop testing

A. Testing

1. Hydrostatic test pipe and fittings in accordance with AWWA C200.
2. Test 5 percent of all welds using ultrasonic or radiography testing performed by an independent certified welding inspector.

PART 3 EXECUTION

3.1 EXAMINATION

A. Prior to installation, inspect and verify condition of piping and appurtenances. Installation constitutes installer's acceptance of condition for satisfactory installation.

3.2 PREPARATION

A. Correct defects or conditions which may interfere with or prevent a satisfactory installation.

B. Ensure ends of pipe to be fitted with flanges have all protrusions ground flush.

3.3 INSTALLATION

A. Ensure all pipe cutting, threading and jointing conforms to requirements of ANSI B31.1. Lubricate all pipe threads with Teflon tape.

B. Shop pipe and fitting assemblies shall be connected using flanges, couplings, and other methods as discussed in Section 15060. Field welding will not be allowed unless approved in specific locations by the Owner's Representative.

C. Welding:

1. Provide welds sound and free from embedded scale or slag, and tensile strength at weld not less than pipe.

2. Perform butt welds only with an inert gas shielded process.

3. Adequate inert gas protection is to be provided to the top and under or backside of the weld to protect from atmospheric contamination.

4. Filler metal is to be applied to all manually-performed welds appropriate for the base material being welded.

5. Only inert gas shielded welding processes are to be used for spool fabrication.

6. Provide butt welds with 100 percent penetration to the interior or back side of the weld joint.

7. Weld reinforcement on both sides of the weld are to be smooth, uniform and no more than 1/16 IN in height.

D. Joining Method - Flanges:

1. Apply anti-seize compound to all hardware.

2. Leave 1/8 to 3/8 IN flange bolts projecting beyond face of nut after tightening. Coordinate dimensions and drillings of flanges with flanges for valves, pumps, equipment, and other systems. Tighten bolts evenly around pipe until following range of torques are achieved:

Bolt Size, IN	Ranges of Torque, FT-LB
5/8	40 – 60
3/4	60 – 90
1	70 – 100
1-1/4	90 - 120

E. Compression Sleeve Couplings:

1. Install coupling to allow space of not less than 1/4 IN but no more than 1 IN.

2. Provide harnessed joint unless otherwise shown on Drawings or specified. Use joint harness arrangements detailed in AWWA M11 or as indicated on Drawings.

F. Expansion Joints and Split Ring Couplings:

1. Install in accordance with manufacturer's instructions.
2. Install when outside temperature is between 50 to 70 Deg F.

3.4 FIELD QUALITY CONTROL

A. Test piping systems in accordance with Section 02665.

END OF SECTION

SECTION 15090

PIPE SUPPORT SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe support and anchor systems.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Society of Mechanical Engineers (ASME):

a. B31.1, Power Piping.
b. B31.3, Process Piping.

2. ASTM International (ASTM):

a. A36, Standard Specification for Carbon Structural Steel.

b. A510, Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel.

c. A575, Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades.

d. A576, Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.

3. American Welding Society (AWS):

a. D1.1, Structural Welding Code - Steel.

4. Manufacturers Standardization Society of the Valve and Fittings Industry Inc. (MSS):

a. SP-58, Pipe Hangers and Supports - Materials, Design and Manufacture.

b. SP-69, Pipe Hangers and Supports - Selection and Application.

1.3 SUBMITTALS

A. Shop Drawings:

1. See Division 01 for requirements for the mechanics and administration of the submittal process.

2. Product technical data including:

a. Acknowledgement that products submitted meet requirements of standards referenced.

b. Manufacturer's installation instructions.

c. Itemized list of wall sleeves, anchors, support devices and all other items related to pipe support system.

d. Scale drawings showing guides, hangers, supports, anchors, structural members and appurtenances to describe the pipe support system.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable Articles below are acceptable.

B. Submit request for substitution in accordance with Division 01.

2.2 MANUFACTURED UNITS

A. Hanger Rods: For use in all areas except hazardous locations. See Pipe Support Notes in Drawings for designation of hazardous locations.

1. Material: Type 316 Stainless Steel.

a. ASTM A575, Grade M1020.
b. Minimum allowable tensile stress of 12,000 psi at 650 DegF per MSS SP-58.

2. Continuously threaded.
3. Load limit:

NOMINAL ROD DIAMETER	MAXIMUM SAFE LOAD, (LBS)
3/8 IN DIA (min)	610
1/2 IN DIA	1,130
5/8 IN DIA	1,810
3/4 IN DIA	2,710
7/8 IN DIA	3,770
1 IN DIA	4,960

B. Hanger Rods: For use in hazardous locations.

1. Material: Type 316 Stainless steel.
2. Load limit: Modify load limit for steel hangers based on strength of rod. Obtain from manufacturer.

C. Hangers:

1. Hangers in all locations: Type 316 stainless steel.
2. Hanger types: as shown on Drawings.

D. Trapeze Hangers for Suspended Piping:

1. Material: Type 316 stainless steel unless otherwise indicated in Drawings.

2. Angles, channels, or other structural shapes.

3. Curved roller surfaces at support point corresponding with type of hanger required.

E. Pipe Supports:

1. Pipe supports shall be B-Line as shown on drawings.
2. All pipe supports shall be constructed of 316 stainless steel unless otherwise indicated.
3. 316 stainless steel expansion bolts or Hilti epoxy anchors shall be used to connect pipe supports to concrete surfaces. Epoxy anchors designed by supplier are required for connecting pipe supports to vertical and overhead concrete.

F. Pipe Support Risers:

1. Schedule 40 pipe.
2. Type 316 stainless steel.
3. Type 316 stainless steel in hazardous locations.
4. As recommended by saddle manufacturer.

G. Pipe Support Base Plate:

1. 4 IN larger than support.

2. Collar 3/16 IN thickness, circular in shape, and sleeve type connection to pipe.

3. Collar fitted over outside of support pipe and extended 2 IN from floor plate.

4. Collar welded to floor plate.

5. Edges ground smooth.

6. Type 316 stainless steel.

2.3 DESIGN REQUIREMENTS

A. Contractor is responsible for selection of pipe supports, design of supports, and placement.

1. Support configurations shown on Drawings or included in this Section may be used.

2. Submit alternative configurations, materials, manufactured units, etc. if those shown and specified do not meet Contractor requirements.

B. Supports capable of supporting the pipe for all service and testing conditions.

1. Provide 5 to 1 safety factor.

C. Allow free expansion and contraction of the piping to prevent excessive stress resulting from service and testing conditions or from weight transferred from the piping or attached equipment.

D. Design supports and hangers to allow for proper pitch of pipes.

E. Check all physical clearances between piping, support system and structure.

1. Provide for vertical adjustment after erection.

F. Support vertical pipe runs in pipe chases at base of riser.

1. Support pipes for lateral movement with clamps or brackets.

G. Place hangers on outside of pipe insulation.

1. Use a pipe covering protection saddle for insulated pipe at support point.

2. Insulated piping 1-1/2 IN and less: Provide a 9 IN length of 9 LB density fiberglass insulation at saddle.

3. Insulated piping over 1-1/2 IN: Provide a 12 IN length of 9 LB density fiberglass insulation on saddle.

H. Pipe Support Spacing:

1. General:

a. Factor loads by specific weight of liquid conveyed if specific weight is greater than water.

b. Locate pipe supports at maximum spacing scheduled unless indicated otherwise on the Drawings.

c. Provide at least one (1) support for each length of pipe at each change of direction and at each valve.

2. Stainless steel pipe support schedule:

PIPE SIZES - IN	MAXIMUM SPAN - FT
1-1/2 and less	5
2 thru 4	10
5 thru 8	15
10 and greater	20

3. Copper pipe support schedule:

PIPE SIZES - IN	MAXIMUM SPAN - FT
2-1/2 and less	5
3 thru 6	10
8 and greater	15

4. PVC pipe support schedule:

PIPE SIZES - IN	MAXIMUM SPAN - FT
1-1/4 and less	3
1-1/2 thru 3	4
4 and greater	5

* Maximum fluid temperature of 120 Deg F.

5. Support each length and every fitting:

a. Mechanical coupling joints:

i Place hanger within 2 FT of each side of fittings to keep pipes in alignment.

6. Provide continuous support for tubing.

PART 3 EXECUTION

3.1 INSTALLATION

A. Provide piping systems exhibiting pulsation, vibration, swaying, or impact with suitable constraints to correct the condition.

1. Included in this requirement are movements from:

a. Trap discharge.
b. Water hammer.
c. Similar internal forces.

B. Weld Supports:

1. AWS D1.1.

2. Weld anchors to pipe in accordance with ASME B31.3.

C. Locate piping and pipe supports as to not interfere with open accesses, walkways, platforms, and with maintenance or disassembly of equipment.

D. Inspect hangers for:

1. Design offset.

2. Adequacy of clearance for piping and supports in the hot and cold positions.

3. Guides to permit movement without binding.

4. Adequacy of anchors.

E. Inspect hangers after erection of piping systems and prior to pipe testing and flushing.

F. Welding:

1. Welding rods: ASTM and AWS standards.
2. Integral attachments:

a. Include welded-on ears, shoes, plates and angle clips.

b. Ensure material for integral attachments is of good weldable quality.

3. Preheating, welding and postheat treating: ASME B31.3, Chapter V.

END OF SECTION

SECTION 15100

VALVES: BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Valving, actuators, and valving appurtenances.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Society of Mechanical Engineers (ASME):

a. B1.20.1, Pipe Threads, General Purpose.
b. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
c. B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
d. B16.34, Valves – Flanged, Threaded, and Welding End.

2. ASTM International (ASTM):

a. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

b. D256, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.

c. D638, Standard Test Method for Tensile Properties of Plastics.

d. D648, Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.

e. D695, Standard Test Method for Compressive Properties of Rigid Plastics.

f. D2240, Standard Test Method for Rubber Property-Durometer Hardness.

3. American Water Works Association (AWWA):

a. C207, Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 IN through 144 IN.

b. C500, Standard for Metal-Seated Gate Valves for Water Supply Service.

c. C504, Standard for Rubber-Seated Butterfly Valves.

d. C507, Standard for Ball Valves, 6 IN through 48 IN (150 MM through 1200 MM).

e. C509, Standard for Resilient-Seated Gate Valves for Water Supply Service.

f. {C541, Standard for Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates.}

g. {C542, Standard for Electric Motor Actuators for Valves and Slide Gates.}

h. C550, Standard for Protective Coatings for Valves and Hydrants.

i. C606, Standard for Grooved and Shouldered Joints.

4. American Water Works Association/American National Standards Institute (AWWA/ANSI):

a. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

5. National Electrical Manufacturers Association (NEMA):

a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
b. MG 1, Motors and Generators.

1.3 DEFINITIONS

A. The following are definitions of abbreviations used in this Specification Section or one (1) of the individual valve sections:

1. CWP: Cold water working pressure.
2. SWP: Steam working pressure.
3. WOG: Water, oil, gas working pressure.
4. WWP: Water working pressure.

1.4 SUBMITTALS

A. Shop Drawings:

1. See Division 01 for requirements for the mechanics and administration of the submittal process.

2. Product technical data including:

a. Acknowledgement that products submitted meet requirements of standards referenced.
b. Manufacturer's installation instructions.
c. Valve pressure and temperature rating.

d. Valve material of construction.
e. Special linings.
f. Valve dimensions and weight.
g. Valve flow coefficient.
h. Wiring and control diagrams for electric or cylinder actuators.

3. Test reports.

B. Operation and Maintenance Manuals:

1. See Division 1 for requirements for:

a. The mechanics and administration of the submittal process.
b. The content of Operation and Maintenance Manuals.

C. Informational Submittals:

1. Verification from valve actuator manufacturer that actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted, and that the valve actuator responds correctly to the valve position command.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, refer to individual valve Specification Sections for acceptable manufacturers.

2.2 MATERIALS

A. Refer to individual valve Specification Sections.

2.3 VALVE ACTUATORS

A. Valve Actuators - General:

1. Provide actuators as shown on Drawings or specified.

2. Counter clockwise opening as viewed from the top.

3. Direction of opening and the word OPEN to be cast in handwheel or valve bonnet.

4. Size actuator to produce required torque with a maximum pull of 80 LB at the maximum pressure rating of the valve provided and withstand without damage a pull of 200 LB on handwheel or chainwheel or 300 foot-pounds torque on the operating nut.

5. Unless otherwise specified, actuators for valves to be buried, submerged or installed in vaults or manholes shall be sealed to withstand at least 20 FT of submergence.

6. Extension stem:

   a. Install where shown or specified.
   b. Solid steel with actuator key and nut, diameter not less than stem of valve actuator shaft.
   c. Pin all stem connections.
   d. Center in valve box or grating opening band with guide bushing.

B. Buried Valve Actuators:

1. Provide screw or slide type adjustable cast iron valve box, 5 IN minimum diameter, 3/16 IN minimum thickness, and identifying cast iron cover rated for traffic load.

2. Box base to enclose buried valve gear box or bonnet.

3. Provide 2 IN standard actuator nuts complying with AWWA C500, Section 3.16.

4. Provide at least two (2) tee handle keys for actuator nuts, with 5 FT extension between key and handle.

5. Extension stem:

   a. Provide for buried valves greater than 4 FT below finish grade.
   b. Extend to within 6 IN of finish grade.

6. Provide concrete pad encasement of valve box as shown for all buried valves unless shown otherwise.

C. Plastic Valve Vault:

1. Provide in non-traffic areas only on valve applications 3-1/2 IN and less.

2. Nominal 7-1/2 IN DIA top section.

3. Design unit for screw type extension section having nominal 9 IN DIA bell.

4. Cast iron ring and lid.

5. Constructed of injection molded polyolefin compound with fibrous inorganic component reinforcing and UV stabilization.

6. Armor Access Boxes.

D. Exposed Valve Manual Actuators:

1. Provide for all exposed valves not having electric or cylinder actuators.

2. Provide handwheels for butterfly valves 6 IN and larger.

a. Size handwheels for valves in accordance with AWWA C500.

3. Provide lever actuators for butterfly valves and ball valves 4 IN DIA and smaller.

a. Lever actuators for butterfly valves shall have a minimum of 5 intermediate lock positions between full open and full close.

4. Gear actuators required for butterfly valves, and ball valves 4 IN DIA and larger.

5. Gear actuators to be totally enclosed, permanently lubricated and with sealed bearings.

6. Provide chain actuators for valves 6 FT or higher from finish floor to valve centerline.

a. Cadmium-plated chain looped to within 3 FT of finish floor.
b. Equip chain wheels with chain guides to permit rapid operation with reasonable side pull without "gagging" the wheel.

E. Electric Actuators (120 V, 1 PH) (Valves 4 IN and Smaller):

1. General:

a. Self-contained including motor, gearing, torque switch, limit switches and cast housing.

b. Electrical enclosure: IP68 submersible

c. Factory assembled requiring only field connection of power and control wires.

2. Motors:

a. Produce 1.5 times the required torque.
b. Sized for two (2) complete open-close cycles without overheating.
c. One (1) fully closed to fully open cycle to occur within 60 SEC.
d. Class F insulation.
e. Operate at plus or minus 10 percent voltage.
f. 120 Volt, single phase, 60 Hz.
g. Provide thermal cutout switch and internal heater for actuator enclosure.
h. Control wiring as shown on Drawing control diagrams.

3. Remote pushbutton station (where scheduled):

a. Enclosure: NEMA 4 stainless steel.

b. Control Switches and Push-Button Lights supplied according to P&IDs and electrical drawings.

c. Control wiring as shown on control diagrams.

d. Wire all components to an internal terminal strip and include mounted wiring diagram inside enclosure.

2.4 FABRICATION

A. End Connections:

1. Provide the type of end connections for valves as shown on the Drawings.

2. Comply with the following standards:

a. Threaded: ASME B1.20.1.

b. Flanged: ASME B16.1, Class 125 unless otherwise noted or AWWA C207.

c. Bell and spigot or mechanical (gland) type: AWWA/ANSI C111/A21.11.

d. Soldered: ASME B16.18.

e. Grooved: Rigid joints per Table 5 of AWWA C606.

B. Refer to individual valve Specification Sections for specifications of each type of valve used on Project.

C. Nuts, Bolts, and Washers:

1. Wetted or internal to be stainless steel (type 316).

a. Exposed to be zinc or cadmium plated.

D. On Insulated Piping: Provide valves with extended stems to permit proper insulation application without interference from handle.

E. Epoxy Interior Coating: Provide epoxy interior coating for all ferrous surfaces in accordance with AWWA C550.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Painting Requirements: Comply with Specification Section 09905 for painting and protective coatings.

C. Setting Buried Valves:

1. Locate valves installed in pipe trenches where buried pipe indicated on Drawings.

2. Set valves and valve boxes plumb.

3. Place valve boxes directly over valves with top of box being brought to surface of finished grade.

4. Install in closed position.

5. Place valve on firm footing in trench to prevent settling and excessive strain on connection to pipe.

6. After installation, backfill up to top of box for a minimum distance of 4 FT on each side of box.

D. Support exposed valves and piping adjacent to valves independently to eliminate pipe loads being transferred to valve and valve loads being transferred to the piping.

E. For grooved coupling valves, install rigid type couplings.

F. Install electric or cylinder actuators above or horizontally adjacent to valve and gear box to optimize access to controls and external handwheel.

G. For threaded valves, provide union on one (1) side within 2 FT of valve to allow valve removal.

H. Install valves accessible for operation, inspection, and maintenance.

3.2 ADJUSTMENT

A. Adjust valves, actuators and appurtenant equipment to comply with Division 01.

1. Operate valve, open and close at system pressures.

B. For all 120 Vac and 480 Vac electric actuators, employ and pay for services of valve actuator manufacturer's field service representative to:

1. Inspect valve actuators covered by this Specification Section.

2. Supervise adjustments and installation checks:

a. Open and close valves electrically under local manual and demonstrate that all limit switches are properly adjusted and that switch contacts are functioning properly by verifying the inputs are received at the remote input/output (RIO) panels or local control panel as appropriate.

b. Simulate a valve position command signal at the RIO panel or local control panel as appropriate and demonstrate that the valve is controlled to the desired position without excessive hunting.

3. Provide Owner with a written statement that the valve actuator manufacturer has verified that the actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted and that the valve actuator responds correctly to the valve position command.

END OF SECTION

SECTION 15103

BUTTERFLY VALVES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Butterfly valves (BFV-01, 02, 03, 04, and 05).

B. Related Sections include but are not necessarily limited to:

1. Division 01 - General Requirements.
2. Section 15100 - Valves: Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Society of Mechanical Engineers (ASME):

a. B16.5, Pipe Flanges and Flanged Fittings - NPS 1/2 through NPS 24.

2. ASTM International (ASTM):

a. A48, Standard Specification for Gray Iron Castings.

b. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

c. A276, Standard Specification for Stainless Steel Bars and Shapes.

d. A395, Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures.

e. A436, Standard Specification for Austenitic Gray Iron Castings.

f. A536, Standard Specification for Ductile Iron Castings.

g. B148, Standard Specification for Aluminum-Bronze Sand Castings.

3. American Water Works Association (AWWA):

a. C504, Standard for Rubber-Seated Butterfly Valves.

1.3 SUBMITTALS

A. Shop Drawings:

1. See Division 01 for requirements for the mechanics and administration of the submittal process.

2. See Specification Section 15100.

3. For valves 8 IN and larger, furnish "Affidavit of Compliance" with Owner in accordance with AWWA C504.

B. Operation and Maintenance Manuals:

1. See Division 01 for requirements for:

a. The mechanics and administration of the submittal process.
b. The content of Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. DeZurik.
2. Clow.
3. Mueller.
4. Pratt.
5. Crispin Valves.
6. Val-Matic.

B. Submit request for substitution in accordance with Division 01.

2.2 BUTTERFLY VALVES (AWWA C504)

A. Comply with AWWA C504.

B. Materials:

1. Valve bodies:

a. ASTM A126, Class B or ASTM A536 Grade 65-45-12 ductile iron.

b. Fully rubber lined or NSF 61 coating on inner body.

2. Valve shafts:

a. Stainless steel, 18-8, Type 316.

3. Valve discs:

a. Potable and nonpotable water:

i ASTM A48, Class 40 cast iron.
ii ASTM A536, Grade 65-45-12 ductile iron.
iii ASTM A436, Type 1 alloy cast iron.
iv Bronze in accordance with AWWA C504.
v Stainless steel disc edge.

4. Valve seats:

a. Potable and nonpotable water below 150 Deg F:

i Natural rubber or Buna-N.

5. Mating surfaces:

a. Valves less than 30 IN: ASTM A276, 18-8, stainless steel.
b. Valves 30 IN and larger: ASTM A276, 18-8, stainless steel.

6. NSF 61 Certified.

C. Design Requirements:

1. Seat type:

a. Resilient.
b. Comply with AWWA C504.

2. Exposed and submerged valves 3 through 20 IN.

a. Body type: Short body flange (laying length may vary from AWWA C504).

b. Class 150 B flanges per AWWA C504. Working pressure rated at 150 psi.

3. Exposed and submerged valves 24 IN and larger:

a. Body type: Short body flange.
b. Class 150 B flanges per AWWA C504. Working pressure rated at 150 psi.

2.3 ACCESSORIES

A. Refer to Drawings and/or valve schedule for type of actuators.

1. Furnish actuator integral with valve.

B. Refer to Section 15100 for actuator requirements.

PART 3 EXECUTION

3.1 INSTALLATION

A. See Section 15100.

END OF SECTION

SECTION 15104

BALL VALVES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Ball valves, including motorized ball valve (BV-01).

B. Related Sections include but are not necessarily limited to:

1. Division 01 - General Requirements.
2. Section 15100 - Valves: Basic Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. ASTM International (ASTM):

a. A48, Standard Specification for Gray Iron Castings.

b. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

c. D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.

2. American Water Works Association (AWWA):

a. C507, Standard for Ball Valves, 6 IN through 48 IN.

3. Manufacturers Standardization Society of the Valve and Fittings Industry Inc. (MSS):

a. SP-72, Ball Valves with Flanged or Butt-Welding Ends for General Service.

b. SP-110, Ball Valves; Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

1.3 DEFINITIONS

A. PVDF: Polyvinylidene fluoride.

1.4 SUBMITTALS

A. Shop Drawings:

1. See Division 01 for requirements for the mechanics and administration of the submittal process.

2. See Specification Section 15100.

3. Test results for AWWA valves.

B. Operation and Maintenance Manuals:

1. See Division 01 for requirements for:

a. The mechanics and administration of the submittal process.
b. The content of Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable Articles below are acceptable.

B. Submit request for substitution in accordance with Division 01.

2.2 METALLIC BALL VALVES 1/4 TO 3 IN DIA **(BV-01)**

A. Acceptable Manufacturers:

1. JFlow Controls (Model DM3800FTTS)
2. Or Approved Equal

B. Materials:

1. Body: 316 Stainless Steel with FNPT end connections.
2. Stem, stem gland nut: Stainless Steel.
3. Ball: 316 Stainless Steel.
4. Seats, stuffing box ring, and thrust washer: Reinforced Teflon.
5. Handle: Stainless Steel, except for BV-01 that requires electric actuator.

C. Design Requirements:

1. Rated for at least 400 psi and 250 Deg F, WOG for threaded end applications

2. Handles showing direction of opening with locking feature.

3. Stem with reinforced Teflon stuffing box ring and blowout-proof design.

4. Renewable reinforced Teflon seats.

5. Ball design which does not allow media contact with stem.

6. Balancing stop for all applications.

7. Bodies with mounting pad for applications requiring actuators.

2.3 PLASTIC BALL VALVES: 1/2 IN TO 4 IN DIA

A. Acceptable Manufacturers:

1. Chemtrol.
2. Spears.
3. ASAHI/America.

B. Materials:

1. Body, stem, ball, handle, end connectors:

a. PVC ASTM D1784-12454B
b. CPVC ASTM D1784-23477-B

2. Ball Seat: Teflon.

3. O-rings:

a. General: Viton or PTFE encapsulated fluorocarbon.
b. NaOH or LAS Service: EPDM.

C. Design Requirements:

1. Rated at 150 psi at 75 Deg F.

2. Double or "true union" design.

3. Blocks both directions, upstream and downstream.

4. Union nut capable of compensating for seat wear.

5. Body with mounting pad for actuators where required.

6. Capable of being disconnected at downstream end under full line pressure.

7. Sodium hypochlorite service:

a. Provide "vented" ball valves for all service with greater than 5 percent concentrated sodium hypochlorite.

2.4 ACCESSORIES

A. Refer to Drawings for type of actuators.

1. Furnish actuator integral with motorized ball vale (BV-01).

B. Refer to Section 15100 for actuator requirements.

2.5 SOURCE QUALITY CONTROL

A. Furnish record of test.

PART 3 EXECUTION

3.1 INSTALLATION

A. See Section 15100.

3.2 FIELD QUALITY CONTROL

A. For AWWA C507 ball valves, and in accordance with Division 01 employ and pay for services of equipment manufacturer's field service representative(s) to:

1. Inspect equipment covered by these Specifications.

2. Supervise adjustments and installation checks.

3. Provide test equipment, tools, and instruments necessary to accomplish equipment testing.

4. Conduct startup of equipment and perform operational checks.

5. Provide Owner with a written statement that manufacturer's equipment has been installed properly, has been started up, and is ready for operation by Owner's personnel.

END OF SECTION

SECTION 15109

AIR VALVES

PART 1 GENERAL

1.1 SUMMARY

A. The contractor shall furnish and install air release, air/vacuum, and combination air valves made of composite materials, complete as shown on the plans and specified herein (CAV-01, 02, 03, 04, 05, and 06).

B. Related Sections:

1. Division 01 - General Requirements
2. Section 15100 “Valves: Basic Requirements”

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Water Works Association (AWWA):

a. C512, Standard for Air-Release, Air-Vacuum, and Combination Air Valves for Waterworks Service.

b. American National Standard Institute

1.3 SUBMITTALS

A. Submit under provisions of Division 01.

B. The following submittals are required, at a minimum:

1. Shop Drawings: See Specification Section 15100.

2. Operation and Maintenance Manuals:

a. See Division 01 for requirements for the contents of Operation and Maintenance Manuals.

C. Include any other information necessary for the ENGINEER to determine compliance with the specifications.

D. All deviations from Contract Documents shall be clearly identified and approved in writing by the ENGINEER.

E. Partial or incomplete submittals will not be reviewed by ENGINEER.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable articles below are acceptable.

B. Acceptable:

1. Cla-Val – (Model 33AWS for 4" Pump Discharges Combination Aire/Vacuum Valve, Model 33AKC for 2" combination Air/Vacuum Valve downstream side of pump control valve).
2. APCO
3. Or approved equal.

2.2 GENERAL

A. Obtain all valves from a single manufacturer.

B. End connections to be compatible with those specified in the contract documents and shown on the Drawings. End connections shall be threaded male connection (National Pipe Thread).

C. All components shall be compatible with the process fluid as specified herein.

D. All valves specified under this section shall be furnished with 316 stainless steel ball valves equal to the size of the size of the connection in accordance with Section 15.

E. All valves shall be rated for a maximum working pressure of 250 psi.

F. Valves designated for service in solids-bearing liquids such as raw water or sludge shall incorporate appropriate provisions to prevent clogging of the valve mechanism.

2.3 VALVE TYPES

A. Air/Vacuum Valves

1. The valve shall automatically discharge and/or admit large volumes of air during the filling or draining of a pipeline.

B. Combination Air Valves

1. The combination air valve shall include (A) air and vacuum component and (B) air release component.

a. The air and vacuum component shall automatically discharge and/or admit large volumes of air during the filling or draining of a pipeline.

b. The air release component shall automatically release small volumes of air while the pipeline is full and operating under pressure.

C. Vacuum Breaker

1. The valve shall protect the pipeline from a vacuum by allowing large volumes of air into the pipeline.

2. The valve shall not allow any volume (small or large) to vent out of the pipeline.

D. Vacuum Guard

1. The valve shall allow air to be vented out of the pipeline.
2. The valve shall not allow any relief of a vacuum.

E. Surge Arrester (Non-Slam)

1. The valve shall protect the pipeline from water hammer effects.

2.4 MATERIALS OF CONSTRUCTION (NSF 61 Certification Required)

A. Body: Ductile Iron ASTM A536

B. Discharge Outlet: FNPT

C. Inlet: Flanged for 4" Pump Discharge CAV and FNPT for 2" CAV located downstream of pump control valve.

D. Seals and O-rings: Nitrile Rubber

E. Float: 304 stainless steel

F. Internal Trim Parts: Stainless steel and Delrin

G. Coating: Fusion-bonded epoxy

H. Bolt Hardware: Cadmium plated steel

2.5 ACCESSORIES

A. Furnish any accessories required to provide a completely operable valve.

2.6 SOURCE QUALITY CONTROL

A. Shop hydrostatically test in accordance with AWWA C512. Working pressure of valves 150 psi.

2.7 MAINTENANCE MATERIALS

A. Provide one (1) set of any special tools or wrenches required for operation or maintenance for each type valve.

PART 3 EXECUTION

3.1 INSTALLATION

A. See Specification Sections 11005 and 15100.

3.2 FIELD QUALITY CONTROL

A. Clean, inspect, and operate valve to ensure all parts are operable and valve seats properly.

B. Check and adjust valves and accessories in accordance with manufacturer's instructions and place into operation.

END OF SECTION

SECTION 15112

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Reduced pressure principle backflow preventers (BFP-01 and BFP-02).

1.2 EQUIPMENT LIST:

A. Backflow preventers shall be as follows:

SCHEDULE OF BACKFLOW PREVENTERS				
Location	**Tag Number**	**Connection Size, Type**	**Capacity (gpm)**	**Max pressure loss (psi)**
Sample Line to Instrument Panel (from Pump Station 30" Discharge Header Pipe)	BFP-01	½"	5	150
Hose Bibb and Electrical Room HVAC Supply Line (from Pump Station 30" Discharge Header Pipe)	BFP	¾"	10	150

1.3 QUALITY ASSURANCE:

A. REFERENCES:

This paragraph references the following document. It is a part of this section as specified and modified. In case of conflict between the requirements of this section and those of the listed document, the requirements of this section shall prevail.

1. AWWA C506 - Standard for Backflow Prevention Devices - Reduced Pressure Principle and Double Check Valve Types.

B. TESTING:

1. Backflow preventers shall meet the factory and field test provisions of AWWA C506.

1.2 SUBMITTALS:

A. Submit the following information:

1. Product data and dimensions.
2. Affidavit of Compliance with AWWA C506.
3. Certificate of Approval as specified in AWWA C506.

4. Written instructions for installation, testing, and maintenance.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Watts Series 009
2. Clayton.
3. Badger.
4. Or Engineer-approved equivalent.

2.2 MATERIALS

A. Backflow preventers shall be suitable for potable water service. Materials used shall be lead free.

PART 3 EXECUTION

Reduced pressure principle backflow preventers shall be installed and tested in accordance with the manufacturer's recommendations.

END OF SECTION

SECTION 15114

MISCELLANEOUS VALVES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pressure-reducing valves (PRV-01 and PRV-02).
2. Solenoid valves.

B. Related Sections:

1. Division 01 - General Requirements
2. Section 11005 “Equipment: Basic Requirements”
3. Section 15100 “Valves: Basic Requirements”

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Gas Association (AGA).

2. American Society of Mechanical Engineers (ASME):

a. B16.1, Cast Iron Pipe Flanges and Flanged Fittings - Classes 25, 125 and 250.

3. American Water Works Association (AWWA):

a. C512, Standard for Air-Release, Air-Vacuum, and Combination Air Valves for Waterworks Service.

b. C550, Standard for Protective Interior Coatings for Valves and Hydrants.

4. National Electrical Manufacturers Association (NEMA):

a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).

1.3 SUBMITTALS

A. Submit under provisions of Division 01.

B. The following submittals are required, at a minimum:

1. Shop Drawings: See Specification Section 15100.
2. Operation and Maintenance Manuals:

a. See Division 01 for requirements for the contents of Operation and Maintenance Manuals.

C. Include any other information necessary for the ENGINEER to determine compliance with the specifications.

D. All deviations from Contract Documents shall be clearly identified and approved in writing by the ENGINEER.

E. Partial or incomplete submittals will not be reviewed by ENGINEER.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable articles below are acceptable.

B. Submit request for substitution in accordance with Division 01.

2.2 PRESSURE-REDUCING VALVES (2 IN AND SMALLER)

A. Water Pressure Regulators:

1. Acceptable manufacturers:

a. Watts Series LF 123 LP or LF223 as required for application.
b. Or Engineer-approved equal.

2. Materials:

a. Body: Stainless steel.
b. Strainer body: Stainless steel.
c. Strainer screen: Stainless steel.

3. Design requirements:

a. Self-contained diaphragm operated.

i Spring loaded.
ii Field adjustable.

b. Strainer: Y-type on supply.

c. **Size for inlet pressure 125 – 150 psi inlet and 30 psi outlet pressure**.

2.3 SOLENOID VALVES (1 IN AND SMALLER)

A. General Service (Air - Water):

1. Acceptable manufacturers:

a. ASCO.
b. Or Engineer-approved equal.

2. Materials:

a. Body: Stainless steel.
b. Seat: Buna-N.
c. Insulation: Class F.

3. Design requirements:

a. 110 Vac.
b. Two-way, normally closed.
c. Enclosure: Compatible with area classifications indicated on Drawings.
d. Working pressure, air and water: 125 psig.

4. Accessories: Provide strainer on supply.

2.4 ACCESSORIES

A. Furnish any accessories required to provide a completely operable valve.

2.5 FABRICATION

A. Completely shop assemble unit including any interconnecting piping, speed control valves, control isolation valves and electrical components.

B. Provide internal epoxy coating suitable for potable water for all iron body valves in accordance with AWWA C550.

2.6 SOURCE QUALITY CONTROL

A. Shop hydrostatically test to piping system test pressure.

2.7 MAINTENANCE MATERIALS

A. Provide one (1) set of any special tools or wrenches required for operation or maintenance for each type valve.

PART 3 EXECUTION

3.1 INSTALLATION

A. See Specification Sections 11005 and 15100.

B. Air Release, Vacuum Relief, and Pressure Relief Valves:

1. Pipe exhaust to a suitable disposal point or pipe according to drawings.

2. Where exhausted to a trapped floor drain, terminate exhaust line 6 IN minimum above floor.

C. Float-Operated Valves: Install baffle around float to minimize turbulence adjacent to float.

3.2 FIELD QUALITY CONTROL

A. Clean, inspect, and operate valve to ensure all parts are operable and valve seats properly.

B. Check and adjust valves and accessories in accordance with manufacturer's instructions and place into operation.

END OF SECTION

SECTION 16000

GENERAL REQUIREMENTS FOR ELECTRICAL WORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. General requirements for electrical work. This includes quality standards and system testing.

1.2 REFERENCES:

A. The 2017 National Electrical Code (NFPA 70).

B. Local Amendments to the 2017 National Electrical Code.

C. The Life Safety Code (NFPA 101).

D. Americans With Disabilities Act (Public Law 101-336).

E. The International Building Code.

1.3 SUBMITTALS:

A. Submittals shall be provided in accordance with Section 01300. The submittals shall be identified by the specified equipment number and specification section.

B. Submit results of the testing services as specified herein.

1.4 QUALITY ASSURANCE:

A. All work shall be furnished, installed, and connected in accordance with the National Electrical Code, these specifications, and the drawings. All materials used in this work shall be new and shall bear the inspection label of Underwriter's Laboratories, Inc.

B. Installation shall be supervised by an electrician licensed as a "Master Electrician."

C. Field work shall be under the continuous supervision of a licensed "Journeyman or Master Electrician."

D. Licensing as a "Master" or "Journeyman" electrician shall mean to hold a current certification or license to that effect issued by the State of Texas. Additionally, if the local authority having jurisdiction requires a local license, the Contractor shall maintain licensed electricians that meet the requirements of the local authority. Submit copies of current licenses or certificates for persons employed on the work. Notify Engineer and remove from the work (within 10 days) any persons for whom a license or certificate is suspended, revoked, or is otherwise rendered void by the issuing agency.

E. The drawings and specifications are complementary. What is shown on one is binding whether shown or specified in the other or not. Failure to check both the drawings and the specifications will not be grounds for a change order if additional equipment or material is required to be provided by the Contractor after the Engineer reviews, or deficiencies are identified during testing, either in the Factory or the field.

1.5 EQUIPMENT ACCESSIBILITY:

A. All equipment requiring access for monitoring, controlling other equipment, or servicing shall be accessible. Motor starters and other control equipment shall be installed at a height that will allow an operator to view or control the equipment without stooping or without requiring a platform, stool, or raised floor to view or control the equipment. Generally, motor starters, panels, and similar equipment shall be installed with the top of the enclosure at approximately 5'-6" above floor level. Control stations, and other small enclosures that require normal access, shall be installed with the top of the enclosure at approximately 48-inches above floor level.

B. Equipment that is not considered accessible by the Engineer or Owner shall be relocated by the Contractor, at the request of the Engineer or Owner, at no additional cost to the Owner.

1.6 STORAGE OF MATERIALS AND EQUIPMENT:

Materials and equipment shall be stored so as to protect the materials and equipment during storage. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Equipment and materials to be located indoors shall be stored indoors. Instrumentation shall be stored indoors.

PART 2 PRODUCTS

2.1 COATING SYSTEM:

A. GENERAL:

Where specified, electrical equipment in Division 16 shall be painted by the manufacturer as specified below.

B. FINISH:

Unless otherwise required to be stainless steel, equipment shall be treated with zinc phosphate, bonderized or otherwise given a rust-preventative treatment. Equipment shall be primed, painted with enamel and baked. Minimum dry film thickness shall be 3 mils.

C. COLOR:

Exterior color shall be ANSI 61, gray. Interior shall be painted white. Nonmetallic electrical enclosures and equipment shall be the manufacturer's standard gray or beige color.

2.2 TERMINAL BLOCKS:

Unless otherwise specified, terminal blocks shall be screw terminal, heavy duty, rated at 600V AC. Minimum capacity for control service is 5 amps. Terminals shall be provided with integral marking strips which shall be permanently identified as shown on the shop drawings or required for installation.

2.3 MISCELLANEOUS METAL:

A. Miscellaneous metal installed in conjunction with electrical or instrumentation work shall be hot-dipped galvanized or stainless steel as specified or indicated on the drawings. Painted steel is not acceptable.

B. Materials included in this specification group includes, but is not limited to bars, rods, sheet, plate, channel, or other metal shapes used to, or incorporated in support frames, brackets, mounting plates, etc. Unless otherwise specified, steel parts shall be hot-dipped galvanized after fabrication. Pre-galvanized material used for fabrication shall have all nicks, dings, or other imperfections in the coating repaired. No welding is allowed on pre-galvanized materials. If fabrications require welding after galvanizing, the part or parts shall be regalvanized after welding.

C. Materials used in wet, damp, or corrosive locations shall be stainless steel.

D. Bolts, nuts, screws, washers, or similar ancillary materials used shall be 316 stainless steel for exterior areas, pump rooms, or corrosive locations. Carbon steel with galvanized or cadmium-plated finish may be used in dry, indoor areas.

E. All anchor bolts that are installed in floors shall be 316 stainless steel.

PART 3 EXECUTION

3.1 GENERAL:

A. Drawings are generally diagrammatic and show the arrangement and location of fixtures, equipment, and conduit. Not all conduit, wire, and cable are shown on the Engineers drawings. The Electrical Contractor shall provide all that is necessary for a complete and functional system. The Electrical Contractor shall carefully investigate the structural and finish conditions affecting his work and arrange his work accordingly.

B. Any discrepancy between the Contract Documents and the existing conditions or any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, the Electrical Contractor shall report to the Engineer in accordance with the Standard Conditions of the Contract.

C. Where exact locations are required by equipment for stubbing-up and terminating conduit concealed in floor slabs, the Electrical Subcontractor shall request shop drawings, equipment location drawings, foundation drawings, and any other data required by him to locate the concealed conduit before the floor slab is poured. Additional penetrations/openings not shown on the drawings shall not be made without preapproval by the Engineer.

D. Materials, equipment, or labor not indicated, but which can be reasonably inferred to be necessary for a complete installation shall be provided. Drawings and Specifications do not undertake to indicate every item of material, equipment, or labor required to produce a complete and properly operating installation.

E. The right by the Owner and Engineer is reserved to make reasonable changes in locations of equipment indicated on drawings prior to rough-in without increase in contract cost.

F. The Contractor shall not reduce the size or number of conduit runs indicated on the drawings without the written approval of the Engineer.

G. Locate pull boxes, panelboards, control pushbuttons, terminal cabinets, safety switches, and such other apparatus that may require periodic maintenance, operation, or inspection, so that they are easily accessible. If such items are shown on the plans in locations which are found to be inaccessible, the Engineer shall be advised of the situation before work is advanced to the point where extra costs will be involved.

H. All additional circuit connections to panelboards shall be preapproved by the Engineer.

I. Any work installed contrary to Contract Drawings shall be subject to change as directed by the Engineer, and no extra compensation will be allowed for making these changes.

J. The location of equipment fixture outlets, and similar devices shown on the Drawings are approximate only. Do not scale drawings. Obtain layout dimensions for equipment from Architectural plans unless indicated on electrical plans.

K. Review all drawings for door swings, cabinets, counters, and built-in equipment.

3.2 RACEWAY INSTALLATION:

Use the following raceway materials for raceways in the identified applications.

A. Rigid PVC: Buried Raceways.

B. Rigid Steel: Outdoors and indoors.

C. PVC Coated Rigid Steel: Where indicated or specified.

D. Flex: Provide a length of flexible conduit between fixed rigid conduit and connected equipment such as motors, instruments, or switching devices. Flexible section shall not be shorter than 12 inches and no longer than 42 inches. Flex not required for indoor lighting fixtures or devices. Liquid tight or flexible metal, as specified or indicated.

3.3 PHASE CONNECTIONS:

Phase connections for equipment shall be A, B, C, counting from front to back, top to bottom, and left to right as viewed from the operating mechanism side. Conductors shall be color coded as specified.

3.4 TESTING:

A. GENERAL:

Prior to energizing the electrical circuits, the following tests shall be performed. Unless otherwise specified, a 1000 volt megohmmeter shall be used for resistance measurements. Record and submit test results using form at the back of this Section.

B. INSULATION RESISTANCE MEASUREMENTS:

Test all energized electrical components including conductors for circuits 120V volts and higher. Conductors and devices with less than 50 megohms resistance to ground or between conductors or phases shall be removed and replaced. All conductors in a raceway shall be removed if a conductor in that raceway fails the insulation resistance test. The conductors shall not be reused.

C. MOTOR TESTS:

All motors shall have their insulation resistance measured before they are connected. Insulation resistance values less than 10 megohms are not acceptable. Verify that motors are connected to rotate in the correct direction. Verification may be accomplished by momentarily energizing the motor, provided the Contractor confirms that neither the motor nor the driven equipment will be damaged by reverse operation. Measure the full load current on each phase with the motor running at maximum operating load.

D. FUNCTIONAL CHECKOUT:

Protective devices shall be adjusted and operative during the testing period. Prior to start-up of each piece of equipment or system, perform a functional checkout on control circuits. The checkout shall consist of energizing each control circuit and operating each control, alarm, or malfunction device, and each interlock in turn to verify that the specified action occurs. This may be performed with the motor connected or disconnected, providing that no harm will be done to the equipment.

3.5 AS-BUILT DRAWINGS:

At the end of the project, provide one set of “red-lined” as-built drawings to the Engineer. As-built drawings shall show all addenda, change orders, or other modifications made by the contractor or directed by the Engineer/Owner. Drawings shall be complete and shall be accurate. Manholes and other in-ground structures shall be dimensioned from a known structure. Modifications to control schematics shall be marked on the drawings. Final payment will not be made until as-built drawings are accepted by the Engineer.

END OF SECTION

MOTOR, CIRCUIT, AND DEVICE
ELECTRICAL TEST RESULTS

PROJECT _____

OWNER _____

DATE _____

CIRCUIT OR
EQUIPMENT ID _____

1 PHASE 3 PHASE 120 VOLT 208 VOLT 480 VOLT _____ VOLT

MEASURED VOLTAGES: MEASURED CURRENT:

PH. A--GND _____ A-B _____ PH. A _____ AMPS

PH. B--GND _____ B-C _____ PH. B _____ AMPS

PH. C--GND _____ A-B _____ PH. C _____ AMPS

MEASURED INSULATION RESISTANCE, MEG OHMS, PHASE TO GROUND @ 1,000 VOLTS:

PH. A _____ PH.B _____ PH.C _____

MOTOR NAMEPLATE DATA:

VOLTS _____ pH _____ SF _____ FLA _____

THERMAL OVERLOAD DEVICE:

MFG: _____ CAT/PART NO. _____ AMPS _____ SETTING _____

OPERATING CONDITIONS:

COMMENTS:

_____ _____
CONTRACTOR'S SIGNATURE INSPECTOR'S SIGNATURE

SECTION 16110

RACEWAYS AND FITTINGS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. The work shall include furnishing and installing all rigid steel and flexible metallic conduit, electrical metallic tubing, polyvinyl chloride conduit, wireways, pull and junction boxes and outlet boxes, together with all supporting devices and other accessories required.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all materials, under provisions of Section 01300.

PART 2 PRODUCTS

2.1 CONDUITS:

A. Galvanized Rigid Steel Conduit (GRC): Rigid, threaded, thick-wall; galvanized inside and outside or galvanized outside with a protective coating inside; UL listed and labeled according to Standard UL6; conforming to ANSI Standard C80.1.

B. PVC-Coated Galvanized Rigid Steel Conduit: Hot dip galvanized inside and out with hot galvanized threads. 40 mil polyvinyl chloride exterior with 2 mil urethane interior. UL listed and labeled according to Standard UL6; conforming to ETL Verified PVC-001.

C. Flexible Metal Conduit: Spirally wound with hot dip galvanized steel strips (commercial Greenfield); to UL Standard UL 1 and UL listed and labeled.

D. Liquidtight Flexible Metal Conduit: Spirally wound with hot dip galvanized steel strips as for flexible metal conduit; with polyvinyl chloride cover extruded over the exterior to make conduit liquidtight. UL listed for grounding.

E. Rigid Nonmetallic Conduit: Rigid nonmetallic conduit shall be NEMA TC2, type EPC-40 or EPC-80 PVC high impact, polyvinyl chloride (PVC). Fittings used with PVC conduit shall be PVC solvent weld type. Nonmetallic conduits shall be UL listed for their respective applications. Minimum size shall be 3/4-inch.

1. Buried: Schedule 40.

2.2 CONDUIT FITTINGS:

A. Couplings, condulets, and Terminations for GRC: Factory made steel threaded condulets and couplings; gasketed, bushing at all boxes and cabinets, with locknuts inside and outside box or cabinet. Fittings shall be cast steel with threaded connections.

B. Couplings, condulets, and terminations for PVC Coated Galvanized Rigid Steel Conduit: Factory made condulets and couplings. All condulets, couplings, and other fittings shall be factory fabricated and shall meet the same standards as the PVC Coated Galvanized Rigid Steel Conduit.

C. Couplings and Terminations for Flexible Metal Conduit: T&B 440 Series couplings at connections between flexible and rigid conduit; T&B 3110 or 3130 Series nylon insulated throat, steel connectors at box or cabinet terminations.

D. Couplings and Terminations for Liquid Tight Flexible Metal Conduit: T&B 5271 Series adapters at connections between flexible and rigid conduit; T&B 5331 Series nylon insulated throat steel connectors at box or cabinet terminations.

E. Couplings and Terminations for Rigid Nonmetallic Conduit (PVC): PVC shall be solvent weld by male thread adapter, Schedule 40 or Schedule 80 as required. Other fittings shall be solvent weld connections.

2.3 WIREWAYS:

A. Interior Use: UL listed; enamel finished; sizes shown or required; hinged covers; complete with: all fittings, couplings, hangers and accessories; Universal Hoffman or equivalent. Wireway shall be positioned such that the cover opens downward. Wireway shall be positioned such that the cover opens downward.

B. Exterior Use: UL Listed; hot-dip galvanized finish; sizes indicated or required; removable front cover which is gasketed; weatherproof rainhood.

2.4 OUTLET BOXES:

A. UL listed of sizes and types specified.

B. Sheet Steel Boxes: Sheet panel not lighter than No. 14 gauge, galvanized after fabrication; Raco or Steel City.

C. Cast Metal Boxes: Cast iron or cast alloy with threaded hubs; Crouse-Hinds, Appleton, or O.Z./Gedney.

2.5 PULL BOXES AND JUNCTION BOXES:

A. Sheet steel, galvanized inside and outside, with galvanized covers.

B. Small Boxes: For boxes where the volume required is not over 100 cubic inches, use standard outlet boxes.

C. Larger Boxes: For boxes where the volume is over 100 cubic inches, use cabinets as specified for panelboard cabinets with covers of same gauge as boxes, secured with corrosion resistant bolts or screws.

PART 3 EXECUTION

3.1 INSTALLATION OF RACEWAYS:

A. All wiring of every description shall be run in conduit unless noted or specified otherwise. Conduits may be run exposed in machinery and electrical rooms and unfinished areas. All other conduits shall be run concealed unless otherwise noted. All exposed runs shall be installed parallel and plumb to the surface of the building or structure in a neat and orderly manner.

B. Types: All conduits installed outdoors or indoors shall be GRC conduits.

C. Conduits installed below grade, in slabs, or buried in earth shall be PVC.

D. Where PVC conduits stub up beneath electrical equipment into equipment maintenance pads, install an end bell at the termination of the conduit. Conduits stubbed up in maintenance pads with no equipment above shall be terminated with a coupling and flush plug.

E. PVC Coated Rigid Steel Conduit may be required for specific areas other than those specified herein as indicated on the drawings or specified herein.

F. Sizes: Size and install raceways so that conductors may be drawn in without injury or excessive strain. Make field bends with approved bending devices. Do not install bends or offsets in which conduit is crushed, deformed or otherwise injured. Sizes of conduits shown on the drawings are minimum sizes to be installed. Size conduits per applicable electrical code.

G. Connections: Use lengths of flexible metal conduit, not less than 12" long at final connections to all motors, controls, and other devices subject to movement because of vibration or mechanical adjustment. Flexible metal conduit may be used at connections to lighting fixtures. Use liquidtight flexible metal conduit at all other locations. Do not install liquidtight flexible metal conduit to other devices or between panelboards or enclosures unless specifically shown on the drawings or approved by the Engineer.

H. Around Heat Producing Equipment: Wherever possible, avoid installing raceways directly above or in close proximity to heaters and other like objects operating at high temperatures.

I. Damp or Wet Locations: In damp or wet locations make every effort to avoid installing raceways in a manner which will create moisture traps. Where they must be so installed, seal both ends of raceways with an approved sealing compound to prevent "breathing" and moisture condensation within the raceways.

J. Joining Rigid Conduits: Join with threaded couplings. Ream out all conduit ends after threading. Secure rigid conduits at panel boxes, junction boxes, pull boxes, switchboards, support boxes, or sheet metal outlet boxes by galvanized locknuts, inside and outside, with insulating bushing inside. Unthreaded set screw type couplings or connectors are not acceptable in rigid conduit systems. No running threads shall be used in conduit systems.

K. Install blank knock out plugs in all unused openings in boxes, enclosures, or panels.

L. Penetrations: Wherever raceways pass through floors, walls, partitions, etc., carefully fill all space between the outside of the raceway and the building material to prevent passage of air, water, smoke and fumes. Filling materials shall be fire resistive and in general, similar to the basic building materials through which the raceway passes.

3.2 SEALING CONDUITS:

A. Damp or Wet Locations: In damp or wet locations make every effort to avoid installing raceways in a manner which will create moisture traps. Where they must be so installed, seal both ends of raceways with an approved sealing compound to prevent "breathing" and moisture condensation within the raceways.

B. Protection of Raceways: Seal ends of all raceways with blank discs ("pennies"), push pennies or other approved closers during construction. Do not pull any conductors into raceways until all plastering and concrete finishing in the vicinity is completed. Swab out all raceways before pulling in conductors.

3.3 INSTALLATION OF PVC CONDUIT:

A. Transition from below grade PVC to above grade rigid steel or PVC coated rigid steel shall be before conduit rises out of ground. On conduits larger than 2 inches, use rigid steel elbow. Tape wrap the portion of rigid steel or PVC coated rigid steel conduit in the ground as specified in Section 16115.

B. PVC conduit shall not be installed above grade in outdoor areas unless specifically indicated on the drawings.

3.4 SPARE OR EMPTY CONDUITS:

A. Provide in every spare or empty raceway, not containing conductors to be installed by this Contractor, a suitable pull line to facilitate future installation of wiring. Lines shall be free from splices and shall have ample exposed length at each end.

B. All lines shall be nylon or polyethylene cord with a tensile strength not less than 200 pounds.

C. Identify each end of each line with a stainless steel tag bearing complete information as to the purpose of the raceway and the location of its other end.

D. All spare conduits, not terminated in an enclosure, shall be terminated using a conduit cap or plug.

3.5 CONDUIT SUPPORTS:

A. Support material installed shall be stainless steel, malleable iron, or hot-dipped galvanized.

B. All anchor bolts shall be stainless steel.

C. All supports that come in contact with the floor, roof, or where water may stand or accumulate, whether indoors or outdoors, shall be stainless steel.

D. All supports that are located below grade shall be stainless steel.

E. Support Spacing: Use minimum spacing as directed by National Electrical Code, but space hangers more closely where required by conditions.

F. Vertical Conduit Risers: Support vertical conduits at each floor by means of riser clamps or U-bolts, clamping them to a steel channel bridging the opening in the floor.

G. Individual Conduits: Support conduits running vertically or horizontally with galvanized malleable iron one hole clamps with backing plates and spacers. Carry individually supported horizontal conduits 1-1/4" and larger on B-Line hangers. Use no perforated strap iron as hanger material.

H. Multiple Conduits: Where multiple raceways are to run horizontally at the same elevations, they may be supported on trapezes formed of sections of Unistrut angle iron channels suspended on rods or pipes. Size trapeze members including the suspension rod for the number size and loaded weight of the conduits they are to support. Space them as required for the smallest conduit supported. Minimum hanger rod size is 3/8-inch diameter.

I. Supports provided with PVC Coated GRC conduit shall be corrosion resistant. Galvanized steel supports will not be acceptable.

J. All galvanized material cut during installation shall have the cut ends painted with a zinc rich paint.

3.6 INSTALLATION OF OUTLET BOXES:

A. Usage: Provide at each outlet or device of whatever character a metal outlet box in which conduits shall terminate.

B. Boxes Recessed in Construction: Sheet steel boxes.

C. For Lighting Fixture Outlets in the Electrical Room: 4" octagonal by 1-1/2" minimum.

D. For Lighting Fixture Outlets in the Pump Room: Cast metal boxes.

E. For Wall Switches, Receptacles and Communications in the Electrical Room: Use: Use 4" x 4" size.

F. For Wall Switches, Receptacles and Communications in the Pump Room: Use 4" x 4" size cast metal box.

G. Boxes for Exposed Work: Cast metal boxes.

H. Boxes for Outdoors: Cast metal boxes with gasketed covers.

3.7 INSTALLATION OF PULL AND JUNCTION BOXES:

A. Sizing: Size all pull and junction boxes in accordance with NEC, using larger sizes than required by code where job conditions so indicate.

B. Mounting: Fasten all boxes securely to the building construction, independent of conduit systems. On concealed conduit systems where boxes are not otherwise accessible, set box covers flush with finished surfaces for access.

C. Identification of Pull and Junction Boxes: Each pull and junction box shall be labeled with indelible ink to indicate the wiring contained inside the box. The label shall indicate the panel and circuit number of the wiring contained. The cover plates of boxes serving emergency circuits shall be painted red. Boxes servicing other systems shall be indicated by name.

END OF SECTION

SECTION 16115

UNDERGROUND ELECTRICAL DUCT AND CONDUIT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Underground electrical duct and direct burial conduit, together with all other accessories required.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all materials, under provisions of Section 01300.

PART 2 GENERAL

2.1 UNDERGROUND DUCTS:

A. Schedule 40, heavy wall, high impact rigid virgin polyvinyl chloride (PVC) conduit and fittings, conforming to NEMA Publications TC2 and TC3 and UL listed; Carlon or equivalent.

2.2 CONDUITS:

A. Underground PVC Conduit: Schedule 40, heavy wall, high impact rigid virgin PRECAST polyvinyl chloride (PVC) conduit and fittings, conforming to NEMA Publications TC2 and TC3 and UL listed for direct burial use; Carlon or equivalent.

B. Rigid Steel Conduit: As specified under Raceways and Fittings, Section 16110.

C. PVC-Coated Galvanized Rigid Steel Conduit: As specified under Raceways and Fittings, Section 16110.

PART 3 GENERAL

3.1 GENERAL:

A. After the affected electrical work has been installed, tested, and approved, backfill all excavations with suitable material. Include the cutting of all sidewalks, streets, and other pavement and repairing the openings in them to return the surface to approximately its original condition.

3.2 EXCAVATIONS:

A. Perform all excavations of every description of whatever substances encountered and to the depths required for installation of the work under this Division.

B. During excavation, stockpile material suitable for backfilling in an orderly manner a sufficient distance from the banks of the trenches to prevent slides or cave-ins. Remove all excavated material not required or suitable for backfill, or waste as directed. Control grading to prevent surface water from flowing into excavations and remove any accumulated water by pumping.

C. Use open cut grading and make trenches of the necessary width for proper installation of the lines with banks as nearly vertical as possible.

D. Grade the bottom of trenches accurately to provide uniform bearing and support for conduit or duct on undisturbed soil at every point along its entire length.

E. Except at locations where excavation of rock from the bottoms of trenches is required, take care not to excavate below the depths required. Where rock excavation is required, remove the rock to a minimum overdepth of 4 inches below the trench depths specified. Backfill the overdepth rock excavation and excess trench excavation to the proper level with sand prior to the installation of conduit or ducts. Whenever wet or otherwise unstable soil that is incapable of properly supporting conduits or ducts is encountered in the trench bottom, remove such soil to a depth required and backfill the trench to trench bottom grade with sand or other suitable material.

3.3 BACKFILLING:

A. Carefully backfill trenches with earth, sandy clay, sand and gravel, or other approved material free from large clods of earth or stone, deposited in thoroughly and carefully compacted 6-inch layers. Do not use blasted rock, broken concrete or pavement, or large boulders as backfill material. Settling the backfill with water will be permissible and will be required when so directed. Re-open any trenches improperly filled or where settlement occurs to the depth required for proper compaction the refill, mound over and smooth off.

B. Backfill open trenches across roadways or other areas to be paved as specified above except that the entire depth of trench shall be backfilled in 6-inch layers, each layer moistened and compacted to a density of not less than 95 percent Standard Proctor in such manner as to permit the rolling and compaction of the filled trench together with the adjoining earth to provide the required bearing valve and permit paving of the area immediately after backfilling is completed. Along all other portions of the trenches, grade the ground to a reasonable uniformity and leave the mounding over the trenches in a uniform and neat condition.

C. All trenches that settle shall be refilled by the contractor.

3.4 UNDERGROUND DUCT INSTALLATION:

A. Use PVC electrical ducts, installed with concrete encasement, with a minimum of 3" of concrete between ducts and earth, and with 2 inches of concrete between adjacent ducts. Provide minimum 30 inches of cover from the top of concrete to finished grade, or as indicated on the drawings. Install with uniform slope for drainage, with no low pockets to collect water.

B. Where ducts cross beneath roadways, or other locations as indicated on the drawings, reinforce the duct with rebar as indicated on the drawings.

C. After the concrete is poured, cover the entire surface of the concrete with a red dye. The red dye shall be provided with a uniform cover and shall be worked into the concrete a minimum of 2-3 inches.

D. Build up duct banks completely in the trench before placing concrete, using factory-fabricated plastic conduit spacers in staggered spacings, and securing the entire assembly with heavy twine or cord to ensure rigidity during pouring. Do not use metal for this purpose. Assemble conduits with staggered adjacent couplings so that no two couplings will lie in the same transverse plane, in a vertical direction. Use solvent cement as directed by the duct manufacturer in making up all joints.

E. Fabricate duct runs with standard factory-made fittings, elbows and accessories. Make all changes of direction, horizontal or vertical with long sweep bands having a minimum radius of 25 feet, except that manufactured bends at or near the ends of the runs may be used on short runs of 100 feet or less. Make long sweep bends with one or more curved or straight sections of duct. Manufactured bends, where permitted, shall have a minimum radius of 10 times the nominal duct diameter. Where manufactured ducts of greater than a 30 degree angle are required, use rigid hot dipped galvanized steel conduit bends. During construction, protect partially completed duct lines from entrance of dirt and debris by means of suitable factory-made duct plugs. After completion of installation, seal all ends of spare ducts with factory-made duct plugs.

F. Where ducts enter in or under buildings, or turn up through equipment pads, change from PVC duct to rigid galvanized steel conduit below grade outside the structure, using suitable factory adapters. At the point of change of materials, extend the concrete envelope to enclose at least 2 feet of steel conduit. Wrap all steel conduits and fittings buried in earth as specified elsewhere herein.

G. Install the concrete envelope for a given duct run in one pour where possible. Use concrete of 3000 psi compressive strength. In pouring concrete, do not allow heavy masses of concrete to fall on ducts. Direct flow of concrete down sides of assembly to bottom, forcing it to flow to center of bank and then to rise up in middle, filling all spaces uniformly. Spade concrete liberally and carefully with a long, flat slicing bar between vertical rows to eliminate voids. Weight or brace the duct bank assembly if necessary, to prevent the assembly from floating. Because of the fact that PVC conduits may expand considerably during construction, each run and its concrete envelope shall be installed starting at one end and processing toward the other with any necessary adjustments to length being made at the end toward which the work is progressing.

H. After ducts are installed, complete with envelope, and before pulling any cable, pull a mandrel through every duct to check for alignment and clear passage. Use an iron-shod mandrel with a diameter of 1/4 inch less than the nominal size of the duct and a length equal to the duct diameter. Mandrel shall have a leather or rubber gasket slightly larger than the duct hole. After testing the

ducts with the mandrel, pull a stiff-bristled brush through each duct until it is clear of all particles of earth, sand or gravel; then install duct plugs immediately.

3.5 UNDERGROUND PVC CONDUIT INSTALLATION:

A. Install at least 18 inches below finished grade unless indicated otherwise. Assemble and install raceways in accordance with manufacturer's instructions. Make joints with couplings and solvent cement. Fabricate bends of 30 degrees or more with factory-made elbows, or make field bends with proper heating equipment. Bends showing signs of overheating or flattening are unacceptable. Ream ends of all conduits before joining.

B. "Snake" PVC conduit in trench, from side to side, with a complete cycle every 40 feet to allow for expansion and contraction. Maintain this configuration during backfilling.

C. Where conduit turns up out of earth, or floor slabs, change from PVC to rigid galvanized steel conduit below grade and outside of such structures. Make similar change from PVC to rigid galvanized steel conduit at connections to underground pull or junction boxes. Wrap all steel conduits and fittings buried in earth as specified elsewhere herein.

D. Do not extend any PVC conduit above grade.

E. Install 6 inch wide detectable electrical warning tape above conduits.

3.6 UNDERGROUND RIGID STEEL CONDUIT INSTALLATION:

A. All rigid galvanized steel conduit exposed to earth shall be wrapped with 3M Company 0.020 inch thick No. 51 "Scotchrap" vinyl plastic tape, half lapped to give double thickness wrap. Remove all oil, grease and dirt from conduit with a suitable solvent, and clean and dry conduit before wrapping. If conduit is pre-wrapped in the shop and then cut and joined on the job, wrap all joints on the job, overlapping pipe wrapping 3" on both sides of joints.

B. All PVC coated rigid steel conduit connected to below grade PVC conduit shall be wrapped with 3M Company 0.020 inch thick No. 51 "Scotchrap" vinyl plastic tape, half lapped to give double thickness wrap, between the PVC coating and the PVC conduit to cover any steel conduit exposed. Remove all oil, grease and dirt from metal with a suitable solvent, and clean and dry conduit before wrapping.

3.7 EXISTING UNDERGROUND CONDUITS:

Existing underground conduits shall be removed in their entirety or abandoned in place, as indicated on the drawings or directed by the Engineer.

3.8 SPARE OR EMPTY CONDUITS:

A. Provide in every spare or empty raceway, not containing conductors to be installed by this Contractor, a suitable pull line to facilitate future installation of wiring. Lines shall be free from splices and shall have ample exposed length at

each end.

B. All lines shall be nylon or polyethylene cord with a tensile strength not less than 200 pounds.

C. Identify each end of each line with a stainless steel tag bearing complete information as to the purpose of the raceway and the location of its other end.

D. All spare conduits, not terminated in an enclosure, shall be terminated using a conduit cap or plug.

3.9 MANHOLES AND PULLBOXES:

A. Manholes and Pullboxes:

1. Precast manholes and pullboxes:

a. Grout or seal all joints, per manufacturer's instructions.

b. Provide a premolded joint compound between the precast lid and joints between any sections. Ram Nek, Kent Seal, or Engineer approved equal.

2. Covers and frames: Paint with two coats of asphalt paint before setting.

3. Support cables on walls by cable racks:

a. Provide a minimum of two (2) racks, install symmetrically on each wall of manholes.

i Provide additional cable racks, as required, so that both ends of cable splices will be supported horizontally.

b. Equip cable racks with adjustable hooks: Quantity of cable hooks as required by the number of conductors to be supported.

4. In each manhole and pullbox, drive ground rod into the earth with approximately 6 inch exposed above finished floor.

a. Drill opening in floor for ground rod.
b. Connect all metallic components to ground rod by means of #8 AWG minimum size wire with approved grounding clamps.

5. Place manhole on a foundation of compacted 1/4 to 1/2 inch crushed rock or gravel a minimum of 8 inch thick and 6 inch larger than manhole footprint on all sides. Install pullbox as indicated on the drawings.

6. Unless otherwise detailed on the Drawings:

a. In unpaved areas, install so that the top of cover is 1 inch above finished grade.

b. In paved areas, install so that cover is flush with finished grade.

c. Where existing grades are higher than finished grades, install sufficient number of courses of curved segmented concrete block between top of pullbox and manhole frame to temporarily elevate manhole cover to existing grade level. After final grade is achieved, modify blocks as required to achieve the specified top of cover. If necessary, provide fill material and grade area.

7. After installation is complete, backfill and compact soil around manholes and pullboxes.

8. Pullbox size:

a. As indicated on the Drawings or as required for the number and size of conduits entering.

9. Manhole size:

a. As indicated on the Drawings or as required for the number and size of conduits entering.

END OF SECTION

SECTION 16120

CONDUCTORS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Conductors, together with all splices, connections, and identification, including pulling devices.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all materials, under provisions of Section 01300.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Building wire, power and control cable:

a. Alphawire.
b. General Cable.
c. Okonite Company.
d. Southwire Company.

2. Multi-conductor 600 Volt Power Cable:

a. General Cable.
b. Okonite Company.

3. Control Cable:

a. Alphawire.
b. General Cable.
c. Okonite Company.

4. Instrumentation cable:

a. Alphawire.
b. Belden Inc.

5. Ethernet Cable:

a. Belden.
b. DataTwist 4800 UTP Cables.
c. Engineer approved equal.

6. Fiber optic cable:

a. Corning.
b. Belden Inc.

2.2 CONDUCTORS (600 VOLTS AND UNDER):

A. Type: Soft drawn, annealed copper, UL listed, rated at 600 volts, continuous without weld, splice or joint, uniform cross-section, free from flaws, scale and other imperfections; Okonite, Triangle, or Simplex. No. 8 and larger shall be stranded; No. 10 and smaller shall be solid.

B. Insulation: Branch circuits shall have type THHN/THWN or XHHW insulation unless the type is specifically designated or specified. Service feeders shall be type THHN/THWN or XHHW. Feeder circuits shall be Type THHN/THWN or XHHW.

C. All conductors installed underground or in areas where exposed to damp or wet locations shall be rated THWN or XHHW.

D. Circuits Subjected to High Temperatures: Type XHHW 90 C conductors for wiring in proximity to boilers, and for motors and devices subject to high temperature because of high ambient temperature or convection or radiant heat.

E. Lighting Fixture Conductors: Type and size approved by the NEC for the purpose.

2.3 MULTI-CONDUCTOR POWER CABLE:

A. References: UL 1277, UL 1581, ICEA S-61-402 (NEMA WC5), ICEA T-29-520, IEEE 383.

B. Multiconductor cable, 3 or 4 conductor as required.

C. Bare stranded copper equipment grounding conductor sized in accordance with NEC Table 250.122.

D. Conductor: No. 12 AWG minimum, 7 or 19 strands, concentric-lay, uncoated copper. Maximum operating temperature 90° C.

E. UL listed for use in cable trays.

F. Conductor Insulation: Type XHHW.

G. Shield: None.

H. Cable assembly jacket: Black flame retardant chlorinated polyethylene compound or Solonon, applied over tape wrapped cable core, rated 600 volts.

I. Factory Tests: Insulted conductors shall conform to the UL requirements for Type XHHW. Assembly jacket shall meet the requirements of UL 1277. Cable shall conform to the flame test requirements of IEEE 383 and UL 1277 for Type TC power tray cable.

J. Conductor color coding for shall conform to ICEA Method 1, Table E-2.

2.4 CONTROL CABLE

A. Reference: UL 83, UL 1277, ICEA S-61-402 (NEMA WC5).

B. Multiconductor cable.

C. Conductor: No. 14 AWG minimum, 7 or 19 strands, concentric-lay, uncoated copper. Maximum operating temperature 90° C.

D. UL listed for use in cable trays.

E. Conductor Insulation: Type THHN/THWN.

F. Shield: None.

G. Cable assembly jacket: Black flame retardant PVC UL 1277, Table 10.17, applied over tape wrapped cable core, rated 600 volts.

H. Conductor color coding shall conform to ICEA Method 1, Table E-2.

I. Factory Tests: Insulated conductors shall conform to the requirements of UL 83 for Type THHN/THWN. Assembly jacket shall meet the requirements of UL 1277. Cable shall conform to the flame test requirements of UL 1277 for Type TC power and control tray cable.

2.5 INSTRUMENT CABLE

A. Reference: UL 2250, UL 1277.

B. The assembly shall be rated 600 volts, 90° C.

C. The assembly shall be UL listed as sunlight resistant, for cable tray use, and shall meet the requirements for types CL2 and CL3 cable.

D. Conductor: No 16 AWG minimum, 7 strand, concentric-lay, uncoated copper

E. Insulation: Polyvinyl chloride. Not less than 15 mils average thickness (13 mils minimum thickness), UL 62, Type TFFN.

F. Lay: Twisted pair or triad with 1-1/2 to 2-1/2 inch lay.

G. Shield: Each pair or triad and cable assemble shall have combination aluminum-polyester helically applied tape and 7 strand AWG minimum size, tinned copper drain wire, shield applied to achieve 100 percent cover over insulated conductor. Shield tape on pair and/or triad assemblies shall be applied in such a way as to give total shield isolation from all other pair or triad shields.

H. Cable assembly: Black flame retardant polyvinyl chloride, UL 1277 applied over tape wrapped cable core.

I. Conductor Identification: Single pair: One conductor black, one conductor white. Single triad: One conductor black, one conductor white, and one conductor red.

J. Factory Tests: Insulated conductors shall conform to the requirements of UL 62 for Type TFFN. Assembly jacket shall conform to the requirements of UL 1277. Cable shall meet the vertical-tray flame test requirements of UL 1277.

2.6 ETHERNET CABLE:

A. Data cable consisting of four twisted pairs of insulated copper conductors, Category 6 (TIA/EIA 568-C2-1) for high performance with 300 MHz channel bandwidth and a maximum data rate of 4.8 Gb/s. Temperature Rating: 60 0C.

B. Wire Size:

1. 23 AWG copper, insulated, designed for low Insertion Loss (flow signal Attenuation) and meeting performance standards of TIA/EIA-568-C2-1.
2. Provide Bonded–Pair design.

C. Cable Insulation Material:

1. Plenum: 100% FEP for Bonded Pair.
2. Riser and LSZH: Polyolefin.

D. Jacket Material:

1. Plenum: LSPVC
2. Riser: PVC
3. Lszh: Low smoke, zero halogen polymer alloy.
4. Jacket printed at intervals indicating cable code, AWG, listings (NEC Code), verification, date, manufacturing traceability code.

E. Connectors: Provide RJ-45 modular connectors, unshielded metal housing, field installable, compatible for Category 6 cables.

2.7 FIBER OPTIC CABLE

A. The following requirements pertain to fiber optic cable.

Table 1 Fiber Optic Cable Requirements	
Requirement	Value
Fiber type:	Multimode, graded index
Core Diameter:	50 microns
Cladding Diameter:	125 microns
Buffer Diameter:	250 microns
Maximum Attenuation:	2.9 dB/km @ 850 nm. 1.0 dB/km @ 1300 nm.
Minimum Bandwidth:	200 MHz-km @ 850 nm 500 MHz-km @ 1300 nm
Numerical Aperture:	0.275 ± 0.015
Buffer Type:	Loose Tube provided with a water swellable powder type water-blocking material.
Number of Fibers:	12 or as shown on Drawings
Inner Strength Members:	Epoxy Reinforced Glass Rods/PVC
Outer Strength Member:	Aramid Yarn Fibers
Inner Jacket:	Black PVC - .022" Nominal Wall
Outer Jacket:	UV & Moisture Resistant PVC 0.045" Nominal Wall Orange Color
Tensile Load:	600 lbf (2670N) max. - Installation, 135 lbf (600N) max. - in-service
Operating Temperature Range:	-40 °C to +70 °C
Crush Resistance:	500 lb-f/inch - maximum
Quantity (continuous length):	As required without splices

B. Fibers within the cable shall be color-coded so that each fiber may be individually identified. The color sequence suggested is as follows: blue, orange, green, brown, slate, white, red, black, yellow and violet. Dashed versions of the same colors may be used to continue the sequence, depending on the cable structure and fiber count.

C. The fibers shall not adhere to the inside walls of the loose buffer tube. Buffer tubes shall be kink resistant within the specified minimum bend radius.

D. Filler may be included in the cable core composition to lend symmetry to the cable cross-section where needed.

E. Buffer tubes shall be stranded around a central member using the reverse oscillation, or "S-Z", stranding process.

F. Binders shall be applied with sufficient tension to secure the buffer tubes to the member without crushing the buffer tubes. The binders shall be non-hygroscopic, non-wicking and dialectic with low shrinkage.

G. Tensile strength shall be provided by a combination of high tensile strength dielectric yarns. The high tensile strength dielectric yarns shall be helically

stranded evenly around the cable core.

H. The outer jackets of the cable shall be continuous, free from holes, splits, blisters or inclusions. The same requirement holds for any inner jackets within a given cable structure as well as for fiber coatings.

I. Systems Integrator shall furnish breakout kit for termination of loose tube fiber.

J. Connectors shall be as indicated on the drawings.

2.8 JOINTS AND SPLICES:

A. Stranded Copper Conductors: UL approved tin-plated, copper compression connectors, Thomas & Betts, Panduit, or Burndy. All connectors shall be of proper sizes to match conductor sizes. All compression connectors shall be applied with properly sized dies and tools. Split-bolt connectors or other mechanical connectors are not acceptable.

B. Do not splice control or instrument cables. Instrument or control cables shall only be terminated at devices or on terminal blocks. Conductors may be terminated without compression connector on terminal blocks with appropriate mechanical type terminals. Conductors terminated at terminal blocks with screw terminals shall be terminated with insulated, tin-plated copper locking fork terminals.

C. Solid Copper Conductors: UL approved electrical spring connectors of "Scotchlock", Ideal, T&B, or approved equivalent. All connectors shall be of proper sizes to match conductor sizes. Split bolt connectors are not acceptable.

D. Terminations at 600 volt motors shall use properly sized tin-plated, copper compression connectors on each motor lead and incoming power supply. Connectors shall be bolted together with zinc plated bolt, nut, flat washer, and lock washer. The connection shall be made using the 3M Series 5300 Motor Lead Splicing Kit, installed in accordance with the manufacturer's instructions.

E. For terminations at motors lower than 600 volts, Scotchfil shall be applied to round out the connection and the entire connection shall be wrapped with Scotch 88.

2.9 COLOR CODING:

A. Use standardized color-coding of conductors throughout. All color coding shall be continuous for the entire length of the conductors, and shall be permanent and readily distinguished after installation. In cases where they specified colors of insulated wire and cable are unavailable, such conductors shall be color-coded, as specified above, by means of Brady, or plastic tape at all pull boxes, support boxes, outlet boxes, panelboards, and other terminal and splicing points. Heat shrink sleeves for tight fit.

B. For No. 6 AWG and smaller conductors, color coding shall be provided by using conductors with continuous color imbedded in the insulation. For all conductors larger than No. 6, Scotch 35 marking tape, or equivalent may be used to color

code the cable. Where marking tape is used, the cable shall be identified at every accessible location. Provide a minimum of 2 inches of tape at each location.

C. Neutral conductors shall be white or natural gray. Grounding conductors shall be green or green with one or more yellow stripes.

D. Phase conductors shall be brown, orange, and yellow for phases A, B, and C respectively in the 480 volt system.

E. Phase conductors shall be black, red, and blue for phases A, B, and C respectively in the 208 volt system.

F. Phase conductors shall be black, orange, and blue for phases A, B, and C respectively in the 120/240 volt, 3-phase, 4-wire system. Identify the "high leg" with orange.

G. Color coding for multi conductor control circuits shall conform to ICEA Method 1, Table E-2.

PART 3 EXECUTION

3.1 CONTINUITY:

A. All conductors shall be continuous between points of termination.

B. Splices between points of termination are not acceptable unless specifically approved.

C. Splices in boxes permissible in 120-volt lighting and receptacle circuits only.

3.2 WIRE PULLING:

A. Provide suitable installation equipment for pulling conductors into raceways or conduits. Use ropes of polyethylene, nylon or other suitable material to pull in conductors. Attach pulling lines to conductors by means of woven basket grips or by pulling eyes attached directly to conductors. Grips and pulling eyes shall be Kellems or equivalent. All conductors to be installed in a single conduit shall be pulled in together. Pull no conductors into conduits until all work of a nature which may cause injury to conductors is completed. Use cable pulling compound where necessary.

B. Cable Lubricants: All cable lubricants shall be UL listed, and shall be certified by their manufacturer to be non-injurious to the insulation on which they are used.

3.3 WIRE INSTALLATION (600 VOLTS AND UNDER):

A. Feeders: Run all feeders their entire length in continuous pieces without joints or splices, insofar as practicable. Make joints in branch circuits only where circuits divide as shown on drawings. Such joints shall consist of one through circuit to which shall be spliced the tap circuit.

B. All circuits installed in manholes or pullboxes shall be multi-conductor type.

C. Branch Circuits: Not more than one power or lighting circuit shall be installed in a single conduit, except that one 3-wire circuit or one 4-wire circuit consisting of 2 different phase wires and a common neutral or 3 different phase wires and a common neutral may be installed in a single conduit. This provision shall not prohibit the installation in a single conduit of all conductors of a circuit with three and four-way switching.

D. Sizes: No wire shall be smaller than No. 12 except for control circuits.

E. Home runs on 120 volt, 20 ampere Lighting Branch lighting outlet exceeding 75 feet, use No. 10 conductors; otherwise use No. 12 conductors. Power and Lighting circuits of different system voltages (eg. 208Y/120 and 480Y/ 277 volts) shall not occupy the same conduit.

F. Joints and Splices: Only receptacle and lighting circuits will be allowed to be spliced. Make joints and splices in solid copper conductors only where necessary and only at outlet boxes and pull boxes. All joints shall be mechanically and electrically secure.

G. Wire and cable shall not be pulled tight against bushings nor pressed heavily against enclosures.

H. Bundling Conductors: Bundle all conductors in panelboards, cabinets and the like using nylon straps made for the purpose. Bundle conductors larger than No. 10 in individual circuits. Bundle smaller conductors in larger groups. Straps shall be Panduit, Thomas and Betts, or equivalent.

I. After wire and cable have been installed and connected, conduit ends shall be sealed with a non-hardening sealing compound (Duxseal or equal), forced into conduits to a minimum depth equal to the conduit diameter. This shall apply for all conduits, including spares, entering any structures or electrical enclosures from underground, or from wet/corrosive areas. Seal conduit at both ends of the conduit.

J. Ground the drain wire of shielded instrumentation cables at one (1) end only. Grounding location shall be at the load (e.g., control panel), not at the source (e.g., field mounted instrument).

3.4 CABLE IDENTIFICATION:

A. Identity Tags: Non-ferrous; stamped to clearly identify each circuit. Securely fasten tags to all cables, feeders and power circuits in pull boxes, lighting, power and distribution panelboards, motor control centers, control panels, etc.

3.5 FIBER OPTIC CABLE:

A. Fiber Optic Cable:

1. Unless indicated otherwise, install all fiber optic cable in conduit.

2. Optical fibers shall not be spliced.

3. Where exposed to contact with electric conductors, the noncurrent carrying metallic members (if applicable) of optical fiber cables entering buildings shall be grounded as close to the point of entrance as practicable in accordance with NFPA 70.

4. Install cables in accordance with the requirements of NFPA 70.

B. Perform the following tests per TIA/EIA/ANSI 455-78-B:

1. Optical time domain reflectometer test.
2. Power attenuation test.
3. Gain margin test.

C. Perform inspections and tests per NETA ATS 7.4.

D. Fiber optic cab les shall be tested as specified above. All optical test results shall be thoroughly and accurately documented and copies of the test results shall be saved in a permanent form, both hard copy and provided on a USB drive. Documentation of test results shall include the following information and shall be included as part of the Operation and Maintenance Manual.:

1. Cable type and length.
2. Splice and termination points.
3. Fiber type and size.
4. Connector types.
5. Splice types.
6. Cable paths.
7. End-to-end losses of completed transmitter-to-receiver links.

3.6 CONNECTIONS AND TERMINATIONS:

A. Cut conductor off square, trim insulation back the correct distance and prepare the conductor strands for termination as specified. Apply the proper lug or splice connector, making certain that the conductor strands are inserted full length of the barrel.

END OF SECTION

SECTION 16140

WIRING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Suitable outlet boxes, with the wiring devices indicated, coverplates, etc. All shall be properly connected to conductors so as to be operable.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all materials, under provisions of Section 01300.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Acceptable Manufacturers: The catalog numbers listed herein are generally of Hubbell manufacture. Equivalent devices of Arrow-Hart, Pass and Seymour, or Leviton are acceptable.

B. Classification: All wiring devices shall be "Specification Grade", and shall be UL listed.

C. Colors: All devices shall have an ivory finish where mounted in walls finished in light colors and a brown finish where mounted in walls finished in dark colors.

2.2 WALL SWITCHES:

A. Provide the following 120/277 volt switches:

Device	Hubbell Catalog No.
Single pole wall switch:	1221
Three-way wall switch:	1223
Four-way wall switch:	1224

2.3 RECEPTACLES:

A. Receptacle, 20-ampere, 125-volt, 2-pole, 3-wire grounding duplex: Hubbell No. 5362.

B. Receptacle, 20-ampere, 125-volt, 2-pole, 3-wire Grounding Duplex with Self-contained Ground Fault Circuit Interrupter: Hubbell No. GF 5362 (NEMA 5-20R).

C. Other receptacles as indicated on the drawings.

2.4 OTHER DEVICES:

A. Weatherproof Receptacles: Receptacles indicated to be installed outdoors shall be installed in an FD box with a weatherproof cover that meets the requirements of NEC Article 406.9(B)(2)(a). Cover shall be cast metal equal to Intermatic, Incorporated. Simplex or duplex, vertical or horizontal as indicated or required.

B. Switches indicated to be installed outdoors shall be provided with a malleable iron FD box with a Crouse Hinds DS-185 cover.

C. Provide coverplates for all wiring devices, telephone, signal outlets and other kindred devices.

D. Provide galvanized or cast cover for surface mounted boxes.

PART 3 EXECUTION

3.1 CIRCUIT IDENTIFICATION:

A. At each wiring device, install a label on the inside of the coverplate which shall identify the panel and circuit number to which the device is finally connected. The labels shall be made on the job with indentation-type Dynamo adhesive tape. Attach the label to the plate with contact cement or other suitable adhesive material. In lieu of a label, the panel and circuit number may be neatly marked on the inside of the coverplate with an indelible pencil.

3.2 MOUNTING HEIGHTS:

A. Where mounting heights are indicated on the drawings, the device shall be installed with the centerline of the device at the indicated height.

B. Wall switches shall be installed on the strike side of the door as finally hung.

C. Unless otherwise noted on the drawings, or directed, install device at the following heights:

Device	Mounting Height
Wall Switch	48"
Receptacle	18"
Exposed receptacles	36“

END OF SECTION

SECTION 16170

CIRCUIT AND MOTOR DISCONNECTS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. This Section specifies circuit and motor disconnect switches for general use.

1.2 SUBMITTALS:

A. Provide complete catalog data and drawings on all items of equipment, under provisions of Section 01300. Include all submittal data in the operation and maintenance manuals.

PART 2 PRODUCTS

2.1 DISCONNECT SWITCHES:

A. Unless otherwise noted or required, all disconnect switches shall be UL listed and shall meet the latest edition of NEMA Standard KS1 for Type HD heavy duty switches. Unless indicated otherwise on the drawings, switches shall be unfused; quick make, quick break; in NEMA 3R enclosures if installed outdoors, or in wet locations; elsewhere in NEMA 1 general purpose enclosures unless special enclosures are required. All motor circuit switches shall be horsepower rated.

B. Switches shall be of General Electric, Eaton, or Square D manufacture, equivalent to General Electric Type TH quick make, quick break switches.

C. Where space does not permit use of the above specified switches, such as within weatherproof fan housing, etc., use suitable horsepower rated tumbler switches as unfused disconnects; General Electric Type RB or equivalent.

D. Additional disconnect switches may be identified on the drawings. If so identified, provide the type called for on the drawings.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 16195

ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. This Section specifies furnishing and installing identification signs on all electrical devices.

PART 2 PRODUCTS

2.1 NAMEPLATES:

A. Identify electrical equipment by attaching engraved nameplates constructed from laminated phenolic plastic, at least 1/16" thick, 2-ply, with black surfaces and white core. Engraving shall be condensed gothic, appropriately spaced. Nomenclature on the label shall include the name of the item or equipment served utilizing the equipment names shown on the drawings.

B. Nameplate lettering size shall be as follows:

1. ½" Minimum Height Letters:

Service Disconnects.

a. Secondary feeder breakers in distribution equipment with designation as required by the load served.

b. Special equipment housed in cabinets, as indicated on the drawings, or outside of door.

c. Panelboards, switchboards, as designated on the drawings, on outside of door.

2. 1/4" Minimum Height Letters:

a. Disconnects and starters for motors or fixed appliances.
b. Items listed in the “Equipment Schedule” on drawings.

3. 1/8" Minimum Height Letters:

a. Engraved black filled letters on devices plates for switches, dimmer controls, and receptacles where item controlled is not visible from switch, or as indicated on the drawings.

b. Lighting control relays.

c. Remote lighting control equipment.

PART 3 EXECUTION

3.1 EQUIPMENT:

A. Install nameplates on electrical equipment. Equipment to be labeled shall include but not be limited to the following:

1. Switchboards.
2. Panelboards.
3. Dry-type transformers.

3.2 CONTROL DEVICES:

A. Install nameplates on all electrical control devices to indicate the device served. Label electrical control devices regardless of proximity to the equipment served. Electrical control devices to be labeled shall include but not be limited to the following.

1. Contactors.
2. Motor starters.
3. Relays.
4. Relay panels.
5. Toggle switches used to control fans or other equipment.
6. Toggle switches used for local disconnects.
7. Disconnect switches.

3.3 ATTACHMENT:

A. Nameplates attached to the exterior of the enclosure shall be attached with self-tapping screws. Devices attached to the back side of panel fronts and on the interior of panels shall be attached with adhesive. Adhesive shall be waterproof and heat resisting up to 250 degrees Fahrenheit.

END OF SECTION

SECTION 16400

ELECTRICAL SERVICES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. The complete electrical service from the power company service point to the service entrance equipment, including all electric utility required modifications, whether primary or secondary. This shall include all poles, primary conductors, secondary conductors, transformers, metering equipment, or other equipment that might be required for the electric utility to extend or provide electric service to new Transfer Pump Station.

B. All costs associated with providing electrical service to the new facilities shall be included in the contractor's bid price, whether due to equipment or services provided by the electric utility or the Contractor. Contractor shall coordinate with the local electric and telephone utilities to determine all costs and requirements associated with providing service to the new facilities. Failure by the Contractor to fully investigate all aspects of the requirements for electrical and telephone service prior to submitting a bid shall not be grounds for a change order.

C. The electric utility is Oncor and the local contact is Gerri Coleman, Oncor PMDS/WTX, at 432-620-6216.

1.2 SUBMITTALS:

A. Submit for review catalog data and drawings for all equipment proposed for use under this Section, under provisions of Section 01300.

B. Submit reports of load balancing between phases.

1.3 NEW SERVICES:

A. Contractor shall arrange and pay for the installation of new electrical services as indicated. This shall include making contact with the electric utility representative. All outages required during the project construction shall be coordinated by the contractor. Electrical metering equipment shall be provided and installed by the electrical utility. Meter bases and all other equipment indicated on the drawings or required by the electric utility shall be provided and installed by the contractor.

PART 2 PRODUCTS

2.1 UNDERGROUND DUCTS:

A. As specified in Section 16115.

2.2 UNDERGROUND PLASTIC CONDUIT:

A. As specified in Section 16115.

2.3 METERING:

A. All metering for Power Company billing will be done by metering equipment furnished and installed by the Power Company.

B. Contractor shall provide meter bases, enclosures, and other equipment as required by the electric utility.

2.4 SYSTEMS OF WIRING:

A. Electrical Service: Combined 480/277 volts, 3-phase, 4 wire, 60 Hz. service for lighting and power.

B. Power Feeders: 480 volts, 3-phase, 3 or 4 wire as noted.

C. Lighting Feeders: 208/120 volts, 3-phase, 4 wire for lighting loads. 208/120 volts, 3-phase, 4-wire for receptacle and appliance loads.

D. Branch Circuits: 2, 3, or 4-wire as is most convenient for the contractor, or as required to properly serve the load.

2.5 LOAD BALANCING:

A. The contractor shall balance electrical loads between the various phases. When the facilities are under use at their heaviest loading periods, tests shall be run on the "hot" conductors in each feeder to a panel and any unbalances shall be corrected to a point that no conductor load shall be more than 5 percent high or low (maximum unbalance of 10 percent) in amperes. Submit reports of load balancing.

PART 3 EXECUTION

3.1 EXCAVATION AND BACKFILLING:

A. As specified under RACEWAYS AND FITTINGS.

3.2 UNDERGROUND DUCTS INSTALLATION:

A. Install as specified under UNDERGROUND ELECTRICAL DUCTS.

3.3 UNDERGROUND PLASTIC CONDUIT INSTALLATION:

A. Install as specified under UNDERGROUND ELECTRICAL DUCTS.

END OF SECTION

SECTION 16405

ARC-FLASH HAZARD ANALYSIS/SHORT
CIRCUIT/COORDINATION STUDY

PART 1 GENERAL

1.1 SCOPE:

A. The contractor shall furnish short-circuit and protective device coordination studies as prepared by a Registered Professional Electrical Engineer.

B. The contractor shall furnish an Arc-Flash Hazard Analysis Study per the requirements set forth in the latest edition of NFPA 70E - Standard for Electrical Safety in the Workplace. The arc-flash hazard analysis shall be performed according to the latest edition of IEEE Standard 1584, the IEEE Guide for Performing Arc-Flash Calculations.

1.2 RELATED SECTIONS:

A. Drawings and general provisions of the Contract.

1.3 REFERENCES:

A. Institute of Electrical and Electronics Engineers, Inc. (IEEE):

1. IEEE 141 – Recommended Practice for Electric Power Distribution and Coordination of Industrial and Commercial Power Systems.

2. IEEE 242 – Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems.

3. IEEE 399 – Recommended Practice for Industrial and Commercial Power System Analysis.

4. IEEE 241 – Recommended Practice for Electric Power Systems in Commercial Buildings.

5. IEEE 1015 – Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems.

6. IEEE 1584 Guide for Performing Arc-Flash Hazard Calculations.

B. American national Standards Institute (ANSI):

1. ANSI C57.12.00 – Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers.

2. ANSI C37.13 – Standard for Low Voltage AC Power Circuit Breakers Used in Enclosures.

3. ANSI C37.010 – Standard Application Guide for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis.

4. ANSI C 37.41 – Standard Design Tests for High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories.

C. The National Fire Protection Association (NFPA):

1. NFPA 70 National Electrical Code, latest edition.
2. NFPA 70E – Standard for Electrical Safety in the Workplace

1.4 SUBMITTALS FOR REVIEW/APPROVAL:

A. The studies shall be submitted prior to receiving final approval of the distribution equipment shop drawings and/or prior to release of equipment drawings for manufacturing. If formal completion of the study may cause delays in equipment shipments, approval from the Engineer may be obtained for a preliminary submittal of data to ensure that the selection of device ratings and characteristics will be satisfactory to properly select the distribution equipment. The formal study shall be provided to verify preliminary findings.

B. Provide a final report that bears the stamp of the Registered Professional Electrical Engineer who is responsible charge of the study.

1.5 SUBMITTAL FOR CONSTRUCTION:

A. The results of the protective device coordination and arc-flash hazard analysis study shall be summarized in a final report. A minimum of five (5) bound copies of the complete final report shall be submitted. For large system studies, submittals requiring more than five (5) copies of the report shall be provided without the section containing the computer printout of the short-circuit input and output data. An electronic PDF copy of the final report shall also be provided.

B. The report shall include the following sections:

1. Executive Summary including Introduction, Scope of Work and Results/Recommendations.

2. Short-Circuit Methodology Analysis Results and Recommendations.

3. Short-Circuit Device Evaluation Table.

4. Protective Device Coordination Methodology Analysis Results and Recommendations.

5. Protective Device Settings Table.

6. Time-Current Coordination Graphs and Recommendations.

7. Arc-Flash Hazard Methodology Analysis Results and Recommendations including the details of the incident energy and flash protection boundary calculations, along with Arc-Flash boundary distances, working distances, Incident Energy levels and Personal Protection Equipment levels.

8. Arc-Flash Labeling section showing types of labels to be provided. Section shall contain descriptive information as well as typical label images.

9. One-line system diagram that shall be computer generated and shall clearly identify individual equipment buses, bus numbers used in the short-circuit analysis, cable and bus connections between the equipment, calculated maximum short-circuit current at each bus location, device numbers used in the time-current coordination analysis, and other information pertinent to the computer analysis.

1.6 QUALIFICATIONS:

A. The short-circuit, protective device coordination and arc-flash hazard analysis studies shall be conducted under the responsible charge and approval of a Registered Professional Electrical Engineer skilled in performing and interpreting the power system studies.

B. The Registered Professional Electrical Engineer shall be an employee of the equipment manufacturer or an approved engineering firm.

C. The Registered Professional Electrical Engineer shall have a minimum of five (5) years of experience in performing power system studies.

D. The engineering firm shall have a minimum of five (5) years' experience in performing power system studies.

1.7 COMPUTER ANALYSIS SOFTWARE:

The studies shall be performed using ETAP, with Arc-Flash Module, as produced by Operation Technology, Inc., SKM Systems Analysis Power Tools software programs, or approved equal.

PART 2 PRODUCTS

2.1 STUDIES:

A. The contractor shall furnish an Arc-Flash Hazard Analysis Study per NFPA 70E - Standard for Electrical Safety in the Workplace, reference Article 130.3 and Annex D. This study shall also include short-circuit and protective device coordination studies.

2.2 DATA:

A. Contractor shall furnish all data as required for the power system studies. The Engineer performing the short-circuit, protective device coordination and arc-flash hazard analysis studies shall furnish the Contractor with a listing of required data immediately after award of the contract. The Contractor shall expedite collection of the data to assure completion of the studies as required for final approval of the distribution equipment shop drawings and/or prior to the release of the equipment for manufacturing.

B. Source contribution may include present and future motors and generators.

C. Load data utilized may include existing and proposed loads obtained from Contract Documents provided by Owner, or Contractor.

D. If applicable, include fault contribution of existing motors in the study. The Contractor shall obtain required existing equipment data, if necessary, to satisfy the study requirements.

2.3 SHORT-CIRCUIT ANALYSIS:

A. Transformer design impedances shall be used when test impedances are not available.

B. Provide the following:

1. Calculation methods and assumptions.

2. Selected base per unit quantities.

3. One-line diagram of the system being evaluated that clearly identifies individual equipment buses, bus numbers used in the short-circuit analysis, cable and bus connections between the equipment, calculated maximum short-circuit current at each bus location and other information pertinent to the computer analysis.

4. The study shall include input circuit data including electric utility system characteristics, source impedance data, conductor lengths, number of conductors per phase, conductor impedance values, insulation types, transformer impedances and X/R ratios, motor contributions, and other circuit information as related to the short-circuit calculations.

5. Tabulations of calculated quantities including short-circuit currents, X/R ratios, equipment short-circuit interrupting or withstand current ratings and notes regarding adequacy or inadequacy of the equipment rating.

6. Results, conclusions, and recommendations. A comprehensive discussion section evaluating the adequacy or inadequacy of the equipment must be provided and include recommendations as appropriate for improvements to the system.

C. For solidly-grounded systems, provide a bolted line-to-ground fault current study for applicable buses as determined by the engineer performing the study.

D. Protective Device Evaluation:

1. Evaluate equipment and protective devices and compare to short circuit ratings.

2. Adequacy of switchgear, motor control centers, and panelboard bus bars to withstand short-circuit stresses.

3. The Contractor shall notify Owner in writing, of any circuit protective devices improperly rated for the calculated available fault current.

2.4 PROTECTIVE DEVICE TIME-CURRENT COORDINATION ANALYSIS:

A. Protective device coordination time-current curves (TCC) shall be displayed on log-log scale graphs.

B. Include on each TCC graph, a complete title with descriptive device names.

C. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.

D. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.

E. Plot the following characteristics on the TCC graphs, where applicable:

1. Electric utility's overcurrent protective device.

2. Medium voltage equipment overcurrent relays.

3. Medium and low voltage fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands.

4. Low voltage equipment circuit breaker trip devices, including manufacturer's tolerance bands.

5. Transformer full-load current, magnetizing inrush current, and ANSI through-fault protection curves.

6. Medium voltage conductor damage curves.

7. Ground fault protective devices, as applicable.

8. Pertinent motor starting characteristics and motor damage points, where applicable. Pertinent generator short-circuit decrement curve and generator damage point.

9. The largest feeder circuit breaker in each motor control center and applicable panelboard.

F. Provide adequate time margins between device characteristics such that selective operation is provided, while providing proper protection.

G. Provide the following:

1. A One-line diagram shall be provided which clearly identifies individual equipment buses, bus numbers, device identification numbers and the maximum available short-circuit current at each bus when known.

2. A sufficient number of log-log plots shall be provided to indicate the degree of system protection and coordination by displaying the time-current characteristics of series connected overcurrent devices and other pertinent system parameters.

3. Computer printouts shall accompany the log-log plots and shall contain descriptions for each of the devices shown, settings of the adjustable devices, and device identification numbers to aid in locating the devices on the log-log plots and the system one-line diagram.

4. The study shall include a separate, tabular printout containing the recommended settings of all located, and the device number corresponding to the device on the system one-line diagram.

a. A discussion section which evaluates the degree of system protection and service continuity with overcurrent devices, along with recommendations as required for addressing system protection or device coordination deficiencies.

b. The Contractor shall notify Owner in writing of any significant deficiencies in protection and/or coordination. Provide recommendations for improvements.

2.5 ARC-FLASH HAZARD ANALYSIS:

A. The arc-flash hazard analysis shall be performed according to the IEEE 1584 equations that are presented in NFPA70E-009, Annex D. The arc-flash hazard analysis shall be performed in conjunction with the short-circuit analysis and the protective device time-current coordination analysis.

B. The flash protection boundary and the incident energy shall be calculated at significant locations in the electrical distribution system (switchboards, switchgear, motor-control centers, panelboards, busway and splitters) where work could be performed on energized parts.

C. Circuits 240 volts or less fed by single transformer rated less than 125 kVA may be omitted from the computer model and will be assumed to have a hazard risk category “0” per NFPA 70E.

D. Working distances shall be based on IEEE 1584. The calculated arc-flash protection boundary shall be determined using those working distances.

E. When appropriate, the short circuit calculations and the clearing times of the phase overcurrent devices shall be retrieved from the short-circuit and coordination study model. Ground overcurrent relays should not be taken into consideration when determining the clearing time when performing incident energy calculations.

F. The short-circuit calculations and the corresponding incident energy calculations for multiple system scenarios shall be compared and the greatest incident energy shall be uniquely reported for each equipment location in a single table. Calculations shall be performed to represent the maximum and minimum contributions of fault current magnitude for normal and emergency operating conditions. The minimum calculation will assume that the utility contribution is at a minimum. Conversely, the maximum calculation will assume a maximum contribution from the utility. Calculations shall take into consideration the parallel operation of synchronous generators with the electric utility, where applicable as well as any standby generator applications.

1. The Arc-Flash Hazard Analysis shall be performed utilizing mutually agreed upon facility operational conditions, and the final report shall describe, when applicable, how these conditions differ from worst case bolted fault conditions.

G. The incident energy calculations shall consider the accumulation of energy over time when performing arc-flash calculations on buses with multiple sources. Iterative calculations must take into account the changing current contributions, as the sources are interrupted or decremented with time. Fault contribution from motors should be decremented as follows:

1. Fault contribution from induction motors should not be considered beyond 5 cycles.

H. For each piece of ANSI rated equipment with an enclosed main device, two calculations shall be made. A calculation shall be made for the main cubicle, sides, or rear; and shall be based on a device located upstream of the equipment to clear the arcing fault. A second calculation shall be made for the front cubicles and shall be based on the equipment's main device to clear the arcing fault. For all other non-ANSI rated equipment, only one calculation shall be required and it shall be based on a device located upstream of the equipment to clear the arcing fault.

I. When performing incident energy calculations on the line side of a main breaker (as required per above), the line side and load side contributions shall be included in the fault calculation.

J. Mis-coordination should be checked amongst all devices within the branch containing the immediate protective device upstream of the calculation location and the calculation should utilize the fastest device to compute the incident energy for the corresponding location.

K. Arc-Flash calculations shall be based on actual overcurrent protective device clearing time. A maximum clearing time of 2 seconds shall be used based on IEEE 1584 section B.1.2. Where it is not physically possible to move outside of

the flash protection boundary in less than 2 seconds during an arc-flash event, a maximum clearing time based on the specific location shall be utilized.

L. Provide the following:

1. Results of the Arc-Flash Hazard Analysis shall be submitted in tabular form, and shall include device or bus name, bolted fault and arcing fault current levels, flash protection boundary distances, working distances, personal protective equipment classes and AFIE (Arc-Flash Incident Energy) levels.

2. The Arc-Flash Hazard Analysis shall report incident energy values based on recommended device settings for equipment within the scope of the study.

3. The Arc-Flash Hazard Analysis may include recommendations to reduce AFIE levels and enhance worker safety.

PART 3 EXECUTION

3.1 FIELD ADJUSTMENT:

A. Contractor or equipment manufacturer shall adjust relay and protective device settings according to the recommended settings table provided by the coordination study.

B. Contractor or equipment manufacturer shall make minor modifications to equipment as required to accomplish conformance with short circuit and protective device coordination studies.

C. Contractor shall notify Owner in writing of any required major equipment modifications.

3.2 ARC-FLASH LABELS:

A. Contractor shall provide a 4.0 in. x 4.0 in. Brady thermal transfer type label of high adhesion polyester for each work location analyzed.

B. The labels shall be designed according to the following standards:

1. UL969 – Standard for Marking and Labeling Systems.
2. ANSI Z535.4 – Product Safety Signs and Labels.
3. NFPA 70 (National Electric Code) – Article 110.16.

C. The label shall include the following information:

1. System Voltage.
2. Flash protection boundary.
3. Personal Protective Equipment category.
4. Arc-Flash Incident energy value (cal/cm^2).
5. Limited, restricted, and prohibited Approach Boundaries.
6. Study report number and issue date.

D. Labels shall be printed by a thermal transfer type printer, with no field markings.

E. Arc-flash labels shall be provided for equipment as identified in the study and the respective equipment access areas per the following:

1. Floor Standing Equipment - Labels shall be provided on the front of each individual section. Equipment requiring rear and/or side access shall have labels provided on each individual section access area. Equipment lineups containing sections with multiple incident energy and flash protection boundaries shall be labeled as identified in the Arc-Flash Analysis table.

2. Wall Mounted Equipment – Labels shall be provided on the front cover or a nearby adjacent surface, depending upon equipment configuration.

3. General Use Safety labels shall be installed on equipment in coordination with the Arc-Flash labels. The General Use Safety labels shall warn of general electrical hazards associated with shock, arc-flash, and explosions, and instruct workers to turn off power prior to work.

F. Labels shall be field installed by Contractor or equipment manufacturer. The technician providing the installation shall have completed an 8-Hour instructor led Electrical Safety Training Course with includes NFPA 70E material including the selection of personal protective equipment.

3.3 ARC-FLASH TRAINING:

A. The vendor supplying the Arc-Flash Hazard Analysis shall train the owner's qualified electrical personnel of the potential arc-flash hazards associated with working on energized equipment (minimum of 4 hours). The training shall be certified for continuing education units (CEUs) by the International Association for Continuing Education Training (IACET) or equivalent. The trainer shall be an authorized OSHA Outreach instructor.

B. The vendor supplying the Arc-Flash Hazard Analysis shall offer instructor led and online NFPA 70E training classes.

END OF SECTION

SECTION 16406

SHORT CIRCUIT AND COORDINATION STUDY

PART 1 GENERAL

1.1 SCOPE:

A. The contractor shall furnish short-circuit and protective device coordination studies as prepared by a Registered Professional Electrical Engineer.

1.2 RELATED SECTIONS:

A. Drawings and general provisions of the Contract.

1.3 REFERENCES:

A. Institute of Electrical and Electronics Engineers, Inc. (IEEE):

1. IEEE 141 – Recommended Practice for Electric Power Distribution and Coordination of Industrial and Commercial Power Systems.

2. IEEE 242 – Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems.

3. IEEE 399 – Recommended Practice for Industrial and Commercial Power System Analysis.

4. IEEE 241 – Recommended Practice for Electric Power Systems in Commercial Buildings.

5. IEEE 1015 – Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems.

B. American national Standards Institute (ANSI):

1. ANSI C57.12.00 – Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers.

2. ANSI C37.13 – Standard for Low Voltage AC Power Circuit Breakers Used in Enclosures.

3. ANSI C37.010 – Standard Application Guide for AC High Voltage Circuit Breakers Rated on a Symmetrical Current Basis.

4. ANSI C 37.41 – Standard Design Tests for High Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches and Accessories.

C. The National Fire Protection Association (NFPA):

1. NFPA 70 -National Electrical Code, latest edition.

1.4 SUBMITTALS FOR REVIEW/APPROVAL:

The study shall be submitted prior to receiving final approval of the Automatic Transfer Switch shop drawings and/or prior to release of equipment drawings for manufacturing. If formal completion of the study may cause delays in equipment shipments, approval from the Engineer may be obtained for a preliminary submittal of data to ensure that the selection of device ratings and characteristics will be satisfactory to properly select the distribution equipment. The formal study shall be provided to verify preliminary findings.

1.5 SUBMITTAL FOR CONSTRUCTION:

A. The results of the protective device coordination study shall be summarized in a final report. The final report shall bear the stamp of the Registered Professional Electrical Engineer who is responsible charge of the study.

B. An electronic PDF copy of the final report shall also be provided.

C. The report shall include the following sections:

1. Executive Summary including Introduction, Scope of Work and Results/Recommendations.

2. Short-Circuit Methodology Analysis Results and Recommendations.

3. Short-Circuit Device Evaluation Table.

4. Protective Device Coordination Methodology Analysis Results and Recommendations.

5. Protective Device Settings Table.

6. Time-Current Coordination Graphs and Recommendations.

7. One-line system diagram that shall be computer generated and shall clearly identify individual equipment buses, bus numbers used in the short-circuit analysis, cable and bus connections between the equipment, calculated maximum short-circuit current at each bus location, device numbers used in the time-current coordination analysis, and other information pertinent to the computer analysis.

1.6 QUALIFICATIONS:

A. The short-circuit protective device coordination study shall be conducted under the responsible charge and approval of a Registered Professional Electrical Engineer skilled in performing and interpreting the power system studies.

B. The Registered Professional Electrical Engineer shall be an employee of the equipment manufacturer or an approved engineering firm.

C. The Registered Professional Electrical Engineer shall have a minimum of five (5) years of experience in performing power system studies.

D. The engineering firm shall have a minimum of five (5) years' experience in performing power system studies.

1.7 COMPUTER ANALYSIS SOFTWARE:

The studies shall be performed using ETAP, as produced by Operation Technology, Inc., SKM Systems Analysis Power Tools software programs, or approved equal.

PART 2 PRODUCTS

2.1 STUDIES:

The contractor shall furnish a short-circuit and protective device coordination study.

2.2 DATA:

A. Contractor shall obtain all data as required for the power system studies. The Engineer performing the short-circuit protective device study shall furnish the Contractor with a listing of required data immediately after award of the contract. The Contractor shall expedite collection of the data to assure completion of the studies as required for final approval of the distribution equipment shop drawings and/or prior to the release of the equipment for manufacturing.

B. Source combination may include present and future motors.

C. Load data utilized may include existing and proposed loads obtained from Contract Documents provided by Owner, or Contractor.

D. If applicable, include fault contribution of existing motors in the study. The Contractor shall obtain required existing equipment data, if necessary, to satisfy the study requirements.

2.3 SHORT-CIRCUIT ANALYSIS:

A. The existing transformer impedance shall be used.

B. Provide the following:

1. Calculation methods and assumptions.

2. Selected base per unit quantities.

3. One-line diagram of the system being evaluated that clearly identifies individual equipment buses, bus numbers used in the short-circuit analysis, cable and bus connections between the equipment, calculated maximum short-circuit current at each bus location and other information pertinent to the computer analysis.

4. The study shall include input circuit data including electric utility system characteristics, source impedance data, conductor lengths, number of conductors per phase, conductor impedance values, insulation types,

transformer impedances and X/R ratios, motor contributions, and other circuit information as related to the short-circuit calculations.

5. Tabulations of calculated quantities including short-circuit currents, X/R ratios, equipment short-circuit interrupting or withstand current ratings and notes regarding adequacy or inadequacy of the equipment rating.

6. Results, conclusions, and recommendations. A comprehensive discussion section evaluating the adequacy or inadequacy of the equipment shall be provided and include recommendations as appropriate for improvements to the system.

C. For solidly-grounded systems, provide a bolted line-to-ground fault current study for applicable buses as determined by the engineer performing the study.

D. Protective Device Evaluation:

1. Evaluate equipment and protective devices and compare to short circuit ratings.

2. Adequacy of switchgear, motor control centers, and panelboard bus bars to withstand short-circuit stresses.

3. The Contractor shall notify Owner in writing, of any circuit protective devices improperly rated for the calculated available fault current.

2.4 PROTECTIVE DEVICE TIME-CURRENT COORDINATION ANALYSIS:

A. Protective device coordination time-current curves (TCC) shall be displayed on log-log scale graphs.

B. Include on each TCC graph, a complete title with descriptive device names.

C. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.

D. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.

E. Plot the following characteristics on the TCC graphs, where applicable:

1. Electric utility's overcurrent protective device.

2. Medium voltage equipment overcurrent relays.

3. Medium and low voltage fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands.

4. Low voltage equipment circuit breaker trip devices, including manufacturer's tolerance bands.

5. Transformer full-load current, magnetizing inrush current, and ANSI through-fault protection curves.

6. Ground fault protective devices, as applicable.

7. Pertinent motor starting characteristics and motor damage points, where applicable. Pertinent generator short-circuit decrement curve and generator damage point.

8. The largest feeder circuit breaker in each motor control center and applicable panelboard.

F. Provide adequate time margins between device characteristics such that selective operation is provided, while providing proper protection.

G. Provide the following:

1. A one-line diagram shall be provided which clearly identifies individual equipment buses, bus numbers, device identification numbers and the maximum available short-circuit current at each bus when known.

2. A sufficient number of log-log plots shall be provided to indicate the degree of system protection and coordination by displaying the time-current characteristics of series connected overcurrent devices and other pertinent system parameters.

3. Computer printouts shall accompany the log-log plots and shall contain descriptions for each of the devices shown, settings of the adjustable devices, and device identification numbers to aid in locating the devices on the log-log plots and the system one-line diagram.

4. The study shall include a separate, tabular printout containing the recommended settings of all located, and the device number corresponding to the device on the system one-line diagram.

a. A discussion section which evaluates the degree of system protection and service continuity with overcurrent devices, along with recommendations as required for addressing system protection or device coordination deficiencies.

b. The Contractor shall notify Owner in writing of any significant deficiencies in protection and/or coordination. Provide recommendations for improvements.

PART 3 EXECUTION

3.1 FIELD ADJUSTMENT:

A. Contractor or equipment manufacturer shall adjust relay and protective device settings according to the recommended settings table provided by the coordination study.

B. Contractor or equipment manufacturer shall make minor modifications to equipment as required to accomplish conformance with short circuit and protective device coordination studies.

C. Contractor shall notify Owner in writing of any required major equipment modifications.

END OF SECTION

SECTION 16450

GROUNDING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Grounding systems as specified and in accordance with the National Electrical Code.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all products, under provisions of Section 01300.

1.3 QUALITY ASSURANCE:

A. Comply with applicable sections of Article 250 of the NEC and local amendments.

B. Provide products specified in the Section that are listed and labeled by a nationally recognized testing laboratory.

C. Install products that comply with UL 467, "Grounding and Bonding Equipment."

PART 2 PRODUCTS

2.1 GROUNDING AND BONDING PRODUCTS:

A. Install types indicated and of sizes and ratings to comply with NEC. Where types, sizes, ratings, and quantities indicated are in excess of NEC requirements, the more stringent requirements and the greater size, rating, and quantity indications shall govern.

B. Material: Copper. Aluminum material is not acceptable for use in any location.

2.2 WIRE AND CABLE CONDUCTORS:

A. Equipment Grounding Conductor: Green insulated. Minimum size No. 12 AWG, unless otherwise indicated on the drawings.

B. Ground Grid or Grounding Electrode Conductor: Class B, concentric stranded.

1. Bare Copper conductors: Conform to the following:

a. Solid Conductors: ASTM B-3.
b. Stranded Conductors: ASTM B-8.
c. Tinned Conductors: ASTM B-33.

2.3 MISCELLANEOUS CONDUCTORS:

A. Ground Bus: Bare annealed copper bars of rectangular cross section.

B. Braided Bonding Jumpers: Copper tape, braided No. 30 gage bare copper wire, terminated with copper ferrules.

C. Bonding Strap Conductor/Connectors: Soft copper, 0.05 inch thick and 2 inches wide, except as indicated.

2.4 CONNECTOR PRODUCTS:

A. Listed and labeled as grounding connectors for the materials used.

B. Connector Material: Copper or bronze.

C. Pressure Connectors: High conductivity plated units.

D. Bolted Clamps: Heavy duty units listed for the application.

E. Exothermic Welded Connections: Provided in kit form and selected for the specific types, sized, and combinations of conductors and other items to be connected.

2.5 GROUNDING ELECTRODES:

A. Copper clad steel 5/8"X8' or ¾"X10' with high-strength steel core and electrolytic-grade copper outer sheath, molten welded to core.

B. Wherever the ground rod crosses the ground grid it shall be connected.

2.6 GROUNDING BUS BARS:

A. Grounding bus bars shall be a tin-plated copper bus bar, 12" long, 4" wide, ¼" thick. Erico TMGBA12L15PT, or equal.

B. Install bus bars as indicated on the drawings. The bus bar shall be grounded to the building ground grid. All equipment shall be grounded to the bus bar with copper ground conductor.

PART 3 EXECUTION

3.1 SERVICE AND EQUIPMENT GROUNDING:

A. Provide adequate and permanent service neutral and equipment grounding in accordance with the National Electrical Code, and subject to the following additional requirements.

B. Connect the service ground and equipment ground to a common point within the metallic enclosure containing the main service disconnecting means. From the common point of connection of the service ground and equipment ground, run in conduit a combined service and equipment grounding conductor without joints or splices to the grounding grid as shown. Grounding grid shall be constructed of copperclad steel ground rods with buried grounding conductors as indicated on the drawings.

C. Size grounding conductors in accordance with National Electrical Code Tables 250.66 and 250.122 or as indicated.

D. The building structural steel frame shall be grounded to the building service grounding electrode, using the conductor size specified in National Electrical Code Section 250.66.

E. Provide additional connections as may be required by the local authority. Contractor shall contact the local authority prior to bidding. Any additional connections that may be required by the local authority shall be provided by the Contractor at no increase in the bid price.

3.2 GROUNDING RACEWAYS:

A. Assure the electrical continuity of all metallic raceways systems, pulling up all conduits and/or locknuts wrench tight. Where expansion joints or telescoping joints occur, provide bonding jumpers. Where flexible metallic conduit is employed, provide a green-insulated grounding jumper installed in the flexible conduit. Install a separate green-insulated conductor in each conduit.

B. Provide grounding bushings on all service and feeder raceways terminating within switchboards, motor control centers, panel boards, cabinets, and all other enclosures. Provide grounding conductors from such bushings to the frame of the enclosure and to the ground bus or equipment grounding strap. Size grounding conductors in accordance with NEC Table 250.122.

3.3 EQUIPMENT GROUNDING CONDUCTORS:

A. Provide a separate, green-insulated equipment copper grounding conductor, with insulation of the same rating as phase conductors, for each feeder and for each branch circuit indicated. Install the grounding conductor in the same raceway with the related phase and neutral conductors, and connect the grounding conductor to pull boxes or outlet boxes at intervals of 100 feet or less. Where paralleled conductors in separate raceways occur, provide a grounding conductor in each raceway. Connect all grounding conductors to bare grounding bars in panel boards, and to ground buses in service equipment to the end that there will be an uninterrupted grounding circuit from the point of a ground fault back to the point of connection of the equipment ground and system neutral. Size all of these grounding conductors per NEC Table 250.122.

3.4 UNDERGROUND CONNECTIONS:

A. All underground connections shall be made using exothermic weld connections.

3.5 GROUNDING DRY-TYPE TRANSFORMERS:

A. Ground the secondary neutral point and the housing of each dry-type transformer. Connect these items together within the transformer housing and run a common grounding conductor from their point of connection to a point of grounding. The grounding electrode shall be in order of preference:

1. The nearest available effectively grounded structural metal member of the building or ground grid.

2. Other electrodes as specified in National Electrical Code Section 250.30 where the above described electrodes are not available.

END OF SECTION

SECTION 16460

DRY-TYPE TRANSFORMERS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Dry-type, air-cooled, energy efficient transformers per NEMA TP1, with primary and secondary voltages 600 volts and less and capacity ratings 15 kVA through 750 kVA.

B. All transformers provided under this project shall meet the efficiency requirements of 10 CFR Part 431 "Energy Conservation Program: Energy Conservation Standards for Distribution Transformers; Final Rule," dated April 18, 2013, for transformers manufactured after January 1, 2016.

1.2 REFERENCES:

A. NFPA 70.

B. NEMA ST20.

C. UL 1561.

D. NEMA TP1.

E. NEMA TP2.

F. 10 CFR Part 431.

1.3 STANDARDS:

A. Transformer shall be listed by Underwriters Laboratories.

B. Conform to the requirements of NFPA 70.

C. Transformers shall be manufactured and tested in accordance with NEMA ST20.

D. Transformer losses shall be tested in accordance with NEMA TP2 procedures.

1.4 SUBMITTALS:

A. Provide complete catalog data and drawings on all items of equipment, under provisions of Section 01300.

B. Transformer manufacturer shall provide with submittal a statement that transformers have been designed, manufactured and tested in strict accordance with the NEMA and ANSI standards stated herein.

1.5 MANUALS:

Include all submittal data in the Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Square D.

B. General Electric.

C. Eaton.

D. Engineer approved equivalent.

2.2 RATINGS INFORMATION:

A. All insulating materials shall exceed NEMA ST20 standards and shall be rated for 220°C UL component recognized insulation system.

B. Transformers 15 kVA and larger shall be provided with 150°C temperature rise above 40°C ambient. Transformers 25 kVA and larger shall be provided with 4-2-1/2% full capacity taps, 2 above and 2 below rated primary voltage.

C. The maximum temperature on the top of the enclosure shall not exceed 50°C temperature rise above 40°C ambient.

2.3 CONSTRUCTION:

A. Transformer coils shall be of the continuous wound construction and shall be impregnated with nonhygroscopic, thermosetting varnish.

B. All cores shall be constructed with low hysterysis and eddy current losses. Magnetic flux densities shall be kept well below the saturation point to prevent core overheating. Cores for transformers greater than 500 kVA shall be clamped utilizing insulated bolts through the core laminations to ensure proper pressure throughout the length of the core. The completed core and coil shall be bolted to the base of the enclosure by means rubber vibration-absorbing mounts. There shall be no metal-to-metal contact between the core and coil and the enclosure except for a flexible safety ground strap. Sound insulation systems requiring the complete removal of all fastening devices shall not be acceptable.

C. The core of the transformer shall be visibly grounded to the enclosure by means of a flexible grounding conductor sized in accordance with applicable UL and NEC standards.

D. The transformer enclosure shall be as indicated on the drawing or specified herein. If no indications are made on the drawings for enclosure type or style, transformer enclosure shall be ventilated and fabricated of heavy gauge, sheet steel construction. The entire enclosure shall be finished utilizing a continuous

process consisting of degreasing, cleaning, and phosphatizing, followed by electrostatic deposition of polymer polyester power coating and baking cycle to provide uniform coating of all edges and surfaces. The coating shall be UL recognized for outdoor use. The coating color shall be ANSI 49.

E. Suitable lifting brackets shall be provided.

F. All ventilating openings shall be arranged to prevent accidental access to live parts or the insertion or dropping of foreign objects into such live parts.

2.4 DRY-TYPE TRANSFORMERS:

A. Dry-type transformers shall be of the air cooled-type of ratings shown on drawings.

B. Transformers shall be low loss with minimum efficiencies in accordance with NEMA TP1 when operated at 35% of full load capacity. Efficiency shall be tested in accordance with NEMA TP2.

SINGLE-PHASE		THREE-PHASE	
kVA	EFFICIENCY	kVA	EFFICIENCY
15	97.7%	15	97.0%
25	98.0%	30	97.5%
37.5	98.2%	45	97.7%
50	98.3%	75	98.0%
75	98.5%	112.5	98.2%
100	98.6%	150	98.3%
167	98.7%	225	98.5%
250	98.8%	300	98.6%
333	98.9%	500	98.7%
		750	98.8%

C. Noise levels shall not exceed the following when measured in strict accordance with ANSI C89.1:

KVA	Decibels
15 to 50	40
51-150	47
151-300	55
301-500	60
501-700	62

D. Terminal compartments shall be located at the bottom of transformer housing.

E. Install all conductors to and from each transformer in flexible metallic conduit not less than 24 inches long. Provide neoprene grommets or neoprene padding to prevent metallic contact between conduit and transformer housing. Install copper wire grounding jumpers between conduit and housing.

F. Transformers: Three-phase or single-phase as required by rating.

G. Transformers shall be wall, floor, or platform mounted as shown or required. If platform mounting is indicated, construct the platform of welded or bolted angle iron. Support the platform from the building construction with steel rod hangers.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 16470

PANEL BOARDS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Electrical panel boards for general use.

1.2 SUBMITTALS:

A. Provide complete catalog data and drawings on all items of equipment, under provisions of Section 01300. Include all submittal data in the Operation and Maintenance Manuals.

B. Submit shop drawings of each panel board for review before commencing fabrication; drawings shall indicate number, size, interrupting rating and type of circuit protective devices; dimensions, gauges and type of construction of cabinets; size and material of main bus and lugs; and any other pertinent information necessary to determine compliance with the drawings and specifications.

1.3 QUALITY CONTROL:

A. All panel boards shall be listed by Underwriters' Laboratories, Inc., and the building main panel shall be listed as suitable for "Service Entrance Equipment."

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Panel boards manufactured by Square D, General Electric, Siemens, or Eaton.

2.2 SURGE PROTECTIVE DEVICE:

Surge protective devices may be installed as part of the panelboard. Refer to Specification Section 16675.

2.3 PANEL BOARDS:

A. Panel board Cabinets: Furnish and install cabinets to serve the various panel boards, of sizes as required to house the panel boards. Provide NEMA rated enclosure as indicated on the drawings.

B. Service Equipment Approval: Listed for use as service equipment for panelboards having main service disconnects.

C. Cabinet Construction: Rigidly constructed of sheet steel of gauges conforming to Underwriters' Laboratories, Inc., requirements; corners overlapped or welded; edges turned over to receive trim.

D. Cabinet Fronts: Cut from single sheet of not less than No. 12 gauge cold rolled sheet steel; fastened in place by adjustable trim clamps which will allow plumbing; same size as the cabinet box if surface mounted; size to overlap the box a minimum of 3/4" on all sizes if flush mounted.

E. Each panel board shall be provided with a cover and a hinged door. Each door shall be provided with a substantial flush, cylinder tumbler lock and catch. On doors more than 48" high, provide a combination three point catch and lock with T-handle. Provide each lock with two keys, with all locks keyed alike.

F. Bus Requirements:

1. Bus Material: Copper.

2. Panelboards with buses rated 600 ampere and above shall be provided with silver-plated hard-drawn copper.

3. Main and Neutral Lugs: Mechanical.

4. Neutral: Ampacity and material equal to bus. Panelboards shall be provided with insulated neutral bars with grounding screw for field grounding to enclosure.

5. Equipment Ground Bus: Provide each panel board with a separate equipment grounding bus bar bonded to the panel board cabinet. Where indicated on the drawings, provide panel boards with an isolated grounding bus bar insulated from the panel board cabinet.

G. Additional requirements for subfeed breakers, lugs, or other accessories as indicated on the drawings.

H. Where a circuit protective device is scheduled as a "spare", provide the device complete for operation. Where such a device is scheduled as a "space" or "space only", provide proper space and all necessary connectors for future installation of the size of device scheduled. Where a breaker or switch is scheduled to serve a "future" load, provide the device complete for operation.

I. Panel boards shall have the number and sizes of bolted-in circuit breakers scheduled on the drawings with main circuit breakers or lugs only on the mains as scheduled.

J. All circuit breakers shall be fully rated for the current interrupting rating as indicated on the drawings, or at a minimum, as follow:

VOLTAGE RATING	INTERRUPTING RATING
120/240 Volts	10,000 Amps
277 Volts	42,000 Amps
480 Volts	42,000 Amps

K. All circuit breakers shall be quick make, quick break, trip free, thermal magnetic, indicating type unless noted otherwise. Provide all multiple pole breakers with common trip and single operating handle; handle ties between breakers are unacceptable. Branch circuit breakers shall be fully interchangeable without disturbing adjacent units.

L. Connect all circuit interrupting devices with sequence phasing.

M. Where a feeder serves more than one panel, first entering one panel and then proceeding through a side gutter to other panels, install the feeder full size in a continuous piece without joint or splice through the side gutter of the panels to serve the succeeding panels. Make the gutters on that side and on the top at least 4" greater than normal (more if necessary) to accommodate the wiring and make the tap from the feeder to the panels with suitable bolted pressure T-cable top connectors. Under no circumstances use feed-through lugs on a panel bus with the current drawn by a panel being carried through the buses of the preceding panel.

N. Finish: Panels shall be provided with galvanized back boxes; all exposed metal, including fronts, primed and finished in gray lacquer.

O. Mount all panel boards in cabinets as specified hereinbefore, arranged for flush or surface mounting as indicated on drawings.

P. Provide each panel board with a neatly typewritten directory of circuits. Install the directory in a cardholder on the inside of the panel board cabinet. Cover directory with transparent sheet plastic.

Q. Provide each panel board with a factory engraved nameplate which shall identify the panel board name and voltage.

PART 3 EXECUTION

3.1 Install panel boards in accordance with manufacturer's instructions and as specified or shown.

3.2 Test all elements of panel board with 1000-volt insulation resistance tester before energizing. Insulation resistance less than 50 megaohms is unacceptable.

END OF SECTION

SECTION 16481

MOTOR CONTROL CENTERS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. SCOPE:

1. This section specifies 600-volt motor control centers (MCC) including all devices.

2. The drawings and specifications are complementary. What is shown on one is binding whether shown or specified in the other or not. Failure to check both the drawings and the specifications will not be grounds for a change order if additional equipment or material is required to be provided by the Contractor after the Engineer reviews, or deficiencies are identified during testing, either in the Factory or the field.

1.2 GENERAL:

A. Provide Motor Control Centers in accordance with the one-line diagrams and schematics included with the Contract Documents.

B. In all cases where it is physically possible, all indicating lights, control switches, pushbuttons, and other devices (with the possible exception of the disconnecting means exterior handle) located on the exterior of a starter shall not exceed 5'-6" above the base of the motor control center. Submit drawings to verify this requirement is being met. No exceptions will be allowed. If equipment is supplied that does not meet this requirement, equipment shall be field modified as required to meet this requirement, up to and including complete replacement of the equipment.

1.3 REFERENCES:

A. NFPA 70 - 2014 National Electrical Code

B. ANSI C57.13, Requirements for Instrument Transformers.

C. ANSI C84.1 - Electric Power Systems and Equipment - Voltage Ratings (60Hz.)

D. UL 50 - Cabinets and Boxes.

E. UL 508 - UL Standard for Safety for Industrial Control Equipment.

F. UL508C - UL Standard for Safety for Power Conversion Equipment.

G. UL 845– UL Standard for Safety for Motor Control Centers.

H. NEMA ABI - Molded Case Circuit Breakers and Molded Case Switches.

I. NEMA ICS 1 - Industrial Control and Systems General Requirements.

J. NEMA ICS 2.3 - Instruction for Handling, Operation and Maintenance of Motor Control Centers.

K. NEMA ICS 18 - Motor Control Centers.

L. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.4 QUALITY ASSURANCE:

A. The drawings indicate maximum dimensions for MCCs, including clearance between MCC and adjacent surfaces and equipment, based on the types and models indicated. MCCs of other manufacturers having equal performance characteristics and complying with the indicated maximum dimensions may be considered.

B. Inspect the MCC upon receipt for damage, defects, and conformance to approved drawings. Shipping damage shall be reported to the shipper and the manufacturer prior to acceptance by the Contractor. Damage or discrepancies shall be the responsibility of the Contractor.

C. The MCC and all equipment shall be manufactured by one supplier in an ISO 9001 certified facility.

D. Quality Assurance documentation shall be submitted with shipment of the equipment to verify successful completion of the above tests.

1.5 UNDERWRITERS LABORATORIES, INC., APPROVAL:

A. The complete motor control center shall be listed and labeled by the Underwriters Laboratories, Inc., (UL).

1.6 SUBMITTALS:

A. Submit the following:

1. Dimensions and weight and overall anchoring points.

2. Installation instructions.

3. Manufacturer's data on all components.

4. Front elevation including dimensions for the MCC front view, top and bottom conduit entry locations.

5. Electrical one-line and three-line diagrams including all devices and their current ratings.

6. Unit schedule for each MCC which shall include starter or drive output horsepower or electrical load rating, disconnect ratings, and nameplate legends for each starter, circuit breaker, AC drive controller or any other

starter or bucket.

7. Ratings, including short-time and short circuit ratings, and horizontal and vertical bus ampacities.

8. Elementary, connection, and interconnection diagrams for all equipment furnished. Elementary wiring diagrams shall included all power and control components, and documentation of any non-default settings programmed at the factory.

9. Time-current curves for all protection devices.

10. Instrument transformer performance curves and data.

11. Motor protection relay settings.

12. Manufacturer's certification that the following items are capable of withstanding the specified short circuit condition:

    a. Bus bar bracing.
    b. Feeder tap units.
    c. Starts units.

B. Each MCC shall be identified as indicated on the drawings. Each schematic shall be identified for the specific piece of equipment being served.

1.7 DELIVERY STORAGE, AND HANDLING

A. Deliver MCC's in shipping splits in lengths that will facilitate installation and not require special equipment for handling.

B. Store so condensation will not occur on or in MCCs. Provide temporary heaters as required to prevent condensation of as otherwise recommended by the manufacturer.

C. Handle MCCs in accordance with NECA ICS 2.3, "Instructions for Handling, Installation, Operation, and maintenance of Motor Control Centers." Use factory installed lifting provisions.

1.8 CLASSIFICATION:

A. Provide factory assembled, NEMA Class I, Type B Motor Control Centers, as defined in NEMA ICS 2, consisting of sections as indicated. Each motor control center shall conform to the voltage, current rating, arrangement, one-line diagram, and schematics as may be indicated on the drawings or specified herein.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Motor control manufacturer shall be Square D, Allen Bradley, General Electric, or approved equal.

B. All motor control centers and other equipment specified under this section shall be manufactured and provided by the same manufacture. Multiple manufactures of motor control equipment will not be allowed.

2.2 STRUCTURE AND CONSTRUCTION:

A. STRUCTURE:

1. Motor control center sections shall be 20 inches deep, 20" minimum width, with a height of 90 inches, or as indicated on the drawings or required for the main breaker, or starter provided.

2. The individual unit compartments shall be a minimum of 12 inches high. Compartments with small breakers may be 6 inches high. There shall be 72 inches available for stacking starter units.

3. Provide a full-height vertical wireway, 20-square inch minimum for each vertical motor control center section. The wireway shall contain full height hinged/removable doors. Provide horizontal wireways top and bottom, extending the length of motor control centers.

4. Bottom channel sills shall be mounted front and rear of the vertical sections extending the full length of the motor control center lineup. A removable lifting angle shall be mounted on top and shall extend the width of the motor control center lineup.

5. Mount components on draw-out assembly, properly guided by tracks or guide rails. Each unit shall be capable of being locked in the plug-in position or in a withdrawn and disconnected position. Units over 3 space units high may be bolt-in type. Provide door interlocks to prevent opening door unless unit is turned off, and to prevent energizing a control unit with its door open. Provide suitable screwdriver-operated "defeater" mechanism to allow bypassing of interlock mechanism.

6. Each vertical section shall be designed and fabricated so additional sections may be added.

B. CONSTRUCTION:

1. Unless otherwise indicated, the enclosure for motor control centers located in interior locations shall be NEMA 1, gasketed.

2. Starter units, size 4 and smaller, and feeder tap units less than 225 amperes shall be draw-out plug-in construction with hardened, plated copper free-floating stabs, steel spring backups. The door shall have

interference tabs which prevent door closure if unit is improperly installed. Units shall be latched in position to assure proper bus contact. The unit disconnect device shall be interlocked to prevent removal or reinsertion of a unit when the disconnect is in the "ON" or "TRIPPED" positions. Unit compartments shall have pan-type doors with the quarter turn hold-down latches and neoprene gaskets.

3. Fusible switch or circuit breaker disconnect operators shall be capable of accommodating three padlocks for lock in the "OPEN" position.

4. Hardware for mounting future starter and feeder tap units shall be provided at compartments specified as "FUTURE."

5. Individual motor starter units, feeder beaker units, transformers, lighting panels, distribution panels, and control device compartments shall be isolated from each other by metal barriers.

6. Each vertical section shall have a vertical wiring trough for power and control wiring, and wiring troughs, one top and bottom which are continuous through the entire control center.

7. Main incoming lines shall be bottom entry. Motor starters and other devices shall be designed for top or bottom feed.

C. The short-circuit current rating for each vertical section shall be not be less than the MCC bus bracing.

2.3 FINISH AND COLOR:

Exterior color shall be manufacturer's standard Gray color. Interior shall be painted white.

2.4 BUSING:

Bus shall be tin-plated copper with bolted connections between vertical and horizontal bus bars. Buses shall be hard-drawn 98-percent conductivity copper, Grade EC Flat bars. Access for tightening these connections shall be from the front, without the need for tools on the rear of the connection. Insulated horizontal and vertical bus barriers shall be provided. Barriers shall be fabricated from high-strength, glass-filled polyester resin. Unless otherwise specified, the bus shall be braced to withstand a full current of 65,000 amperes, RMS, symmetrical.

A. HORIZONTAL BUS:

Unless otherwise specified or indicated on the drawings, the main horizontal bus shall be rated a minimum 600 amperes continuous.

B. VERTICAL BUS:

Unless otherwise specified or required for the specific application, the vertical bus shall be rated a minimum 300 amperes continuous.

C. NEUTRAL BUS:

800 amp.

D. GROUND BUS:

Provide minimum 1/4-inch by 2-inch ground bus the full length of the motor control center. Locate ground bus at the bottom of the motor control center. Provide a lug to terminate a bare 4/0 AWG copper ground conductors at each end of the ground bus.

E. Isolation of Buses: The main bus shall be isolated from the horizontal wiring trough by a removable steel barrier. Permanent insulation on or in front of vertical buses except at control unit connection points shall prevent front contact with the buses while control units are removed.

2.5 FUNCTIONAL FEATURES

A. Terminals: Suitable solderless terminal blocks or lugs shall be provided for connection of all incoming and outgoing circuits. Terminal blocks shall be provided for control cables shown by the one-line diagrams and schematics on the drawings. No field wiring shall be connected to internal devices.

B. Combination Starter: All combination starter units shall be wired in accordance with the schematics shown on the drawings.

1. The combination starter (consisting of contactor, overload relays, circuit breaker, control transformer, control relays, lights, etc.) shall act as a motor controller, disconnecting means and branch circuit overcurrent protection. The protection shall be provided for motors operating within the range of 90 to 110 percent of the MCC-rated voltage. Unless otherwise indicated, the motors shall be full voltage across the line started and shall be squirrel cage induction motors. Horsepower shall be as indicated on the drawings.

2. The Contractor shall be responsible for a completely coordinated breaker, starter, and overload relay assembly.

C. Relays and Timers: Auxiliary relays and timers, if shown on the drawings, shall have coils for continuous duty in 40°C ambient and 10 ampere, 120 volt, AC contacts.

D. Nameplates: Each compartment shall have a lamicoid nameplate, black with white letters to designate the purpose of the compartment. The nameplates shall be fastened to the door with #6 stainless steel pan-head screws.

2.6 WIRING:

A. GENERAL:

All wiring shall be rated 600 volts. All starter units shall have terminal blocks for control wiring. Provide elementary and connection diagrams for each starter

unit and an interconnection diagram for the entire motor control center.

B. POWER WIRE:

Power wire shall be copper 90°C "MTW" insulated, sized to suit load; minimum power wire size shall be No. 12 AWG, tin plated copper stranded.

C. CONTROL WIRE:

Control wire shall be minimum No. 16 AWG, tin plated stranded copper wire, rated 90°C, and UL-listed for panel wiring.

D. TERMINATIONS:

1. Control wiring shall be lugged with ring-tongue or locking spade controls.

2. Each wire termination shall be provided with a machine printed, plastic sleeve wire marker.

2.7 FEEDER:

A. GENERAL:

Use thermal-magnet circuit breakers for feeder taps. Circuit breakers shall be as specified for feeder branch circuit protection.

B. CIRCUIT BREAKERS (THERMAL MAGNETIC):

Thermal-magnetic circuit breakers shall be molded case equipped with toggle-type handle, quick-make, quick-break over center switching mechanism that is trip-free so that breaker cannot be held closed against short circuits and abnormal currents. The tripped position shall be clearly indicated by breaker handle maintaining a position between "ON" and "OFF." All poles shall open, close, and trip simultaneously. Minimum short circuit capacity shall not be less than the rating of the MCC.

2.8 TRANSIENT VOLTAGE SURGE SUPPRESSORS (TVSS):

A. Transient voltage surge suppressor shall be provided as indicated on the drawings. The TVSS shall be installed in the motor control center and shall provide minimum 240 kA of surge capacity per phase.

B. The TVSS shall be provided with a surge counter, dry contacts, and an audible alarm with silence switch.

2.9 MOTOR STARTERS, GENERAL:

A. Coordinate the features of each motor starter with the ratings and characteristics of the supply circuit, the motor, the required control sequence, the duty cycle of the motor, drive, and load, and the pilot device, and control circuit affecting controller functions. Provide each motor with suitable starter

contactor or device complete with magnetic control of standard NEMA sizes. Provide controllers that are horsepower rated to suit the motor controlled.

B. Contacts shall open each ungrounded connection to the motor.

C. Solid state type overload relays with inverse-time current characteristics shall be provided. Provide with sensors in each phase matched to the nameplate full-load current of the specific motor to which connected with appropriate adjustment for duty cycle. As indicated on the drawings, provide current transformers.

D. Main line contacts shall be silver-coated, double-break type, with arc barriers of heat resistant insulation compound between breaker contacts. Two auxiliary convertible contacts, unless otherwise specified or required, shall be provided. All parts shall be readily accessible from the front for ease of maintenance or repair.

E. Provide starters designed to prevent freezing of contacts upon coil failure. The starter shall be provided with capabilities to install auxiliary contacts without removing starter from its enclosure.

F. Arrange control circuits for manual, auto, and other signal inputs from control panels, and arrange control power to de-energize control circuits whenever operating power supply to particular equipment is disconnected.

G. Where indicated, provide elapsed time meters. Meters shall be a five-figure, non-resettable hour meter rated 120 volts AC. The meter shall be mounted on the unit compartment door.

H. Provide pushbutton stations, pilot lights and HAND-OFF-AUTOMATIC switches as indicated. Provide auxiliary contacts on starters to accomplish interlocks and control as specified or as indicated. Equip each starter unit with a control power transformer with two primary fuses, a 120 volt secondary, a secondary fuse in one leg and the other secondary leg grounded.

I. Starter shall be front wired with conductors no smaller than No. 12 AWG for power wiring and No. 14 AWG for control wiring. All terminals shall be legibly marked, and connections to terminals made with solderless connectors. A wiring diagram of starter, with all terminals identified, shall be provided and attached to the inside of starter door. Schematic shall be specific to the motor controlled. Standard manufacturer schematic will not be acceptable unless starter is designated as spare. Provide terminal block and wiring as required.

J. Phase Failure Protection:

1. Provide an individual three-phase, phase failure-phase reversal undervoltage monitoring relay for each three-phase motor that is not provided with an adjustable frequency drive.

2. Arrange to open motor starter contacts at 10% voltage unbalance and automatically reset when voltage returns to normal with an adjustable time delay set at one second on drop out to prevent nuisance tripping

on momentary voltage dips. Provide with red indicating light with "Phase Failure/Phase Reversal" nameplate. Capable of detecting regenerated voltage. Provide a contact for remote indication.

2.10 SOLID STATE REDUCED VOLTAGE MOTOR STARTER (SOFT START):

A. The soft start shall be provided complete with:

1. Magnetic only circuit breaker. Short circuit withstand rating shall be based on the motor horsepower as defined in UL 508.

B. The solid-state reduced-voltage starter shall be an integrated unit with power SCRs, logic board, paralleling bypass contactor, and electronic overload relay.

C. Each solid state motor starter shall be selected based on severe duty application.

D. The motor shall be automatically protected from solid state component failure by one of the following means:

1. Shunt trip coil to trip disconnect in the event of a controller fault condition including a shorted thyristor.

2. Isolation contactor that opens when the motor is stopped or when the controller detects a fault condition including a shorted thyristor.

E. The soft start shall utilize a thyristor (SCR) bridge consisting of at least two SCRs per phase to control the starting and stopping of industry standard motors.

F. The soft start shall provide torque control for linear acceleration without external feedback in-dependent of motor load or type of application. The gating of the thyristors shall be controlled in such a manner to ensure smooth and stable acceleration ramp.

G. The soft start shall be controlled by a microprocessor that continuously monitors the current and controls the phasing the SCRs. Analog control algorithms shall not be allowed.

H. All soft start power ratings shall utilize the same control module.

I. A shorting contactor shall be supplied. Protective features and deceleration control options integral to the soft start shall be available even when the shorting contactor is employed.

J. The soft start shall be provided with a secondary surge arrester.

K. MOTOR DATA:

1. The soft start shall be designed to operate a NEMA design B motor as indicated on the drawings.

L. RATINGS:

1. The soft start shall be designed to operate in an ambient temperature 0° and 50°C, derate the current by 1.2% per °C above 40°C.

2. Storage temperature range shall be -25°C to 70°C.

3. Maximum relative humidity shall be 93% at 40°C, non-condensing.

4. The soft start shall be designed to operate in altitudes up to 3300 ft. For higher altitudes, derate by 0.5% for each additional 330 ft.

5. The soft start shall be capable of operation between -15% and +10% of nominal voltage rating.

6. The soft start shall automatically adapt for operation at 50 or 60 Hz. Frequency tolerance shall be ±5% when starting and between +5% and -15% during steady state operation.

7. The soft start shall be capable of supplying 200% of rated full load current for 30 seconds at maximum ambient temperature.

8. The SCRs shall have a minimum P.I.V. rating of 1400 Vac. Lower rated SCRs with protection by MOVs are not acceptable.

M. ADJUSTMENTS AND CONFIGURATIONS:

1. All dialogue functions, display units, remote functions, terminal blocks, configuration switches and adjustment potentiometers shall be accessible on the front of the control module. Exposure to control circuit boards or electrical power devices during routine adjustments is prohibited.

2. Digital indication shall provide, as a minimum, the following conditions:

   a. Soft start status - ready, starting/stopping, run.
   b. Motor status - current, torque, thermal state, power factor.
   c. Fault status - Motor thermal overload, starter thermal fault, phase fault, frequency fault, supply fault, locked rotor fault, motor underload, max start time exceeded, external fault, serial link fault, phase inversion, internal failure, overcurrent.

3. The starter shall be preset to the following for adjustment-free operation:

   a. Torque acceleration ramp of 10 seconds.
   b. Current limitation to 200% of the motor full load current rating.
   c. Class 10 overload protection.
   d. Motor current preset per NEC and UL tables for standard hp motors.

4. A digital keypad shall be utilized configure the following operation parameters as required.

   a. Motor full load amps adjustable from 50 to 130% of the controller's rating.

   b. Current limitation on starting adjustable from 1.5 to 7 times rated motor current.

   c. Torque ramp adjustable from 1 to 60 seconds.

   d. Initial torque adjustable from 10 to 100% of nominal motor torque.

   e. Torque limit adjustable from 10 to 200% of nominal motor torque.

   f. Maximum start time adjustable from 10 to 999 seconds.

   g. Voltage boost adjustable from 50 to 100% of the nominal supply voltage.

   h. Selection of freewheel, soft stop or braking.

   i. Adjustable soft stop torque ramp time from 1 to 60 seconds.

   j. Threshold to change to freewheel following a soft stop from 0 to 100% of the nominal motor torque.

   k. Braking torque level adjustable from 0 to 100% effectiveness.

   l. Selection of Class 2, 10, 10A, 15, 20, 25 or 30 motor thermal overload protection.

5. A digital keypad shall be utilized configure the following controller parameters as required:

   a. Selectable automatic reset operation.
   b. Cancellation of the torque control loop for multi-motor installations.
   c. Adjustment of the stator loss estimation for specialty motors.
   d. Assignment of controller inputs and outputs.
   e. Activation of phase reversal protection.
   f. Reset of motor thermal state.
   g. Return to factory settings.
   h. Activation of test mode for use with low power motors.
   i. Indication of elapsed time in hours of starting, running and stopping.

6. Output relays shall provide the following status indications:

   a. One form A and one form B minimum for indication of fault.

b. One form A and one form B for indication of control of an input isolation contactor.

c. One form A and one form B minimum for indication of control of an output isolation contactor if provided.

d. One form A for indication that torque ramp is complete and current is below 130% motor FLA (End of start).

7. Additional inputs and outputs shall be available to provide the following status indications:

a. One logic input for force to freewheel, indication of external fault, force to local control, control of cascading motors, or external motor overload reset.

b. One form C and a logic output for indication of motor thermal overload pre-alarm or presence of motor current and one logic output to indicate overcurrent alarm.

c. One analog output shall be available for 4 to 20 milliamp indication of motor current, torque, thermal state, or power factor.

8. Relay and I/O functions listed above shall be isolated with respect to common.

N. PROTECTION:

1. A microprocessor controlled thermal protection system shall be included which shall continuously calculate the temperature-rise of the motor and soft start and provide:

a. User adjustable overload protection.

b. An overload pre-alarm which indicates by relay contact that the motor has exceeded its rated temperature rise by 100%. This function shall be annunciation only.

c. A thermal fault condition which stops the motor if the temperature-rise exceeds 120% of the motor thermal capability.

d. An analog electronic circuit with a time-constant adjustable to the motor's thermal cooling time-constant ensuring the memorization of the thermal state even after power supply disconnection or shorting out of the power semiconductors.

2. The soft start shall provide phase loss, phase reversal, underload, stall, and jam protection. Provide form A contact for remote indication.

3. The integral protective features shall be active even if an external shorting contractor is used to bypass the SCRs during steady state

operation.

4. Provide automatic fault reset.

O. CONTROL OPTIONS:

1. The soft start's control circuit shall be fed from the line supply and be completely independent of the power circuit and separate from the control logic.

2. The peripheral soft start control circuitry shall be operated at 120 VAC 60 Hz from a control power transformer included within the enclosure.

3. Operator devices shall be door mounted and shall be as indicated on the drawings.

4. All operator devices shall be remote-mounted using supplied 120 VAC control logic. Clearly labeled terminals shall be provided for field installation.

P. Shorting Contactor

1. A microprocessor shall control the operation of the shorting contactor via an output relay.

2. The shorting contactor shall close, shorting the thyristors after the motor current is below 130% of motor FLA and voltage is below nominal voltage (indicating ramp complete), and open on a stop command to allow a deceleration ramp.

3. Overload protection integral to the soft start shall continue to protect the motor when shorting is utilized.

Q. Starter shall be provided with a Form C normally open (NO), normally closed (NC) contact that shall change state when a fault condition exists. Contacts shall be rated 60 VA (resistive load) and 20 VA (inductive load). In addition, an LED display on the device keypad shall indicate type of fault (Overtemperature, Phase Loss, Jam, Stall, Phase Reversal and Overload.)

2.11 AUXILIARY CONTROL DEVICES:

A. Pushbutton stations shall be of the heavy-duty oil type, NEMA Type 1. A lockout attachment, with provisions for padlocking, shall be furnished on stop button, to render the control inoperative with the lockout in place.

B. Selector switches shall be of the heavy duty, oil tight type, mounted on the starter cover.

C. The operator button shall be molded Bakelite and solid in color throughout the material. Painted buttons are not acceptable. A suitable and clearly legible nameplate shall be provided for each button to designate its function.

D. All contact blocks shall be made of molded, high arc resistant material and shall have a minimum of one normally open and one normally closed contact, with a continuous current rating of 10 amperes, 600 volts. All terminals shall be readily accessible. Contact blocks shall be easily changed and shall be arranged for the addition of contacts.

E. Pilot lights shall be an integral part of control station when indicated. Indicating lights shall be of the LED type, push to test. Contractor shall install pushbuttons and selector switches not factory mounted.

F. Provide adjustable 1-60 second "on" time delay relay set for 30 seconds, unless noted, to allow motors 10 HP and larger to stop prior to restarting.

G. All plug-in control relays shall be provided with pilot lights.

H. Current Sensors: Rated to suit application.

2.12 CURRENT TRANSFORMERS:

Provide current transformers meeting the following requirements:

A. Standard: IEEE C57.13.

B. Current ratios: As indicated on the Drawings.

C. Mechanical and thermal ratings coordinated with breaker ratings.

D. Window type current transformers shall be accessible from front of cubicle to permit changing or adding, without disconnecting bus joints.

E. Accuracy, minimum: Standard relay accuracy as listed in IEEE C37.20.2.

F. Ground sensor current transformers:

1. Window type.
2. Single ratio: 50/5.

2.13 POTENTIAL TRANSFORMERS:

Provide potential transformers meeting the following requirements:

A. Standard: IEEE C57.13.

B. Voltage ratio: As required.

C. Primary current-limiting fuses.

D. Secondary fuses or circuit breaker.

E. Accuracy class: 0.3 at burden W thru Z and 0.6 at burden ZZ.

F. Thermal burden rating: Exceed maximum connected burden.

2.14 MOTOR PROTECTION RELAY:

Motor protection relays (MPR) shall be Schweitzer Engineering Laboratories, Inc. model SEL-701. MPR s shall provide complete induction motor protection including, but not limited to the following:

A. Motor thermal protection.

B. Eleven internal RTD inputs.

C. Voltage inputs for three-phase delta PTs.

D. Three-phase current transformer inputs.

E. Zero sequence ground fault input.

F. RS-485 rear port Modbus RTU communications.

G. Connect the relay to trip the motor starter on actuation of motor trip condition.

H. Connect winding and bearing RTD circuits to the relay.

I. Provide relay settings to provide the following protection.

1. Locked rotor and motor running overload protection. Protection shall be based on the actual motor nameplate ratings.

2. Overcurrent protection including phase overcurrent and ground fault overcurrent settings.

3. Frequent starting protection.

4. Motor winding and bearing RTD settings based on manufacturer recommended settings. Set alarm and trip conditions.

5. Under voltage and phase failure.

2.15 POWER QUALITY METER:

A. The power quality meter shall be front mounted as indicated. All fuses and other components required for the power quality meter shall be provided.

B. Provide a front mounted display.

C. Provide an Ethernet card that provides 10/100BaseTx Ethernet and RS-485. Supported protocols shall be Modbus TCP/IP, FTP, SNMP MIB2, ARP, UDP, and HTTP.

D. Provide current transformers as required and as indicated on the drawings. Provide potential transformers if required for the monitor provided.

E. Provide finger safe fuse blocks for the three-phase input from the MCC bus.

F. Provide shorting terminal blocks for the CT connections to the Power Quality Meter.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install MCCs in accordance with NEMA ICS 2.3, "Instructions for the Handling, Installation, Operation, and Maintenance of MCCs" and with the manufacturers written installation instructions.

B. Anchor each motor control center assembly to channel sills arranged and sized in accordance with the manufacturer's recommendations. Attach a tack welding or bolting. Level and grout sills flush with the motor control center-mounting surface.

3.2 CONCRETE BASES:

A. Motor control centers shall be installed on 3-inch high concrete pads as indicated on the drawings.

B. Form concrete equipment bases using framing lumber with form release compounds. Locate as indicated and construct 1 inch larger in all directions than the supported unit. The pad shall be constructed with a 3/4" chamfer on top edges.

C. Install reinforcing bars, and place anchor bolts and sleeves using manufacturer's installation template.

D. Place concrete and allow curing before installation of equipment.

E. Remove temporary lifting eyes, channels, brackets, and temporary blocking of moving parts form MCC units and components after MCC is set.

F. Contractor shall coordinate floor openings required for conduits entering in the bottom of the MCC.

3.3 FIELD QUALITY CONTROL

A. Comply with applicable requirements of the International Electrical Testing Association (INETA) Standard, "Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems."

B. Perform the following preparations for tests:

1. Test the insulation resistance of MCC buses, components, and of connecting supply, feeder, and control circuits. For components with solid-state devices or other sensitive components, perform tests in accordance with the manufacturer's instructions.

2. Make continuity tests of circuits.

3. Provide the manufacturer's instructions for installation and testing of the MCC to the testing personnel.

4. Check anchoring of MCC, external clearance, and alignment and fit of components, including internal elements.

5. Perform operational tests and exercise of mechanical components and other operable devices in accordance with the manufacturer's instruction manual.

6. Check tightness of bolted electrical connections with calibrated torque wrench. Refer the manufacturer's instructions for proper torque values.

7. Perform visual and mechanical inspection and related work for motor control and protective devices.

8. Verify ratings and settings of overload relays, motor circuit protectors, and overcurrent protective devices.

C. Quality Control Testing Program. Assure MCC installation meets the specified requirements, is operational within the specified tolerances, and provides the appropriate protection for the systems and equipment.

1. Test and inspect the MCCs in accordance with the manufacturer's recommendations and these specifications.

2. Provide a manufacturer's factory certified technician to supervise the installation of adjustable frequency drives.

3. Schedule tests and provide notifications to the Owner at least 1 week in advance of the test commencement.

4. Prepare written reports of test results and observations. Report defective materials and workmanship. Include complete records of adjustments and corrective action taken.

5. Check phasing of supply source to the bus.

3.4 GROUNDING:

A. All conduits entering the MCC shall be individually bonded to the MCC ground bus. The size of bonding conductor shall be equal to the equipment-grounding conductor in the conduit.

B. Bond the MCC ground bus as indicated on the drawings.

3.5 CLEANING:

A. Each MCC shall be thoroughly cleaned inside and out to the satisfaction of the Owner/Engineer.

3.6 TRAINING:

A. Provide 8 hours of on-site training by a manufacturer for Owner personnel. Training shall be performed at the job site using the actual equipment installed. Training shall include the operations and maintenance manuals and shall consist of classroom training and actual hands on training.

3.7 DEMONSTRATION:

A. A schematic wiring diagram of each solid state or magnetic starter or VFD unit shall be provided and attached to the inside of starter door. The wiring diagram shall be specific to the equipment served by the starter. Manufacturer's standard wiring diagram will not be acceptable except where the starter is designated as a spare.

B. All output alarm contacts not indicated to be used for SCADA or control shall be paralleled to provide a single remote alarm.

END OF SECTION

SECTION 16491

AUTOMATIC TRANSFER SWITCH WITH BYPASS
AND SERVICE ENTRANCE RATED

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Automatic transfer and bypass-isolation switch (ATS/BPS), 480-volt, 3-phase for standby power service, with bypass.

B. Furnish an ATS that is U.L. rated for service entrance equipment. It shall provide all of the proper disconnecting, protection, grounding and bonding required for service entrance equipment. Unit shall have neutral and ground-disconnect links.

1.2 STANDARDS:

The automatic transfer switches and controls shall conform to the requirements of the following:

A. IEC 60947-6-1 Low-voltage Switchgear and Control gear; Multifunction equipment; Automatic Transfer Switching Equipment.

B. NFPA 70 - National Electrical Code.

C. NFPA 110 - Emergency and Standby Power Systems.

D. IEEE Standard 446 - IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications.

E. NEMA Standard ICS10 (formerly ICS2-447) - AC Automatic Transfer Switches.

F. UL 508 Industrial Control Equipment.

G. UL 1008 - Standard for Transfer Switch Equipment.

1.3 SUBMITTALS:

A. Submit in accordance with 01300.

1.4 SERVICE REPRESENTATION:

The ATS/BPS manufacturer shall maintain a national service organization of company-employed personnel located throughout the contiguous United States. The service center's personnel shall be factory trained and on call 24 hours a day, 365 days a year. ATS manufacturer shall utilize technicians that are dedicated solely to switchgear and ATS maintenance and repair. ATS technicians shall arrive onsite in vehicle dedicated to repair and parts replacement of electrical switchgear and transfer switches.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURER:

A. The listed manufacturer below shall actually manufacture the transfer switches for this project. Companies that simply purchase switches and/or components or "rebrand" other manufacturers products are specifically prohibited. The engine generator set supplier shall provide specified automatic transfer switch to ensure one source of responsibility.

B. Manufacturers:

1. ASCO.
2. Russell.
3. Approved equivalent.

2.2 TRANSFER SWITCH EQUIPMENT:

A. Each automatic transfer and bypass-isolation switch shall consist of an inherently double throw power transfer switch mechanism and a microprocessor controller to provide automatic operation. All automatic transfer and bypass-isolation switches and controllers shall be the products of the same manufacturer.

B. Automatic transfer and bypass-isolation switch shall be 3-pole with solid neutral and ground bar, or as indicated on the drawings.

C. All transfer switch sizes shall use only one type of main operator for ease of maintenance and commonality of parts.

D. Ampacity shall be as indicated on the drawings.

E. Each complete factory-assembled automatic transfer and bypass-isolation system shall have the following features: electronic control designed for surge voltage isolation with voltage sensors on all phases of both sources; linear operator; permanently attached manual handles; positive mechanical and electrical interlocking; and mechanically-held contacts.

F. Designs utilizing components of molded-case circuit breakers, contactors, or parts thereof, which are not intended for continuous duty, repetitive switching or transfer between two active power sources will not be acceptable.

G. Inspection of all contacts shall be possible from the front of the switch without disassembly of operating linkages and without disconnection of power conductors. Switches rated 800 amps and higher shall have front removable and replaceable contacts. All stationary and moveable contacts shall be replaceable without removing power conductors and/or bus bars.

H. The switch shall be positively locked and unaffected by momentary outages, so that contact pressure is maintained at a constant value and contact temperature rise is minimized for maximum reliability and operating life.

I. The ATS/BPS shall be UL listed in accordance with UL 1008 and be labeled in accordance with that standard's 0.025 and 0.05 second, time based ratings. ATS/BPSs which are not tested and labeled with time based ratings and have series, or specific breaker ratings only, are not acceptable.

J. Provide transfer switch according to the following:

1. Transfer switch shall be rated to carry 100 percent of rated current continuously in the enclosure. Circuit breaker-type transfer switches are not acceptable.

2. Transfer switches shall be continuously rated in ambient temperatures of -40 to +50 degrees C, relative humidity up to 95 percent (non-condensing), and altitudes up to 10,000 feet.

3. Transfer switch equipment shall have a withstand and close-on rating (WCR) in RMS symmetrical amperes of 65,000A RMS symmetrical minimum.

4. Construction: Transfer switches shall be double-throw, electrically and mechanically interlocked, and mechanically-held in both positions.

5. Transfer switches shall be equipped with manual operators for use only under de-energized conditions.

6. Main switch contacts shall be high-pressure silver alloy. Contact assemblies shall have arc chutes for positive arc extinguishment. Arc chutes shall have insulating covers to prevent interphase flashover.

7. Provide two sets of Form C auxiliary contacts on both sides, operated by transfer switch positions, rated 10 amp 250 VAC.

2.3 ENCLOSURE:

A. Enclosure shall be NEMA 12, unless otherwise indicated.

B. All standard and optional door-mounted switches and pilot lights shall be 16-mm industrial grade type or equivalent for easy viewing & replacement. Door controls shall be provided on a separate removable plate.

2.4 BYPASS ISOLATION SWITCH:

A. A two-way bypass-isolation switch shall provide manual bypass of the load to either source and permit isolation of the automatic transfer switch from all source and load power conductors. All main contacts shall be manually driven.

B. Power interconnections shall be silver-plated copper bus bar. The only field installed power connections shall be at the service and load terminals of the bypass-isolation switch. All control interwiring shall be provided with

disconnect plugs.

C. Separate bypass and isolation handles shall be utilized to provide clear distinction between the functions. Handles shall be permanently affixed and operable without opening the enclosure door. Designs requiring insertion of loose operating handles or opening of the enclosure door to operate are not acceptable.

D. Bypass to the load-carrying source shall be accomplished with no interruption of power to the load (make before break contacts). Designs which disconnect the load when bypassing are not acceptable. The bypass handle shall have three operating modes: "Bypass to Normal," "Automatic," and "Bypass to Emergency." The operating speed of the bypass contacts shall be the same as the associated transfer switch and shall be independent of the speed at which the manual handle is operated. In the "Automatic" mode, the bypass contacts shall be out of the power circuit so that they will not be subjected to fault currents to which the system may be subjected.

E. The isolation handle shall provide three operating modes: "Closed," "Test," and "Open." The "Test" mode shall permit testing of the entire emergency power system, including the automatic transfer switches with no interruption of power to the load. The "Open" mode shall completely isolate the automatic transfer switch from all source and load power conductors. When in the "Open" mode, it shall be possible to completely withdraw the automatic transfer switch for inspection or maintenance to conform to code requirements without removal of power conductors or the use of any tools.

F. When the isolation switch is in the "Test" or "Open" mode, the bypass switch shall function as a manual transfer switch.

G. Designs requiring operation of key interlocks for bypass isolation or ATS which cannot be completely withdrawn when isolated are not acceptable.

2.5 SERVICE ENTRANCE DISCONNECT AND OVERCURRENT PROTECTIVE DEVICE:

A. The ATS shall be provided with a stationary mount, insulated case circuit breaker with a solid-state trip unit. The trip unit shall have an adjustable long time, short time, instantaneous, and ground fault trip settings. The insulated case circuit breaker shall trip open when the ground fault setting is exceeded.

B. The circuit breaker shall be provided with a Form “c” contact for remote SCADA position indication.

C. Square D Type RJF, or Engineer approved equal.

2.6 AUTOMATIC CONTROLS:

Control shall be solid-state and designed for a high level of immunity to power line surges and transients, demonstrated by test to IEEE Standard 587. The control shall have optically isolated logic inputs, high isolation transformers of AC inputs, and relays on all outputs.

A. Solid-state under-voltage sensors shall simultaneously monitor phases of both sources. Pick-up and drop-out settings shall be adjustable. Voltage sensors shall allow for adjustment to sense partial loss of voltage on any phase. Voltage sensor shall have field calibration of actual supply voltage to nominal system voltage.

B. Automatic controls shall signal the engine-generator set to start upon signal from normal source sensors. Solid-state time-delay start, adjustable from 0 to 15 seconds (factory-set at 2 seconds) shall avoid nuisance start-up. Battery voltage starting contacts shall be gold, dry-type contacts factory-wired to a field wiring terminal block. The start signal shall prevent dry cranking of the engine by requiring the generator set to reach proper output, and run for the duration of the cool down setting, regardless of whether the normal source restores before the load is transferred.

C. The switch shall transfer when the emergency source reaches the set point voltage and frequency. Provide a solid-state time delay on transfer, adjustable from 0 to 120 seconds.

D. The switch shall retransfer the load to the normal source after a time delay retransfer, adjustable from 0 to 30 minutes. Retransfer time delay shall be immediately bypassed if the emergency power source fails.

E. Controls shall signal the engine-generator set to stop after a time delay, adjustable from 0 to 10 minutes, beginning on return to the normal source.

F. Power for transfer operation shall be from the source to which the load is being transferred.

G. The control shall include latching diagnostic indicators to pinpoint the last successful step in the sequence of control functions, and to indicate the present status of the control functions in real time, as follows:

1. Source 1 OK.
2. Start Gen Set.
3. Source 2 OK.
4. Transfer Timing.
5. Transfer Complete.
6. Retransfer Timing.
7. Retransfer Complete.
8. Timing for Stop.

H. The control shall include provisions for remote transfer inhibit and area protection.

I. Front Panel Devices: Provide devices mounted on cabinet from consisting of:

1. A key-operated selector switch to provide the following positions and functions:

a. Test--Simulates normal power loss to control for testing of generator set. Controls shall provide for a test with or without load transfer.

b. Normal--Normal operating position.

c. Retransfer--Momentary position to override retransfer time delay and cause immediate return to normal source, if available.

J. The controller shall be connected to the transfer switch by an interconnecting wiring harness. The harness shall include a keyed disconnect plug to enable the controller to be disconnected from the transfer switch for routine maintenance. Sensing and control logic shall be provided on multi-layer printed circuit boards. Interfacing relays shall be industrial grade plug-in type with dust covers. The panel shall be enclosed with a protective cover and be mounted separately from the transfer switch unit for safety and ease of maintenance. The protective cover shall include a built-in pocket for storage of the operator's manuals.

The control panel shall be at minimum 4 lines, 20 character and shall give user clear indication of the status of the transfer switch. Control panel shall track and store the last 99 events.

K. The controller shall meet or exceed the requirements for Electromagnetic Compatibility (EMC) as follows:

1. EN 55011:1991: Emission standard - Group 1, Class A.
2. EN 50082-2:1995: Generic immunity standard, from which:

a. EN 61000-4-2:1995 - Electrostatic discharge (ESD) immunity.

b. ENV 50140:1993 - Radiated Electro-Magnetic field immunity.

c. EN 61000-4-4:1995 - Electrical fast transient (EFT) immunity.

d. EN 61000-4-5:1995 - Surge transient immunity.

e. EN 61000-4-6:1996 - Conducted Radio-Frequency field immunity.

2.7 TIME DELAYS:

A. An adjustable time delay of 0 to 6 seconds shall be provided to override momentary normal source outages and delay all transfer and engine starting signals. Capability shall be provided to extend this time delay to 60 minutes by providing an external 24 VDC power supply.

B. A time delay shall be provided on transfer to emergency, adjustable from 0 to 60 minutes, for controlled timing of transfer of loads to emergency.

C. Two time delay modes (which are independently adjustable) shall be provided on re-transfer to normal. One time delay shall be for actual normal power failures and the other for the test mode function. The time delays shall be adjustable from 0 to 60 minutes. Time delay shall be automatically bypassed if the emergency source fails and the normal source is acceptable.

D. A time delay shall be provided on shut down of engine generator for cool down, adjustable from 0 to 60 minutes.

E. A time delay activated output signal shall also be provided to drive an external relay(s) for selective load disconnect control. The controller shall have the ability to activate an adjustable 0 to 5 minute time delay in any of the following modes:

1. Prior to transfer only.
2. Prior to and after transfer.
3. Normal to emergency only.
4. Emergency to normal only.
5. Normal to emergency and emergency to normal.
6. All transfer conditions or only when both sources are available.

F. The controller shall also include the following built-in time delays for optional Closed Transition and Delayed Transition operation:

1. 1 to 5 minute time delay on failure to synchronize normal and emergency sources prior to closed transition transfer.

2. 0.1 to 9.99 second time delay on an extended parallel condition of both power sources during closed transition operation.

3. 0 to 5 minute time delay for the load disconnect position for delayed transition operation.

G. All time delays shall be adjustable in 1 second increments, except the extended parallel time, which shall be adjustable in .01 second increments.

H. All time delays shall be adjustable by using the LCD display and keypad or with a remote device connected to the serial communications port.

2.8 ACCESSORY ITEMS:

A. Transfer switches shall be equipped with accessories as follows:

1. Provide solid-state exerciser clock to set the day, time, week and duration of generator set exercise/test period. Provide a with/without load exercise period selector switch. At the end of the specified duration the switch shall transfer the load back to normal and run the generator for the specified cool down period. A 10-year life battery that supplies power to the real time clock in the event of a power loss will maintain all time and date information.

2. Exercise clock.

3. Programmed transition.

4. Over Voltage and Over/Under frequency sensing for normal source and emergency source.

5. Ground bar.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Installation shall comply with NEC and National Fire Code. Install equipment in accordance with manufacturer's instruction and instructions included in the listing or labeling of UL listed products.

B. Prior to equipment's being energized, a factory representative shall inspect installation and issue to Owner and Engineer a certificate of proper installation.

3.2 FACTORY TESTS:

A. Provide a factory-certified record of the production testing.

1. The complete ATS/BPS shall be factory tested to ensure proper operation of the individual components and correct overall sequence of operation and to ensure that the operating transfer time, voltage, frequency and time delay settings are in compliance with the specification requirements.

2. The ATS/BPS manufacturer shall be certified to ISO 9001 International Quality Standard and the manufacturer shall have third party certification verifying quality assurance in design/development, production, installation and servicing in accordance with ISO 9001.

3. Factory tests shall include a complete functional test of transfer switch controls, including calibration of the voltage sensors.

3.3 FIELD TEST:

A. Responsible party under Specification Section 16620 shall demonstrate transfer switch operation with field tests of engine-generator system.

END OF SECTION

SECTION 16675

TRANSIENT VOLTAGE SURGE SUPPRESSION

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY:

A Section includes field-mounted SPDs for low-voltage (<1000 V) power distribution and control equipment.

1.3 DEFINITIONS:

A. VPR: Voltage Protection Rating.

B. SPD: Surge Protective Device(s)

C. I(n): Nominal Discharge Current

1.4 SUBMITTALS:

A. Product Data: For each type of product indicated. Include rated capacities, operating weights, electrical characteristics, furnished specialties, and accessories.

B. Qualification Data: For qualified testing agency.

C. Product Certificates: For SPDs from manufacturer.

D. Operation and Maintenance Data: For SPDs to include operation, and maintenance manuals.

E. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE:

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a testing agency, and marked for intended location and application.

B. The unit shall be UL 1449 Listed and CUL Approved as a Surge Protective Device and UL 1283 Listed as an Electromagnetic Interference Filter.

C. Comply with IEEE C62.41.2 and test devices according to IEEE C62.45.

D. Comply with NFPA 70.

E. PROJECT CONDITIONS:

1. Service Conditions: Rate SPDs for continuous operation under the following conditions unless otherwise indicated:

a. Maximum Continuous Operating Voltage (MCOV) of not less than 115% for 277/480V and 125% for 120/208V nominal RMS operating system voltage.

b. Operating Temperature: 30 to 150 deg F.

c. Humidity: 0 to 95 percent, non-condensing.

d. Altitude: Less than 12,000 feet above sea level.

1.6 COORDINATION:

Coordinate location of field-mounted SPDs to allow adequate clearances for maintenance.

1.7 WARRANTY:

Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge suppressors that fails in materials or workmanship within specified warranty period.

Warranty Period: 10 years from date of Substantial Completion.

1.8 EXTRA MATERIALS:

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

B. Replaceable Protection Modules: one of each size and type installed.

PART 2 PRODUCTS

2.1 MANUFACTURER:

A. Square D.

B. MVC, Inc. (800) 583-4773

C. Approved Equal.

2.2 SERVICE ENTRANCE SUPPRESSORS:

A. Surge Protective Devices shall be:

1. ANSI/UL 1449 Listed.

2. Modular design (with field-replaceable modules).

3. Fuses, rated at 200-kA interrupting capacity.

4. Minimum ANSI/UL 1449-2006 withstand (In) rating to be 20kA per mode.

5. Tested with the ANSI/IEEE Category CHigh exposure waveform (20kV-1.2/50µs, 10kA-8/20µs).

6. Pulse life test: Capable of protecting against and surviving 20,000 ANSI/IEEE Category CHigh transients without failure or degradation of clamping voltage by more than 10%.

7. Bolted compression lugs for internal wiring.

8. Coordinated thermal and surge current fusing.

9. Redundant suppression circuits.

10. Replaceable modules, 1 per phase minimum.

11. LED indicator lights for power and protection status.

12. Audible alarm, with silencing switch, to indicate when protection has failed.

13. Form-C contacts rated at 2 A and 24-V ac minimum, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.

14. Six-digit transient-event counter set to totalize transient surges.

B. Peak Single-Impulse Surge Current Ratings to be selected by environment:

Category/Type	Application	Per Phase	Per Mode
C Type 2	Service Entrance	240 kA	120 kA
B Type 2	High Exposure Locations (Distribution Equipment)	160 kA	80 A

C. The ASNI/UL 1449 voltage protection rating (VPR) in grounded wye circuits, the SPDs shall not exceed the following:

Modes	208Y/120	480Y/277	600Y/347
L-N,L-G, N-G	800	1200	1500
L-L	1200	2000	2500

D. The ANSI/UL 1449 VPR for 240/120 V, 3-wire or 4-wire circuits with high leg shall not exceed the following:

Modes	240/120
L-N,L-G, N-G	1200/800

2.3 PANELBOARD SUPPRESSORS:

A. Surge Protective Devices shall be:

1. ANSI/UL 1449 Listed.

2. Modular design (with field-replaceable modules).

3. Fuses, rated at 200-kA interrupting capacity.

4. Minimum ANSI/UL 1449-2006 withstand (In) rating to be 20kA per mode.

5. Tested with the ANSI/IEEE Category CHigh exposure waveform (20kV-1.2/50µs, 10kA-8/20µs).

6. Pulse life test: Capable of protecting against and surviving 20,000 ANSI/IEEE Category CHigh transients without failure or degradation of clamping voltage by more than 10%.

7. Bolted compression lugs for internal wiring.

8. Coordinated thermal and surge current fusing.

9. Redundant suppression circuits.

10. Replaceable modules, 1 per phase minimum.

11. LED indicator lights for power and protection status.

12. Audible alarm, with silencing switch, to indicate when protection has failed.

13. Form-C contacts rated at 2 A and 24-V ac minimum, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.

14. Six-digit transient-event counter set to totalize transient surges.

B. Peak Single-Impulse Surge Current Rating

Category/Type	Application	Per Phase	Per Mode
B Type 2	High Exposure Locations (Distribution Equipment)	160 kA	80 kA
B Type 2	Branch Locations	120 kA	A

C. The ASNI/UL 1449 voltage protection rating (VPR) in grounded wye circuits, the SPDs shall not exceed the following:

Modes	208Y/120	480Y/277	600Y/347
L-N,L-G, N-G	800	1200	1500
L-L	1200	2000	2500

D. The ANSI /UL 1449 VPR for 240/120 V, 3-wire or 4-wire circuits with high leg shall not exceed the following:

Modes	240/120
L-N,L-G, N-G	1200/800

2.4 ENCLOSURES:

A. Indoor Enclosures: NEMA 250, Type 1.

B. Outdoor Enclosures: NEMA 250 Type 4X.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install SPDs at the service entrance on the load side, with ground lead bonded to service entrance ground.

B. Install SPDs for panelboards and auxiliary panels with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

C. Provide a 60 Amp circuit breaker as a dedicated disconnecting means for SPD unless otherwise indicated.

D. The SPDs ground shall be connected to the power system ground.

3.2 FIELD QUALITY CONTROL:

A. Ensure that interiors are free of foreign materials and dirt.

B. Check and test switches, pushbuttons, meters for proper operation.

C. Check and test indicating lights for proper operation and color.

D. Perform manufacturer's on site field test procedures.

3.3 STARTUP SERVICE:

A. Do not perform insulation resistance (MEGGER) tests of the distribution wiring equipment with the SPDs installed. Disconnect all wires, including neutral, before conducting insulation resistance tests, and reconnect immediately after the testing is over.

B. Test the unit status by pressing the buttons below the Phase LED on the diagnostic panel. The LED will turn from Green to Red while the button is pressed. The LED will return to Green upon release of the Phase button.

END OF SECTION

PART 1
APPENDIX 1

GEOTECHNICAL INVESTIGATION REPORT

Enprotec / Hibbs & Todd

April 26, 2019

Mr. Carl A. Craigo, P.E.
Utilities Director
City of Midland
PO Box 1152
Midland, Texas 79702

Re: Geotechnical Investigation
NE Water System Improvements
High Service Pump Station Building
Midland, Texas

Dear Mr. Craigo:

In accordance with your instructions, we have conducted a Geotechnical Investigation for the above referenced project. The conclusions and recommendations of this investigation are to be found in the attached report.

We trust that this will provide the information you have requested. We are also available for the geotechnical and materials testing services recommended in the Report during construction. If there are any further questions, please do not hesitate to call.

Sincerely,

Enprotec / Hibbs & Todd, Inc.

STATE OF TEXAS
GARY SCOTT YUNGBLUT
85640
LICENSED
PROFESSIONAL ENGINEER
26 APR 19

G. Scott Yungblut, P.E.
Geotechnical Engineer

Enclosure
18-7227

GEOTECHNICAL INVESTIGATION
NE WATER SYSTEM IMPROVEMENTS
HIGH SERVICE PUMP STATION BUILDING
MIDLAND, TEXAS

TABLE OF CONTENTS

Page

INTRODUCTION
General 1
Scope 1
Limitations 1

SITE DESCRIPTION
Site Location and Topography 2

DESCRIPTION OF WORK
Field Investigation 2
Laboratory Testing 3
Engineering Analysis 3

SUBSURFACE MATERIALS AND CONDITIONS
Site Geology 3
Site Stratigraphy 3
Groundwater 4
Laboratory Results 4

FOUNDATION DESIGN CONSIDERATIONS
General 4
Drilled Pier Foundation 4
Floor Slab 6
Perimeter Moisture Control 6

FOUNDATION CONSTRUCTION RECOMMENDATIONS
Site Clearing/Stripping 6
Building Pad Preparation 7
Select Fill 7
Vapor Barrier 7
Foundation Excavation 7
Utilities 8

FOUNDATION CONSTRUCTION CONSIDERATIONS
Wet Weather 8
Excavation Safety 8
General 9
Earthwork 9
Concrete 9
Drilled Pier Inspection 9

APPENDIX A - Boring Location Plan
APPENDIX B - Summary of Classification Tests
APPENDIX C - Boring Logs

GEOTECHNICAL INVESTIGATION
NE WATER SYSTEM IMPROVEMENTS
HIGH SERVICE PUMP STATION BUILDING
MIDLAND, TEXAS

EXECUTIVE SUMMARY

GENERAL: This investigation was authorized by Ms. Laura Wilson, P.E., Utilities Director for the City of Midland, Texas (City) at the time the project was initiated. The purpose of this investigation is to provide foundation design information along with construction recommendations for the proposed High Service Pump Station Building (HSPS) to be located at the existing water purification plant in Midland, Texas.

The project includes an 8,500 square foot HSPS to be located just south of the existing HSPS. It is understood that the pump cans will extend about 25 to 30 feet below existing grade to match the elevation of the existing pump cans and piping. A concrete tilt-wall building is anticipated which will match the existing building. Detailed structural loading was not provided, however for this analysis it has been assumed that maximum column loads will be about 100 to 150 kips per column and maximum wall loads will be less than 2.5 kips per linear foot of wall, based on dead load plus design live load. Detailed site grading has also not been provided, although it has been assumed that the floor slab for the structure will be constructed at or near existing grades, exclusive of the recommendations contained herein.

SCOPE: The scope of the exploration and analysis to be performed by Enprotec/Hibbs & Todd, Inc. (eHT) included a site reconnaissance, the subsurface exploration, field and laboratory testing, and an engineering analysis and evaluation to provide design recommendations for the foundation and floor slab along with construction recommendations for the proposed HSPS. Details and results of the investigation are discussed in the following sections of this report.

LIMITATIONS: The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology. No other warranties are implied or

SITE DESCRIPTION

SITE LOCATION & TOPOGRAPHY: The proposed building site is located just south of the existing HSPS at the existing Midland Water Purification Plant in Midland, Texas. At the time of the subsurface exploration the site was mostly covered with short grasses. Site topography appeared relatively flat.

DESCRIPTION OF WORK

FIELD INVESTIGATION: Drilling and soil sampling activities were performed at select locations of the site on March 5, 2019. Two test borings were drilled to a depth of about 50 feet below the existing ground surface elevation at the locations shown on Figure 1 in Appendix A. The location of the HSPS was provided by Mr. Joe Mangrem, PE, Project Manager for eHT.

The test borings were drilled utilizing a truck-mounted Failing rotary drilling rig. The test borings were advanced utilizing dry sampling methods and rotary air drilling techniques which allow for accurate groundwater observations. Drilling and sampling activities were performed in general accordance with referenced ASTM and/or TxDOT procedures or other accepted methods.

Soil formations were sampled using a 3-inch diameter Shelby-type steel tube sampler (ASTM D 1587) and/or a 2-inch split barrel sampler (ASTM D 1586). Undisturbed soil samples were subjected to calibrated pocket penetrometer tests (Qp) to assist in evaluating the shear strength of the cohesive soils. Quantitative estimates of the foundation strata bearing capacity were also obtained from interpretation of the Standard Penetration Test (SPT), the Texas Highway Department Cone Penetrometer Test (TCP), and widely published empirical correlations. The reports of the field tests are reported on the Logs of Borings in Appendix C.

The borings were visually logged in the field, and all recovered samples were placed in core boxes for delivery to the laboratory. Push-tube samples, split barrel samples, and auger grab samples were placed in polyethylene plastic bags to minimize moisture changes. Samples will be retained for 60 days from the date of this report. The samples will then be discarded unless notified in writing by the client requesting that the samples be retained.

The borings were observed for groundwater at each test location, during and following the completion of the boring. These observations are shown on the Logs of Borings and discussed in a later section of this report. The borings were backfilled with on-site materials upon completion of the fieldwork. Logs of Borings were subsequently prepared, along with a legend titled EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS and GENERAL NOTES. The legend and general notes show typical soil and rock classifications, drilling symbols, weathering descriptions, and soil structure characteristics.

LABORATORY TESTING: Select materials recovered in the borings were tested in the laboratory and classified based on the laboratory test results. Laboratory testing was conducted in general accordance with ASTM procedures and standards. Atterberg Limits (ASTM D 4318) and Minus 200-Mesh Sieve Tests (ASTM D 1140) were performed on selected soil samples in order to classify and establish index properties and grain size characteristics of the soils. Appendix B summarizes the results of these classification tests. The soil classifications are based on the Unified Soil Classification System (USCS).

ENGINEERING ANALYSIS: The engineering analysis was conducted on the information obtained from the field and laboratory investigations and from information provided by Mr. Mangrem and Mr. Colden Rich, P.E., Project Manager for eHT. If revisions to the plans for the proposed project, or if deviations from the subsurface conditions presented in this report are encountered during construction, we should be notified to determine if changes in our recommendations are required.

SUBSURFACE MATERIALS AND CONDITIONS

SITE GEOLOGY: As shown on the Hobbs Sheet of the Geologic Atlas of Texas, the site is located in an area where Quaternary Age deposits of Windblown Sand Deposits are present at or near the ground surface. The Alluvium in the project area generally consists of silty, calcareous fine to medium grained quartz with calcareous caliche.

SITE STRATIGRAPHY: A detailed description of the site stratigraphy is provided on the Logs of Borings. Generally, the subsurface conditions at the site may be characterized as follows:

Loose to very dense clayey sands, some with calcareous nodules and/or gravel, were present from the surface to depths ranging from 29 to 31 feet at the test boring locations. The sands were underlain by conglomerate to a depth of at least 47 to 50 feet, the termination depth of the test borings.

GROUNDWATER: Groundwater was encountered at a depth of about 23½ to 28 feet within the test borings during and at completion of drilling activities. Groundwater may typically be found within the alluvial soils and particularly in contact with the denser sands and conglomerate. An accurate depiction of the groundwater depth would require leaving the test borings open for an extended period of time due to the moderately impermeable soils. Based upon the measured water levels and soil moisture contents the groundwater table was considered to exist at a depth of about 25 feet below current grades at the time of the subsurface exploration, although shallower perched water may be encountered across the site. The water table may fluctuate seasonally and during periods of heavy rainfall.

LABORATORY RESULTS: The results of the Atterberg Limits Testing indicate that the tested soils possess Liquid Limits (LL) ranging from 9 to 39 with corresponding Plasticity Indices (PI) of 20 to 61. One of the samples tested was determined to be non-plastic. Soil Classification Tests indicate that the soils exhibit a low to high expansive potential with a slight to very high degree of plasticity. The soils are classified as SC and SM materials according to the Unified Soil Classification System (USCS). Refer to Appendix B for the laboratory test results of the materials tested.

FOUNDATION DESIGN RECOMMENDATIONS

GENERAL: The proposed site is underlain by moderate strength, low to highly expansive clayey sands underlain by very dense sands and conglomerate. The Potential Vertical Rise (PVR) has been estimated using the *State of Texas Highway Department Materials and Testing Division Test Method TEX-124-E "Methods of Determining the Potential Rise"* for the existing soils. For this site, the PVR estimation was based on a plasticity index (PI) ranging from 9 to 39. The estimation assumed average seasonal minimum moisture corresponding to the "dry line" of the test method. The PVR for this site was estimated to be about 1 inch. A differential movement of half of the PVR can be assumed. However, differential movement can be equal to or even double the PVR in extreme conditions such as soils exposed to moisture and swelling in one area and drying and shrinkage in another.

DRILLED PIER FOUNDATION: A deep foundation consisting of straight drilled piers may be utilized for the proposed structure and would be considered the least risk option. The conglomerate at a depth of about 40 feet below existing grade is expected to provide a suitable bearing stratum for the drilled piers. The drilled piers should penetrate a minimum 10 feet into undisturbed conglomerate even if piers greater than 40 feet are required.

Design pier depths shown in the construction documents should ensure that the piers reach the minimum depth indicated above. The proper depth must be reached in order to ensure adequate bearing capacity. Piers founded in the conglomerate should be sized assuming a maximum net allowable end bearing pressure of 25 kips per square foot (ksf), based on a dead load plus design live load considerations. An allowable skin friction value of 1.5 ksf may be utilized within the bottom 8 feet of the undisturbed conglomerate. Note that pier settlements of 2 to 3 percent of the shaft diameter will occur to fully develop the skin friction. The allowable capacities are based on published correlations for STP field test data. The values include a safety factor of at least 3 against shear failure in the supporting soils.

The piers should have a minimum diameter of 18 inches for quality construction and inspection. Minimum on-center pier spacing should be 3 times the pier diameter at the bearing surface to eliminate an overlapping stress influence. The piers should be reinforced for their full depth to within 6 inches of the bottom of the pier to resist potential tensile forces which may develop due to swelling of the site soils and due to structural loads. It is recommended that each pier be reinforced with a minimum 0.75 percent reinforcing steel (based on the cross-sectional area of the pier shaft). The steel may be considered part of the reinforcement required by axial compressive loads, lateral load considerations, or the minimal reinforcement required by the codes.

Temporary casing must be used where necessary to stabilize pier holes if groundwater or caving soils are encountered during construction and should be anticipated based upon the groundwater encountered during drilling activities. Any accumulated water must be removed prior to the placement of concrete. If the pier hole has been cased, sufficient concrete should remain in the casing as the casing is withdrawn to prevent any discontinuities from forming within the concrete section. A hopper and 'tremie' should be utilized during concrete placement to control the maximum free fall of the wet concrete to less than 10 feet. Additionally, concrete placed in drilled piers should not be placed at slumps less than 6 inches unless it is consolidated full depth with a vibrator or by other means. Concrete placed in piers at a slump less than 5 inches increases the potential for honeycombing. All free water should be removed from the top of the pier following the removal of the casing to assure that only fresh concrete is in the pier hole at completion. For a given pier, excavation, steel reinforcement, and concrete placement should be completed within one working day.

FLOOR SLAB: If some differential movements can be tolerated, a soil supported floor slab may be used in conjunction with the drilled pier foundation. The slab-on-grade should be supported on a minimum 3 feet of select fill to provide a PVR of about 1 inch. Based upon the assumed floor slab live loads a minimum 5-inch thick concrete slab reinforced with at least #4 rebar 18 inches on center, each way, placed mid-height within the floor slab is recommended due to the underlying expansive soils. The structural engineer should provide the actual floor slab design based upon the remaining expansive soils and the anticipated equipment loads in the building.

PERIMETER MOISTURE CONTROL: Proper design of a foundation in expansive soils must include perimeter surface moisture control. Basically, soils experience volume changes when allowed to dry or when allowed access to moisture. Thus, if the soil moisture content remains constant, soil volume changes will be minimal. In reality, it is difficult to prevent seasonal soil-moisture fluctuations, but these moisture changes can be limited.

Proper grading and drainage around the foundation to prevent ponding of water is essential from construction through the life of the structure. Outlets for gutter systems must empty either into storm drains or onto paved surfaces to allow for quick discharge of water away from the area. Paving and sidewalk surfaces should extend to the building line where possible to serve as a barrier to soil moisture evaporation and infiltration. With proper site grading the less permeable fill will assist in shedding rain water away from the structure reducing the potential for water seepage below the structure which can cause additional swell.

FOUNDATION CONSTRUCTION RECOMMENDATIONS

SITE CLEARING/STRIPPING: Initial site preparation will require the removal of the 4 to 6 inches of moderately organic topsoil present across the site. Deeper organic removal will be necessary in areas of the site due to the removal of the rootballs from the trees present on the site. Removal depths should be verified in the field by a representative of the geotechnical engineer at the time of site grading based upon the subgrade soils and the subgrade stability.

BUILDING PAD PREPARATION: It is understood that excavation depths of 25 to 30 feet will be required to connect to the existing water line from the clearwell to the new facility. These excavations will be beneath the proposed structure. The material from the excavation may be stockpiled for re-use. Following pipe placement, the excavation may be backfilled with properly compacted on-site soils up to minus 3 feet of subgrade elevation. These soils should be moisture conditioned to within ±2 percent of optimum moisture and compacted to a minimum 100 percent of maximum dry density of Standard Proctor (ASTM D 698). The compacted soils should be placed in maximum 6 inch compacted lifts. The upper 3 feet of the building pad fill should meet the select fill criteria.

SELECT FILL: Select fill should be used within the upper three feet of the building pad backfill beneath the floor slab. Select fill should also be used in the leave-out backfill next to the tilt-walls. The select fill should consist of soil materials with sufficient plastic fines to minimize water transmission. The soils should be free of organics and other deleterious materials and should have a maximum liquid limit of 30, a plasticity index no less than 5 and no greater than 15, and have a maximum particle size of 2 inches. The select fill should also meet the USCS classification of SC, GC or CL. The structural fill should be compacted to a minimum 95 percent Standard Proctor within ±2 percent of optimum moisture content. The select fill should be placed in maximum 6 inch compacted lifts. A portion of the soils tested meet the select fill criteria.

VAPOR BARRIER: A vapor barrier such as polyethylene sheeting should be placed below the floor slab in moisture sensitive areas and where the floor will be covered with moisture sensitive materials. If the subgrade underlying the vapor barrier contains sharp or angled particles, a layer of cushion sand (approximately 1 to 2 inches thick) could be placed in contact with the sheet to provide protection against puncture.

FOUNDATION EXCAVATION: Excavations should be observed by the geotechnical consultant to make sure that the proper bearing material has been reached in accordance with the recommendations given herein. The excavations should be checked for size and observed to make sure that all loose material has been removed prior to concrete placement. Prompt placement of the concrete following building pad preparation is strongly recommended.

UTILITIES: Evidence of underground utilities was present across the site. Prior to construction all underground utilities should be located and, if present in the construction area, permanently capped and removed at the property line or rerouted around the proposed structure to preserve their function. Special attention should be performed in evaluating the backfill of utilities that will remain which may not be suitable for support of the proposed structure. The soils should be removed and recompacted as described herein if found unsuitable. A representative of the geotechnical engineer should make this determination during construction.

Granular material or "buckshot" should not be used to backfill new utility lines entering or beneath the building. If utilized, the granular material could provide a conduit for water to travel beneath the building and cause the underlying soils to swell and potentially heave the slab. A utility trench "plug" should be provided for all utility trenches entering the building footprint including electrical, gas, water and sewer, etc. The plug should extend a minimum 2 feet beyond the footing, each way, and from the bottom of the trench to the surface. The plug should be constructed of low permeable higher plasticity clays or a lean concrete. Utility excavations through the select fill pad beneath the structure shall be backfilled with select fill and compacted as specified for the building pad.

FOUNDATION CONSTRUCTION CONSIDERATIONS

WET WEATHER: If construction is performed during wet weather, disking or windrowing of the top 6 inches of wet unsuitable soils beneath structural areas may be necessary in order to dry out the soil. Following soils removal to a stable subgrade the excavated soils could be air-dried and reused. Mechanical stabilization through the use of a crushed limestone flex-base material "working mat" could also be considered. The actual depths and stabilization methods should be confirmed through continuous testing under the observation of a representative of the geotechnical engineer.

EXCAVATION SAFETY: All excavations should be in accordance with local and federal (OSHA) regulations and the trench safety plan. If instability problems occur, stability within the excavations should be maintained by flattening or widening slope sidewalls. In addition, the on-site soils are susceptible to erosion and disturbance by flowing water and construction traffic. If these soils are disturbed by construction traffic and excessive moisture they may become unstable. The site should therefore be graded to prevent water from ponding near the new foundation and running into excavations.

GENERAL: Many problems can be avoided or solved in the field if proper inspection and testing services are provided. eHT should be retained to perform testing and construction observation services sufficient to verify compliance with our recommendations. It is recommended that the site preparation, foundation, and floor slab construction be monitored by the geotechnical engineer or his representative. The following are recommended minimum sampling and testing frequencies.

EARTHWORK: During the earthwork phase of the project at least one Proctor test, Atterberg limits test, and minus 200 sieve test should be performed per soil type for subgrade, backfill, and fill materials. In the building area, at least 1 density and moisture content test per 2,500 square feet should be performed on the subgrade soils, and at least 1 density and moisture content test per 2,500 square feet should be performed for each compacted 6-inch thickness of fill. Testing of backfilled trenches should be at least 1 density and moisture content test per 100 linear feet of trench per 6 inch compacted lift thickness.

CONCRETE: At least 1 slump, air content (if required) and temperature test, and at least 1 set of 3 concrete cylinders should be molded for each type of concrete per 100 cubic yards or fraction thereof placed in a day. Each set of cylinders should be tested for compressive strength with 1 of the cylinders tested at 7 days and 2 of the cylinders tested at 28 days.

DRILLED PIER INSPECTION: Detailed inspection of pier construction should be performed by a representative of the geotechnical engineer to verify that the piers are vertical and founded in the proper bearing stratum, and to verify that all loose materials have been removed prior to concrete placement.

APPENDIX A



NOT TO SCALE

BORING LOCATION PLAN

FIGURE 1
NE WATER SYSTEM IMPROVEMENTS
HIGH SERVICE PUMP STATION BUILDING
MIDLAND, TEXAS

PACKET 9.1661 Project No.: 18-7227 December 15, 2020 Date: March 2019

APPENDIX B

NE WATER SYSTEM IMPROVEMENTS
HIGH SERVICE PUMP STATION BUILDING
MIDLAND, TEXAS

SUMMARY OF CLASSIFICATION TESTS

Boring No.	Depth (ft)	Liquid Limit %	Plasticity Index	% Passing #200 Mesh Sieve	Water Content %	USCS	Description
B-1	2-3½'	27	14	37	10.3	SC	Brown Clayey Sand
B-1	7-8½'	44	27	---	12.7	SC	Light Red-Brown Clayey Sand with calcareous nodules
B-1	13½-15'	61	39	---	14.4	SC	Tan Clayey Sand with calcareous nodules
B-1	23½-25	---	non-plastic	12.4	19.3	SM	Light Red-Brown and Tan Clayey Medium Grained Sand with trace gravel and calcareous nodules
B-2	3½-5'	21	10	28	8.2	SC	Brown Clayey Sand
B-2	8½-10'	20	9	35	9.0	SC	Light Red-Brown Clayey Sand with calcareous nodules
B-2	18½-20'	46	28	39	13.4	SC	Tan Clayey Sand with calcareous nodules and gravel

APPENDIX C

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE WATER SYSTEM IMPROVEMENTS** Date: 03/05/2019

Location: **WATER PURIFICATION PLANT** Type: AIR ROTARY Boring No.: **B-1**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	RED-BROWN CLAYEY SAND WITH CALCAREOUS NODULES AND ASPHALT FRAGMENTS (FILL)				4.5+	
		ST					4.5+	
5		SS	BROWN CLAYEY SAND	9				
		ST					4.5+	
		ST	LIGHT RED-BROWN CLAYEY SAND WITH CALCAREOUS NODULES				4.5+	
		SS		16				
10			LIGHT RED-BROWN AND TAN CLAYEY SAND WITH GRAVEL AND CALCAREOUS NODULES					
5		SS		35				
			TAN CLAYEY SAND WITH CALCAREOUS NODULES					
20		SS		59				
5		SS	LIGHT RED-BROWN AND TAN CLAYEY MEDIUM GRAINED SAND WITH TRACE GRAVEL AND CALCAREOUS NODULES	21				
30		SS		50/3"	*			
5		SS		50/1"				
			CONGLOMERATE					
40		SS		50/2"				
5		SS		50/0"				

TOTAL DEPTH OF BORING 47 FEET
DUE TO AUGER REFUSAL IN THE SOUND CONGLOMERATE

NOTE

GROUNDWATER WAS PRESENT AT A DEPTH OF ABOUT 28 FEET DURING AND AT COMPLETION OF DRILLING UTILITIES.

*PACKET 9.1665 December 15, 2020

18-7227

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE WATER SYSTEM IMPROVEMENTS** Date: 03/05/2019

Location: **WATER PURIFICATION PLANT** Type: AIR ROTARY Boring No.: **B-2**

DEPTH IN FEET	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)
0	ST	RED-BROWN CLAYEY SAND				4.5+
	ST					4.5+
5	SS		7			
	ST	LIGHT RED-BROWN CLAYEY SAND WITH CALCAREOUS NODULES				4.5+
	ST					4.5+
10	SS		3			
	TCP	RED-BROWN CLAYEY SAND		50 = 4"	50 = 4"	
5						
20	TCP	TAN CLAYEY SAND WITH CALCAREOUS NODULES AND GRAVEL		50 = 4"	50 = 2"	
	TCP			50 = 4"	50 = 1"	
5	TCP					
30	TCP			50 = 5"	50 = 3"	
	TCP	CONGLOMERATE		50 = 1"	50 = 0	
5	TCP					
40	TCP			50 = 1"	50 = 0	
	TCP	CONGLOMERATE WITH THIN INTERBEDDED CALICHE SEAMS		50 = 1"	50 = 0	
5	TCP					
50				50 = 2"	50 = 1"	

TOTAL DEPTH OF BORING 50 FEET

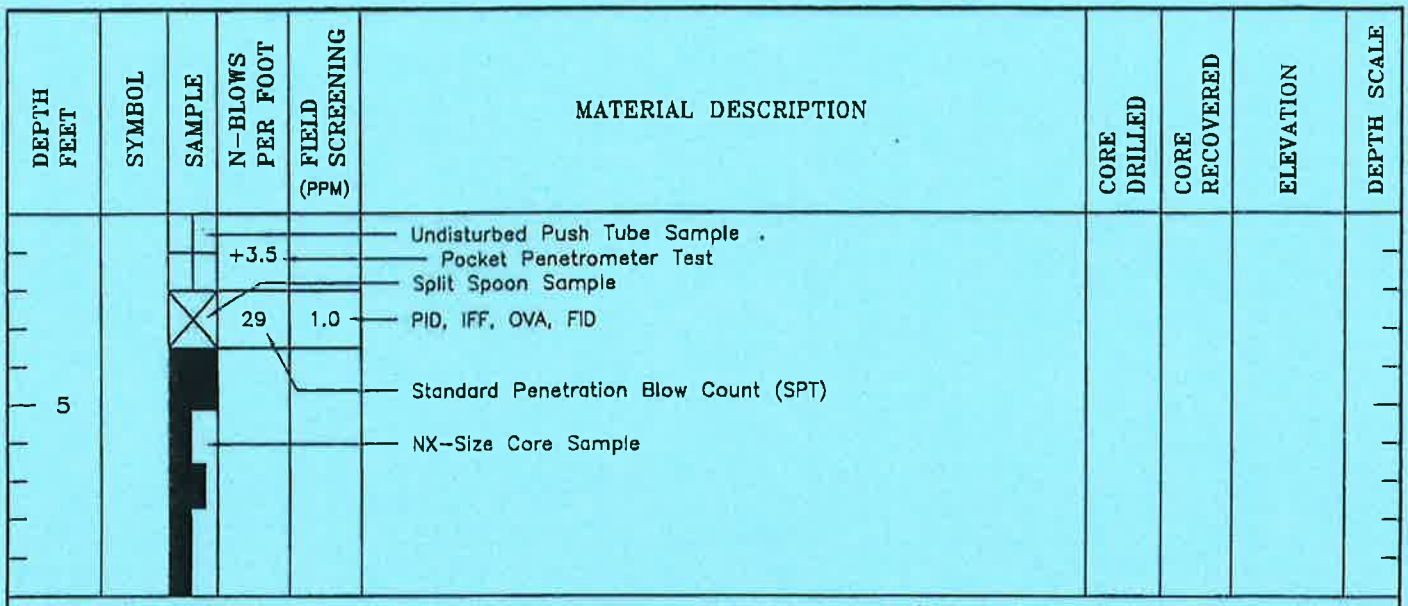
NOTE

GROUNDWATER WAS PRESENT AT A DEPTH OF ABOUT 23 1/2 FEET DURING AND AT COMPLETION OF DRILLING UTILITIES.

PACKET 9.1666 December 15, 2020

ENPROTEC, INC.

EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS



Water Encountered — Water Level Encountered During Drilling

Static Level (date) — Stabilized Water Level

UNIFIED SOIL CLASSIFICATION DESCRIPTION OF SYMBOLS AND DIVISIONS

- Well-Graded Gravels, Gravel Sand Mixtures (GW)
- Poorly-Graded Gravels, Gravel Sand Mixtures (GP)
- Silty Gravel, Gravel Sand-Silt Mixtures (GM)
- Clayey Gravels, Gravel-Sand-Clay Mixtures (GC)
- Well-Graded Sands, Gravelly Sands (SW)
- Poorly-Graded Sands, Gravelly Sands (SP)
- Silty Sands, Poorly-Graded, Sand-Silt Mixtures (SM)
- Clayey Sands, Poorly-Graded, Sand-Clay Mixtures (SC)
- Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands (ML)
- Inorganic Clays of Low to Medium Plasticity Gravelly, Sandy or Silty Clays, Lean Clays (CL)
- Organic Silts and Organic Silty Clays of Low Plasticity (OL)
- Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils (MH)
- Inorganic Clays of High Plasticity, Fat Clays (CH)
- Organic Clays of Medium to High Plasticity, Organic Silts (OH)
- Caliche and Other Impervious Layer (HP)

BEDROCK SYMBOLS

- Conglomerate (CGL)
- Sandstone (SS)
- Limestone (LS)
- Shale (Sh)
- Weathered Shale (WS)
- Sandy Shale (SSh)
- Shaley Limestone (Sh LS)
- Dolomite (DOL)

MISCELLANEOUS SYMBOLS

- Asphaltic Concrete (HMAC)
- Cement Grout (CMT)
- Bentonite (BENT)

The LOG of BORING is a representation of the subsurface material at specific boring location and within the depth explored. The transition between strata may be gradual and variations in material types and depths between borings can be expected. Water level observations represent those conditions at the time of exploration and may vary with time and location of site.

SOIL COLOR CLASSIFICATION
Determined by
MUNSELL SOIL COLOR CHARTS
1990 EDITION REVISED

GENERAL NOTES

SAMPLE IDENTIFICATION

Soil Samples are visually classified in general accordance with the Unified Soil Classification System (ASTM D2487 or D 2488)

DRILLING AND SAMPLING SYMBOLS

ST:	Shelby Tube - 3" O.D., except where noted
SS:	Split-Spoon
THD:	THD Cone Penetrometer
AU:	Auger Sample
DB:	Diamond Bit
CB:	Carbide Bit
WS:	Wash Sample

SOIL PROPERTY SYMBOLS

N:	Standard "N" penetration: Blows per foot, or fraction thereof, of a 140 pound hammer 30 inches on a split-spoon
Qp:	Calibrated Penetrometer Resistence, TSF
Qu:	Unconfined Compression Strength, TSF
LL:	Liquid Limit, %
PI:	Plasticity Index

SOIL STRENGTH CHARACTERISTICS

NON-COHESIVE (GRANULAR) SOILS

RELATIVE DENSITY	BLOWS PER FOOT(N)
Very Loose	0-4
Loose	5-10
Firm	11-30
Dense	31-50
Very Dense	51 +

COHESIVE (CLAYEY) SOILS

COMPARATIVE CONSISTENCY	BLOWS PER FOOT(N)	UNCONFINED COMPRESSIVE STRENGTH (Qu)
Very Soft	0-2	0 - 0.25
Soft	3-4	0.25 - 0.50
Medium Stiff	5-8	0.50 - 1.00
Stiff	9-15	1.00 - 2.00
Very Stiff	16-30	2.00 - 4.00
Hard	31 +	4.00 +

SOIL CHARACTERISTICS

PARTICLE SIZE

Boulders	8 in. +	Coarse Sand	5mm-0.6 mm	Silt	0.074mm-.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074 mm		

DEGREE OF EXPANSIVE POTENTIAL	PI
Low	0-15
Moderate	15-25
High	25 +

DEGREE OF PLASTICITY	PI
None to Slight	0-4
Slight	5-10
Moderate	11-30
High	31 +

PART 2
TECHNICAL SPECIFICATIONS

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Contract Description:

1. Construction of new potable water mains using material selected by the Owner.

2. Coordination with contractor(s) constructing the associated Transfer Pump Station and Elevated Storage Tank for completion and startup of interdependent components of the work.

3. Scope Includes:

a. Approximately 18,000 linear feet of 30" and approximately 50,000 linear feet of 24" DR-21 PVC potable water main.

b. All related work including clearing and grubbing, excavation, bedding and backfill, fittings, valves and appurtenances, trench safety systems, traffic control systems, interconnections, testing, disinfection, stormwater pollution controls, surface restoration, and all other related work as specified in the Drawings and Technical Specifications.

1.2 CONTRACTOR USE OF SITE:

A. WPP Site may be used as follows:

1. Site is available for Contractor's use; ample space is available.

2. Contractor shall keep all construction activities on Owner's property or within Owner's easements and/or rights of ways.

B. Comply with Owner's Security protocols.

1. Provide names and photographs of any Contractor or Sub-Contractor personnel who will be at the project site.

2. Administration and maintenance buildings are OFF LIMITS unless accompanied by the Owner.

3. Contractor and its sub-contractor(s) / vendor(s) shall use the back gate for site access. Provide and maintain access security.

4. Contractor's personnel, including sub-contractors and vendors, shall attend the Owner's chlorine and ammonia safety awareness class prior to working on-site.

C. Limit use of existing facilities to allow:

1. Uninterrupted delivery of potable water from the Midland WPP and existing water distribution system. Short interruptions necessary for tie-ins of the new pipeline(s) shall be coordinated a minimum of 48 hours in advance with Owner and Engineer.

D. Contractor shall comply with the terms and conditions of the U.S. Army Corps of Engineers Nationwide Permit 12 for Utility Line Activities (SWF-2016-00259).

E. Pipeline route crosses and parallels existing overhead electric transmission lines owned by Oncor. Contractor shall notify and coordinate with utility owners a minimum of 72 hours in advance of construction in or adjacent to existing facilities. Utility owners may require their personnel to be on-site during construction.

F. Pipeline route crosses and parallels multiple existing underground petroleum and natural gas product transmission lines. Contractor shall notify and coordinate with utility owners a minimum of 72 hours in advance of construction in or adjacent to existing facilities. Utility owners may require their personnel to be on-site during construction.

1.3 LANDOWNERS ASSOCIATED WITH PIPELINE ROUTE:

A. Contractor shall confine work to within designated easements, respect private land owner property during the course of the project, and comply with the requirements of the easements during construction.

B. The following table depicts the landowners along the pipeline route with their contact information:

Landowners and Contact Information

Landowner Entity	ID	Contact Name	Mailing Address	Phone #
City of Midland	1	Carl Craigo	P.O. Box 1152, Midland, TX 79702	(432) 685-7937
Western T Corporation	2	J. David Donnell	P.O. Box 10911, Midland, TX 79702	(432) 638-7036
Occidental Permian, LTD	3	Cody Wilbanks	6001 Deauville Blvd, Midland, TX 79706	(432) 553-0685
Shanendoaha Bar M Ranch	4	Troy G. Martin	6500 NCR 1150, Midland, TX 79705	(432) 238-5590
Jones Brothers Dirt and Paving	5	Stacey Bryant	1401 S Grandview Ave, Odessa, TX 79761	(432) 631-0614

END OF SECTION

SECTION 01019

CONTRACT CONSIDERATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Materials Testing.

B. Schedule of Values.

C. Order of Construction and Construction Schedule

D. Application for Payment.

E. Change Procedures.

F. Measurement and Payment.

1.2 MATERIALS TESTING:

A. Engineer will engage a recognized construction materials testing firm.

B. Contractor shall be responsible for:

1. Costs of incidental labor and facilities required to assist testing firm.

2. Costs of testing laboratory services used by Contractor separate from Contract Document or Owner requirements.

3. Costs of retesting upon failure of previous tests as determined by Engineer.

1.3 SCHEDULE OF VALUES:

A. Submit a printed schedule on EJCDC C-620. Contractor's standard form or electronic media printout will be considered.

B. Where a Contract includes items bid on a lump sum basis, the Contractor shall file with the Engineer a balanced price segregation of his lump sum bid into items similar to the various subdivisions of the general and detailed specifications, the sum of which shall equal the lump sum bid. Provide in accordance with Article 2, Paragraph 2.05 of the General Conditions.

1. The cost of various materials shall be furnished upon request of the Engineer, and such data will then be used as a basis for making progress estimates.

2. Breakdown cost itemized Specification Section by trade, and distribute cost to individual applicable units and structures.

3. Where structures, units, equipment or other components are identified by a specific series or, identification number, utilize said designation throughout cost breakdown.

4. Provide detailed breakdown for individual yard piping or conduit runs and identify approximate quantities involved to satisfaction of the Engineer.

5. Provide separate breakdown for change order items requested.

6. The detail and format of cost breakdown and stored materials tabulation sheet shall be fully approved by Engineer.

7. Use EJCDC 1910-8-E, or equivalent.

C. A reasonable allocation of the Contract Price to the component parts of the Work will be approved if component parts of the Work have values assigned to them that are well-balanced with respect to relative values for similar work established by published estimating guides.

1. Unless otherwise agreed to at the Preconstruction Conference, Means Estimator Guide or other similar nationally recognized estimating guide shall be used for resolving differences between Engineer's and Contractor's opinions of allocation of values.

2. Consent of Surety: If Contractor and Engineer cannot mutually agree on a Schedule of Values, Engineer will approve a Schedule of Values approved by the Surety providing the Performance Bond.

D. Contractor's costs shall not govern the allocation of values when application of Contractor's costs to a component part of the Work results in any other component part or combination of component parts being under-valued in relation to conventional estimating guides.

E. Schedule of Values shall be agreed upon prior to first Application for Payment.

1.4 ORDER OF CONSTRUCTION AND CONSTRUCTION SCHEDULE:

A. In accordance with Article 2, Paragraph 2.05 of the General Conditions, submit for approval a critical path type baseline schedule.

1. Account for schedule of Subcontracts.

2. Include proper sequence of construction, various crafts, purchasing time, Shop Drawing approval, material delivery, equipment fabrication, start-up, demonstration, and similar time consuming factors.

3. Show on schedule as a minimum, earliest starting, earliest completion, latest starting, latest finish, and free and total float for each task or item.

4. Critical Path Method Network Analysis:

a. Application software: Microsoft Project or Primavera.

b. Do not utilize or incorporate date or time constraints or other constraints that corrupt the CPM mathematical model.

i The following CPM schedule outputs will be rejected without further review:

- Schedules indicating the start of the critical path at a date point beyond the "Start Date."
- Schedules with multiple critical paths.
- Schedules indicating a completion date beyond the contractual completion date.

c. Show the order and interdependence of activities.

i The start of an activity shall be dependent on the completion of a preceding activity(ies), with Notice to Proceed being the initial activity.

ii Limit activities to a maximum of 20 days.

iii Network analysis diagram shall flow left to right.

d. Critical (path) activities are defined to have zero (0) total float.

e. Do not use leads and lags in lieu of an activity description such as "concrete cure time."

i When lags are necessary, they shall not have a negative value.

5. Provide the electronic native file on compact disc along with two (2) paper copies printed in color.

B. Evaluate schedule no less than monthly.

1. Update, correct, and rerun schedule and submit to Engineer with pay application to show rescheduling necessary to reflect true job conditions.

2. When shortening of various time intervals is necessary to correct for behind schedule conditions, indicate actions to implement to accomplish work in shorter duration.

3. Information shall be submitted to Engineer in writing with revised schedule.

4. Default progress data disallowed:

a. Actual start and finish dates shall not be automatically updated by default mechanisms that may be included in the CPM scheduling software system.

i Actual start and actual finish dates on the CPM schedule shall be reported.

b. Work activities will be updated by actual work progression rather than being cash flow driven.

i The updating of the percent complete and the remaining duration of any activity shall be independent functions:

- Program features that calculate one of these parameters from the other shall be disabled.

- Out-of-sequence progress (if applicable) shall be handled through retained logic, not the default option of progress override.

5. Submit electronic native files on compact disc along with two (2) paper copies printed in color.

C. If Contractor does not take necessary action to accomplish work according to schedule, Contractor may be ordered by Owner in writing to take necessary and timely action to improve work progress.

1. Owner may require increased work forces, extra equipment, extra shifts or other action as necessary.

2. Should Contractor refuse or neglect to take such action authorized, under provisions of this contract, Owner may take necessary actions including, but not necessarily limited to, withholding of payment and termination of Contract.

D. Upon receipt of approved "Work Schedule," within 10 days, submit to Engineer a cost-loaded schedule (electronically) and an estimated payment schedule by each month of project duration.

1. Include a composite curve to show estimated value of work complete and stored materials less specified retainage.

2. Establish key months when work will be 50, 80, 90, and 100 percent complete.

3. During the course of work, update with new composite curves at key months or whenever variation is expected to be more than plus or minus 10 percent.

4. Retain original or previous composite curves as dashed curves on all updates.

5. Include a heavy plotted curve to show ACTUAL payment curve on all updates.

E. Provide four-week look-ahead schedules every four (4) weeks.

1.5 APPLICATIONS FOR PAYMENT:

A. Contractor's electronic media driven form or EJCDC C-620.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Payment Period: Submit by end of each month.

D. Include executed Contractor Affidavit for Partial Payment with each Application for Payment.

E. Submit certification by Contractor of Labor Standards compliance with each Application for Payment.

1.6 CHANGE PROCEDURES:

A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions in writing.

B. The Engineer may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in contract time for executing the change and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 10 days.

C. The Contractor may propose changes by submitting a request for change to the Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01600.

D. Stipulated Sum/Price Change Order: Based on Notice of Change and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Engineer.

E. Work Directive Change: Engineer may issue a directive, on EJCDC C-940 Work Directive Change signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.

F. Change Order Forms: EJCDC C-941 or Engineer’s standard electronic media driven form.

G. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract, including a TWDB representative.

1.7 MEASUREMENT AND PAYMENT:

A. Authority: Work under this Contractor shall be measured by the Item Unit or Lump Sum Price as indicated on the Bid Schedule or Schedule of Values. Where the Item Lump Sum Price applies, the work will be considered as a complete installation as shown and specified.

Unit Quantities: Quantities and measurements indicated in the Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment. The bid price for any Unit Price method item shall be in effect for any actual quantity encountered within plus or minus 25 percent of the estimated quantity. Payment or adjustment for quantities greater than plus or minus 25 percent will be subject to negotiation.

B. Payment Includes: Full compensation for required labor, Products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

C. Defect Assessment: Replace the Work, or portions of the Work, not conforming to specified requirements. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01039

COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Coordination.

B. Field Engineering.

C. Preconstruction Meeting.

D. Progress Meetings.

1.2 COORDINATION:

A. Coordinate scheduling, submittal, and Work of the various sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion.

C. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD ENGINEERING:

A. Engineer will locate survey control and reference points.

B. Control datum for survey is that shown on Drawings.

C. Contractor to verify set-backs and easements, confirm drawing dimensions and elevations.

D. Contractor to provide field engineering services as required to support his work. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

1.4 PRECONSTRUCTION MEETING:

A. Engineer will schedule a meeting after Notice of Award.

B. Attendance Required: Owner, Engineer, and Contractor.

C. Agenda:

1. Distribution of Owner-Contractor Agreement / Contract Document.

2. Submission of executed bonds and insurance certificates.

3. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.

4. Designation of personnel representing the parties in Contract, and the Engineer.

5. Procedures and processing of field decisions, submittal, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.

6. Scheduling.

7. Coordination with other agencies/organizations.

8. Scheduling activities of a Geotechnical Engineer.

D. Engineer to record minutes and distribute copies after meeting to participants.

1.5 PROGRESS MEETINGS:

A. The Engineer will arrange and conduct monthly Progress Meetings (Construction Status Meetings). The Engineer will prepare an agenda for these meetings and will conduct the meetings.

B. The purpose of these meetings will be to facilitate the work of the Contractor and any subcontractors, resolve conflicts, identify and resolve any potential delays or necessary changes in the work, and in general coordinate and facilitate the execution of the work.

C. The Construction schedule is required to be updated and presented at these meetings.

D. The Contractor shall bring up-to-date record drawings to each meeting.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01090

STANDARD REFERENCES

Whenever used in the Project Manual, the following abbreviations will have the meanings listed:

When documents are referenced, they are a part of the Specification as specified and modified. In case of conflict between the requirements of these Specifications and those on the referenced documents, these Specifications shall prevail.

AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, Ste. 249 Washington, DC 20001
ACI	American Concrete Institute 38800 Country Club Drive Farmington Hills, MI 48331
AISC	American Institute of Steel Construction One East Wacker Drive, Ste. 700 Chicago, IL 60601-1802
AISI	American Iron and Steel Institute 1140 Connecticut Ave., Ste. 705 Washington, DC 20036
AITC	American Institute of Timber Construction 7012 S. Revere Parkway, Ste. 140 Centennial, CO 80112
ANSI	American National Standards Institute, Inc. 1899 L Street, NW, 11th Floor Washington, DC 20036
APA	American Plywood Association 7011 S. 19th Street Tacoma, WA 98466-5333
API	American Petroleum Institute 1220 L Street, NW Washington, DC 20005-4070
APSP	Association of Pool and Spa Professionals 2111 Eisenhower Ave., Ste. 500 Alexandria, VA 22314
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191

ASCII	American Standard Code for Information Interchange United States of American Standards Institute 25 West 43rd Street, 4th Floor New York, NY 10036
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers United Engineering Center 1791 Tullie Circle, NE Atlanta, GA 30329
ASME	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016
ASTM	American Society for Testing and Materials 100 Bar Harbor Drive West Conshohocken, PA 19428 (http://www.astm.org)
AWPA	American Wood Preservers Association 100 Chase Park South, Ste. 116 Birmingham, AL 35244
AWS	American Welding Society 550 LeJeane Road Miami, FL 33126
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
CRSI	Concrete Reinforcing Steel Institute 933 North Plum Grove Road Schaumburg, IL 60173
EEI	Edison Electric Institute 701 Pennsylvania Ave., NW Washington, DC 20004
ENGINEER	Enprotec / Hibbs & Todd, Inc. 402 Cedar Street Abilene, Texas 79601
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch 1275 First Street, NE Washington, DC 20417

FEDSTDS	Federal Standards (see FEDSPECS)
HI	Hydraulic Institute 6 Campus Drive, First Floor North Parsippany, NJ 07054
IBC	International Building Code (Published by ICC)
ICC	International Code Council 500 New Jersey Ave., NW, 6th Floor Washington, DC 20001
ICEA	Insulated Cable Engineers Association P.O. Box 1568 Carrolton, GA 30112
IEEE	Institute of Electrical and Electronic Engineers, Inc. 3 Park Avenue, 17th Floor New York, NY 10016
IES	Illuminating Engineering Society c/o United Engineering Center 120 Wall Street, Floor 17 New York, NY 10005
IMC	International Mechanical Code (Published by ICC)
IPC	International Plumbing Code (Published by ICC)
ISA	Instrument Society of America 67 Alexander Drive Research Triangle Park, NC 27709
MILSPEC	Military Specifications Navy Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Rd., Bldg. C, Ste 312 Glen Ellyn, IL 60137
NACE	National Association of Corrosion Engineers 1440 South Creek Drive Houston, Texas 77084

NEC	National Electrical Code National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169
NEMA	National Electrical Manufacturer's Association 1300 North 17th Street, Ste. 1752 Rosslyn, VA 22209
NFPA	National Forest Products Association 1111 19th Street, NW, Ste. 800 Washington, DC 20036
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169
NSF	National Sanitation Foundation 789 N. Dixboro Road Ann Arbor, MI 48113
OSHA	Occupational Safety and Health Act Occupational/Safety and Health Administration Lubbock Area Office 1205 Texas Avenue Lubbock, TX 79401
OWNER	City of Midland 300 North Loraine Midland, Texas 79701
SBCC	Southern Building Code Congress 900 Montclair Road Birmingham, AL 35213
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association 4201 Lafayette Center Drive Chantilly, VA 20151-1209
SSPC	Steel Structures Painting Council 4516 Henry Street, Suite 301 Pittsburgh, PA 15123-3728
SSPWC-NCT	Standard Specifications for Public Works Construction-- North Central Texas North Central Texas Council of Governments P O Box 5888 Arlington, Texas 76005-5888
TCA	Tile Council of America, Inc. 100 Clemson Research Blvd. Anderson, SC 29625

TCEQ	Texas Commission on Environmental Quality P O Box 13087 Austin, TX 78711-3087
TDSHS	Texas Department of State Health Services 1100 West 49th Street Austin, Texas 78756-3199
TWDB	Texas Water Development Board 1700 North Congress Avenue Austin, Texas 78711
TXDOT	Texas Department of Transportation 125 E. 11th Street Austin, TX 78701
UBC	Uniform Building Code Published by ICB
UL	Underwriters Laboratories, Inc. 2600 NW Lake Road Camas, WA 98607
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WWPA	Western Wood Products Association 522 SW Fifth Ave, Ste. 500 Portland, OR 97204

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Submittal Procedures.

B. Construction Progress Schedules.

C. Shop Drawings.

D. Product Data.

E. Manufacturer's Installation Instructions.

F. Manufacturers' Certificates.

1.2 SUBMITTAL PROCEDURES:

A. Transmit each submittal with Engineer accepted form.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

C. Each submittal shall be limited to a single specification section or material topic. Where equipment packages, assemblies, and the like are interrelated, the submittals should be provided together facilitating review of the Contractor’s purposed offering. When related portions of an equipment package or system are not provided, the submittals may be returned without review.

D. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing and detail number, and Specification section number, as appropriate.

E. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

F. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.

G. For each submittal for review, allow 20 days excluding delivery time to and from the Contractor.

H. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

I. Provide space for Contractor and Engineer review stamps.

J. Revise and resubmit, identify all changes made since previous submission.

K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.

L. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES:

A. Submit initial schedule in duplicate within 20 days after date established in Notice to Proceed.

B. Revise and resubmit as required.

C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

D. Submit a horizontal bar chart with separate line for each major section of Work or operation, identifying first work day of each week.

E. Indicate estimated percentage of completion for each item of Work on each Application for Payment submission.

1.4 SHOP DRAWINGS:

A. Submit the number of reproductions which Contractor requires, plus three copies which will be retained by Engineer.

B. Shop Drawings: Submit for review. After review, produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700--CONTRACT CLOSEOUT.

1.5 PRODUCT DATA:

A. Submit the number of copies which the Contractor requires, plus three copies which will be retained by the Engineer.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

C. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 - CONTRACT CLOSEOUT.

1.6 MANUFACTURER INSTALLATION INSTRUCTIONS:

A. When specified in individual Specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and operating, to Engineer in quantities specified for Product Data.

1.7 MANUFACTURER OPERATION AND MAINTENANCE INSTRUCTIONS:

A. When specified in individual specification sections, submit printed instructions for operations and maintenance (O&M), to Engineer, in quantities specified for Product Data.

B. O&M information shall include but not necessarily be limited to parts lists, disassembly drawings, electrical schematics, and other information required for proper operation and maintenance.

1.8 MANUFACTURER CERTIFICATES:

A. When specified in individual Specification sections, submit certification by manufacturer to Engineer, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Quality Assurance--Control of Installation.

B. Tolerances.

C. References.

D. Testing Laboratory Services.

E. Manufacturers' Field Services and Reports.

1.2 QUALITY ASSURANCE--CONTROL OF INSTALLATION:

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES:

A. Monitor tolerance control of installed Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.4 REFERENCES:

A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product Specification sections.

D. The contractual relationship, duties, and responsibilities of the parties in Contract and of the Engineer, shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 TESTING LABORATORY SERVICES:

A. Engineer will appoint and employ services of a material testing firm to perform testing.

B. The testing firm will perform tests, and other services specified in individual Specification sections and as required by the Engineer or the Owner.

C. Inspecting, testing, and source quality control may occur on or off the project site. Perform off-site inspecting or testing as required by the Engineer or the Owner.

D. Reports will be submitted by the testing firm to the Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

E. Cooperate with testing firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.

1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.

2. Make arrangements with testing firm and pay for additional samples and tests required for Contractor's use.

F. Testing or inspecting does not relieve the Contractor of his responsibility to perform Work to contract requirements.

G. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer. Payment for retesting shall be the Contractor's responsibility.

H. Contractor shall provide all testing services in connection with the following:

1. Concrete materials and design mixtures.

2. Masonry units, masonry grout and mortar materials and design mixtures.

1.6 MANUFACTURERS' FIELD SERVICES AND REPORTS:

A. When specified, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturers' written instructions.

C. Submit report in duplicate within 30 days of observation to Engineer for information.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Contractor's Field Office

B. Temporary Utilities: Electricity, water, and sanitary facilities.

C. Temporary Controls: Barriers, protection of the work, and water control.

D. Construction Facilities: Access roads, parking, progress cleaning, material storage areas, and project signage.

1.2 CONTRACTOR'S FIELD OFFICE:

A. Contractor to provide Field Office with Contract A, Part 1 that will be available for use with this project.

1.3 TEMPORARY ELECTRICITY:

A. Contractor to arrange for temporary construction power. Owner is responsible for paying for temporary electrical service during construction.

B. Complement existing power service capacity and characteristics as required.

C. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.

1.4 TEMPORARY WATER SERVICE:

A. Connect to existing water source for construction operations using Owner provided fire hydrant meter.

A. Owner will pay cost of water used. Exercise measures to conserve water.

1.5 TEMPORARY SANITARY FACILITIES:

A. Provide and maintain required facilities and enclosures.

1.6 BARRIERS:

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.7 WATER CONTROL:

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddles or running water. Provide water barriers as required to protect site from soil erosion.

1.8 PROTECTION OF INSTALLED WORK:

A. Protect installed work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

1.9 ACCESS ROADS:

A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.

B. Extend and relocate as work progress requires. Provide detours necessary for unimpeded traffic flow.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide means of removing mud from vehicle wheels before entering streets.

1.10 PARKING:

A. Arrange for temporary surface parking areas to accommodate construction personnel.

B. When site space is not adequate, provide additional off-site parking.

1.11 PROGRESS CLEANING AND WASTE REMOVAL:

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

1.12 REMOVAL OF UTILITES, FACILITIES, AND CONTROLS:

A. Remove temporary utilities, equipment, facilities, and materials prior to final inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01564

STORM WATER POLLUTION PREVENTION DURING CONSTRUCTION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Shared Storm Water Pollution Prevention Plan (SWP3)

1.2 REFERENCES:

A. Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR150000, administered by the Texas Commission of Environmental Quality (TCEQ).

1.3 DEFINITIONS:

A. All definitions per Part I, Section B, Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR150000 (TPDES General Permit).

B. CONTRACTOR: Primary Operator, as defined in the TPDES General Permit.

C. OWNER: Primary Operator, as defined in the TPDES General Permit.

D. Shared SWP3: as described in TPDES General Permit, Part III, Section A.

E. NOI – Notice of Intent.

F. NOT – Notice of Termination.

1.1 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Submit Shared SWP3 for signature by CONTRACTOR and OWNER at Pre-Construction Meeting.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 SHARED STORM WATER POLLUTION PREVENTION PLAN (SWP3):

A. A Shared SWP3 is required for this project. The CONTRACTOR and OWNER shall share one SWP3.

B. CONTRACTOR shall prepare and implement a single, comprehensive SWP3 for the entire construction site in accordance with TPDES General Permit at CONTRACTOR's expense.

1. CONTRACTOR shall clearly list all Operators in the Shared SWP3, including themselves and the OWNER as Primary Operators, and any other Operators participating in the shared SWP3.

2. In the Shared SWP3, the CONTRACTOR must clearly state the following:

   a. The CONTRACTOR has day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with the shared SWP3;

   b. The OWNER has the ability to make modifications to the construction plans and specifications; and

   c. The OWNER has no responsibilities regarding implementation of the SWP3 unless CONTRACTOR fails to perform and complete contractual obligations.

3. The CONTRACTOR shall provide a signature page, in accordance with TPDES General Permit Part III, Section A.1, for the Shared SWP3 to the OWNER at the Pre-Construction Meeting.

4. CONTRACTOR shall prepare, certify, and post the Construction Site Notice in accordance with the applicable section of the TPDES General Permit.

5. If applicable, the CONTRATOR shall submit the Construction Site Notice to operator(s) of any municipal separate sewer system (MS4), in accordance with TPDES General Permit, Part II, Section E.2(c). CONTRACTOR shall determine applicability of this Section.

1.1 NOTICE OF INTENT (NOI):

A. CONTRACTOR shall submit a copy of CONTRACTOR's Notice of Intent (NOI) to OWNER at the Pre-Construction Meeting.

B. CONTRACTOR shall submit CONTRACTOR's NOI to TCEQ in accordance with TPDES General Permit, Part II, Section E.3(b), at least seven (7) days prior to commencing construction activities, or if utilizing electronic submittal, prior to commencing construction, at CONTRACTOR's expense.

1.2 TERMINATION OF GENERAL PERMIT COVERAGE:

A. Within 30 days of meeting any of the conditions in TPDES General Permit, Part II, Section F.3(b), the CONTRACTOR shall:

1. Remove the Construction Site Notices;

2. Complete the applicable portion of the Construction Site Notices related to removal; and

3. Submit the completed Construction Site Notices to the operator(s) if any MS4 receiving the discharge.

B. CONTRACTOR shall submit CONTRACTOR's NOT as required by the TPDES General Permit.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Transportation and Handling.

B. Storage and Protection.

C. Product Options.

D. Substitutions.

E. Storage Facilities.

F. Field Quality Control

1.2 TRANSPORTATION AND HANDLING:

A. Schedule delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

D. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

E. Pipe to be transported with exposed ends tarped to prevent accumulation of airborne contaminates during transport.

1.3 STORAGE AND PROTECTION:

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible.

B. Store sensitive products in weather tight, climate controlled enclosures.

C. For exterior storage of fabricated products, place on sloped supports, above ground.

D. Provide off-site storage and protection when site does not permit on-site storage or protection.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.

F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.4 PRODUCT OPTIONS:

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by naming one or more Manufacturers: Products of manufacturers named and meeting Specifications, no options or substitutions allowed.

C. Products Specified by naming one or more Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article. Where terms such as "or equal," "or equivalent" are used in this Contract, they shall be taken to mean "or approved equivalent." Proposed equivalents shall be offered as substitutions.

1.5 SUBSTITUTIONS:

A. Engineer will consider requests for Substitutions only within 45 days after date established in Notice to proceed.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Will provide the same warranty for the Substitution as for the specified product.

3. Will coordinate installation and make changes to other work which may be required for the work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension which may subsequently become apparent as a result of the Substitution.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit copies of request for Substitution for consideration. Number of copies as specified in Sub-Section 01300-1.5. Limit each request to one proposed Substitution.

2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.

3. The Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 STORAGE FACILITIES:

A. Material staging area is located at the WPP site as shown.

1. Provide weatherproof temporary storage containers as necessary, specifically for the purpose of providing for protection of products and equipment.

a. Size containers to accommodate anticipated storage items.
b. Equip containers with lockable doors.

2. Provide methods of storage of products and equipment off the ground.

3. Return area to natural condition prior to final inspection.

3.2 FIELD QUALITY CONTROL:

A. Inspect Deliveries:

1. Inspect all products or equipment delivered to the site prior to unloading.

a. Reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.

B. Monitor Storage Area: Monitor storage area to ensure suitable conditions are maintained as required by manufacturer or as appropriate for particular items.

END OF SECTION

SECTION 01650

STARTING OF SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Starting Equipment Systems.

B. Demonstration and Instructions.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 STARTING EQUIPMENT SYSTEMS:

A. Coordinate schedule for start-up of various equipment with other portions of the work that are interdependent to the start-up of this contract.

B. Notify Engineer seven days prior to start-up of each item.

C. Verify that each piece of equipment has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions which may cause damage.

D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment in operation.

H. Submit a written report in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

3.2 DEMONSTRATION AND INSTRUCTIONS:

A. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment during equipment start-up services.

C. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

D. As a minimum, the amount of time required for instruction on each item of equipment and system is that specified in individual sections.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Closeout procedures.

B. Adjusting.

C. Final Cleaning.

D. Project record documents.

E. Warranty.

F. Spare Parts and Maintenance Materials.

1.2 CLOSEOUT PROCEDURES:

A. Submit written certification that contract documents have been reviewed, work has been inspected, and that work is complete in accordance with contract documents and ready for Engineer's review.

B. Provide submittals to Engineer that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted Contract sum, previous payments, and sum remaining due.

D. Submit executed Affidavit of Bills paid with final Application for payment. Affidavit shall state all bills for labor, materials, and incidentals incurred in the construction of the project have been paid in full, and that there are no claims pending of which the Contractor has been notified.

1.3 ADJUSTING:

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

1.4 FINAL CLEANING:

A. Execute final cleaning prior to final project assessment.

B. Clean debris from roofs, and drainage systems.

C. Clean site; sweep paved areas, rake clean landscaped surfaces.

D. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 PROJECT RECORD DOCUMENTS:

A. Maintain on site, one set of the following record documents; record actual revisions to the work:

1. Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed Shop Drawings, Product Data, and Samples.
6. Manufacturer's instruction for assembly, installation, and start-up of products and equipment.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress. Record Documents must be brought to monthly progress meetings for review. No pay applications will be processed until Record Documents have been reviewed for that period.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F. Record Documents and shop drawings: Legibly mark each item to record actual construction including:

1. All installed improvements will be required to be located by GPS equipment once in place and prior to backfill. Equipment used must be of survey quality and able to provide accurate horizontal and vertical locations to within +/- 1 inch.

2. Survey data shall be in Texas State Plane Coordinates Central Zone NAD 83 and NAVD 88. Data shall be submitted to Engineer in AutoCAD .dwg file format and comma delimited .txt file format.

3. Surveyed locations and elevations of appurtenances, including but not limited to top of pipe every 1,000 feet, air release, air/vacuum, and blow off valves, manhole covers, in-line valves, connections, bends (horizontal and vertical) and outlets.

4. Any utilities found, not on drawings, shall be documented and submitted with as-built drawings at project closeout.

5. Field changes of dimension and detail shall be clearly marked on the drawings.

6. Details not on original contract drawings.

G. Remove Engineer title block and seal from all documents.

H. Submit documents to Engineer with claim for final Application for Payment.

1.6 WARRANTY:

A. The Contractor shall guarantee the work performed under this contract against defective materials and workmanship for a period of one year from the date of Substantial Completion or acceptance of individual work elements. The Contractor shall arrange to have his performance bond remain in effect for a period of one year after this date to cover his guarantee as stipulated under this item and in the General Conditions.

B. If defective materials and/or workmanship are discovered which require repairs made under this guarantee, all such repairs shall be done by the Contractor at his own expense within ten days after written notice of such defect. Should the Contractor fail to repair of correct such deficiency within ten days after notification, the Owner may make the necessary repairs and charge the Contractor with the applicable costs of all labor and materials required to correct the deficiency.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS:

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.

B. Deliver to project site and place in location as directed; obtain receipt prior to final payment.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 02110

SITE CLEARING AND GRUBBING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. General

B. Preparation for Work.

C. Protection of Existing Features.

D. Clearing and Grubbing.

E. Debris Removal.

F. Erosion Control.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL:

A. Site clearing and grubbing shall consist of the removal and disposal of trees, stumps, brush, roots, vegetation, logs, rubbish and other objectionable matter from the construction area.

B. Contractor shall take care to preserve and protect all existing trees on the project site. At no time shall Contractor park vehicles or equipment or store materials within 10' of the drip-line of any existing trees.

3.2 PREPARATION FOR WORK:

A. Verify that existing plant life designated to remain, if any, is tagged or identified and protected.

B. Verify and protect survey control.

3.3 PROTECTION OF EXISTING FEATURES:

A. Locate, identify and protect from damage the utilities to remain.

B. Protect trees, plant growth and features designated to remain.

C. Protect benchmarks and survey control from damage or displacement.

3.4 CLEARING AND GRUBBING:

A. The full width of the permanent pipeline easement, and any part of the temporary construction easement requiring clearing to allow Contractor adequate working room, shall be cleared of all trees, brush, shrubbery and plants, not indicated to be preserved. Trees and brush designated to be left in place shall be carefully trimmed as directed and shall be protected from scarring, barking, or other injuries during construction operations. Pruned limbs over two inches in diameter shall be treated by painting the exposed ends with an approved asphaltic material. Stumps, roots and other objectionable materials sources are to be removed to the complete extent necessary to prevent objectionable matter from becoming mixed with the material to be used in construction.

B. Unless otherwise provided, all merchantable timber removed as previously specified shall become the property of the Contractor. It is the intent of this Specification to provide for the removal and disposal of all obstructions and objectionable materials not designated to remain.

C. Remove existing surface feature of old water line and other items shown, or described to be removed.

D. Remove trees, shrubs and other plant life within the site shown, or described to be removed. Remove trees and shrub stumps and root system to a depth of 24 inches below existing grades.

3.5 DEBRIS REMOVAL:

A. Removed material shall become the property of the Contractor.

B. Contractor shall remove debris, rock and extracted plant life from site and legally dispose; or stockpiled/disposed of on-site with written permission from landowner.

C. Copies of any agreements between Contractor and landowner shall be provided to Owner and Engineer.

3.6 EROSION CONTROL:

A. Provide erosion control measures necessary to maintain site. Protect against both wind and rainfall erosion.

B. Provide erosion control as specified in Section 01564.

END OF SECTION

SECTION 02220

TRENCH AND EXCAVATION SAFETY SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Requirements for a Trench and Excavation Safety System to be designed and furnished by the Contractor for the safety and health of personnel.

B. Submission of a written Plan describing the System in detail.

1.2 PAYMENT:

A. Payment will be as stipulated on the Bid Form.

1.3 REFERENCES:

A. 29CFR1926 - Occupational Safety and Health Standards - Excavations, United States Department of Labor, latest edition.

B. Others - Other applicable Federal, State, and local rules for Trench Construction or Excavations.

1.4 REQUIREMENTS:

A. The Contractor shall develop, design, and implement a System. The Contractor shall bear the sole responsibility for the adequacy of the System.

B. The requirements of 29CFR1926 shall be the minimum requirements for this specification and is adopted as a part of this specification. Other regulations relating to trench and excavation safety shall also be considered a part of this specification as if referenced directly.

C. Should the System require wider trenches than shown, the Contractor shall be responsible for the costs associated with determining adequacy of pipe bedding and class, as well as, purchase and installation of alternate materials.

1.5 SUBMITTALS:

A. Submit copies of the System Plan for information only. The Engineer will not review the System Plan for sufficiency, adequacy, or other engineering aspects. Submission is only to record the presence or absence of the System Plan.

1.6 QUALITY ASSURANCE:

A. The Trench Safety System shall be designed by an Engineer registered as a Professional Engineer in the State of Texas. The System Plan shall be sampled with the Engineer's seal, signed, and dated.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL:

A. Implement the system in accordance with the written System Plan and conduct affected work in accordance with the same.

END OF SECTION

SECTION 02225

EXCAVATION, BACKFILLING AND COMPACTING FOR UTILITIES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Unclassified excavation, trenching, bedding, backfilling and compacting for water mains, boxes, vaults, valves, and other utility systems and appurtenances, and the disposal of excess excavated material.

1.2 REFERENCES:

A. ASTM C33 – Coarse Aggregates.

B. ASTM D698 – Moisture-Density Relations of Soil (Standard).

C. ASTM D1557 – Test for Moisture-Density Relations of Soil (Modified).

D. ASTM D2321 – Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity – Flow Applications.

E. ASTM D2487 – Classification of Soils for Engineering Purposes.

F. ASTM D4254 – Minimum Index Density and Unit Weight of Soils and Calculations of Relative Density.

G. ASTM D4318 – Test for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

H. OSHA – Occupational Safety and Health Administration and Related Regulations.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Submit sample(s) of material(s) proposed to be used for bedding in the pipe zone and backfill of fiberglass structures.

1. One (1) set to materials testing lab for classification.
2. One (1) set to Engineer for approval.

1.4 PROTECTION OR REMOVAL OF EXISTING UTILITIES:

A. The Contractor shall anticipate all underground obstructions, such as but not limited to, water mains, gas lines, storm and sanitary sewers, telephone or electric light or power ducts, concrete and debris. Any such lines or obstructions indicated on the Drawings show only the approximate locations and shall be verified in the field by the Contractor. The Owner and Engineer will endeavor to familiarize the Contractor with all known utilities and obstructions, but this shall not relieve the Contractor from full responsibility in

anticipating all underground obstructions whether or not shown on the Drawings.

B. The Contractor shall, at his own expense, maintain in proper working order and without interruption of service all existing utilities and services which may be encountered in the work. With the consent of the Engineer and utility owner such service connections may be temporarily interrupted to permit the Contractor to remove designated lines or to make temporary changes in the locations of services. The cost of making any temporary changes shall be at the Contractor's expense.

C. Notify all utility companies involved to have their utilities located and marked in the field. All underground utilities in a particular segment of the project shall then be uncovered to verify location and elevation before construction begins in that segment of the project.

D. The Contractor shall obtain necessary permits, except County right-of-way permits, required for completion of the project.

1.5 DEFINITIONS:

A. All excavation associated with the project is unclassified.

B. Bedding: Includes the area from the trench bottom to the bottom of the pipe where material is placed to bring the trench bottom up to grade. A compacted depth of approximately 4 to 6 inches is generally sufficient bedding thickness.

C. Haunching: Includes the area from the bottom of the pipe to the spring line of the pipe. Material in this area must be placed and consolidated to provide adequate side support while avoiding both vertical and lateral displacement of the pipe. **The type and density of the material in this area are the most important factors affecting the performance and deflection of the pipe.**

D. Initial Backfill: Includes the area from the spring line of the pipe to a point at least 6 inches over the top of the pipe.

E. Final Backfill: Includes the area above the initial backfill, up to final grade or the bottom of the flexible base material in the pavement section.

F. Pipe Zone: Includes areas of bedding, haunching and initial backfill as defined above.

PART 2 PRODUCTS

2.1 PIPE ZONE:

A. Materials for use within the pipe zone and within 24 inches of fiberglass structures shall be in accordance with following Table 2.1:

B. Reference also the Construction Details.

TABLE 2.1
DESCRIPTION OF MATERIAL CLASSIFICATION
(as defined in ASTM D2321)

Class	Type	Soil Group Symbol	Description ASTM D2487	% Passing Sieve Sizes			Atterberg Limits		Coefficients	
				1½ in (40 mm)	#4 (4.75 mm)	#200 (0.075 mm)	LL[b]	PI[c]	Uniformity C_u	Curvature C_c
I	Manufactured, Processed Aggregate; dense-graded, clean	None	Angular, granular, crushed stone or rock, crushed gravel, and stone/sand mixtures with gradations selected to minimize migration of adjacent soils; contain little or no fines	100%	≤50%0	<5%	Non Plastic			
II	Coarse-Grained Soils, clean	GW	Well-graded gravels and gravel-sand mixtures; little or no fines	100%	<50% of Coarse Fraction	<5%	Non-Plastic		>4	1 to 3
		GP	Poorly-graded gravels and gravel-sand mixtures; little or no fines						<4	<1 or >3
		SW	Well-graded sands and gravelly sands; little or no fines		>50% of Coarse Fraction				>6	1 to 3
		SP	Poorly-graded sands and gravelly sands; little or no fines						<6	<1 or >3
	Coarse-Grained Soils, borderline clean to w/fines	e.g. GW-GC, SP-SM.	Sands and gravels which are borderline between clean and with fines	100%	Varies	5% to 12%			Same as for GW, GP, SW and SP	
III	Coarse-Grained Soils with Fines	GM	Silty gravels, gravel-sand-silt mixtures	100%	<50% of Coarse Fraction	>12% to <50%		<4 or <"A" Line		
		GC	Clayey gravels, gravel-sand-clay mixtures					<7 and >"A" Line		
		SM	Silty sands, sand-silt mixtures	>50% of Coarse Fraction				>4 or <"A" Line		
		SC	Clayey sands, sand-clay mixtures					>7 and >"A" Line		
IV[a]	Fine-Grained Soils (inorganic)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity	100%	100%	>50%	<50	<4 or <"A" Line		
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					>7 and >"A" Line		

[a] Includes Test Method ASTM D2487 borderline classifications and dual symbols depending on plasticity and liquid limts.

[b] LL = Liquid Limit.

[c] PI = Plasticity Index.

C. In addition to the materials included in Table 2.1, the following materials are approved for the pipe zone or within 24 inches of fiberglass structures where shown:

1. Lean Concrete: Free-flowing grout, mixed one (1) sack of cement per cubic yard of sand.

2. Structural Concrete: Concrete for encasement shall be 3000 psi compressive strength as specified in Section 03300.

2.2 FINAL BACKFILL MATERIALS:

A. Earth Backfill: Earth backfill may be excavated and reused from trench or obtained from an approved borrow area. Material shall be processed to ensure that only select material is used for backfilling operations. Material shall be free of lumps, clods, rocks larger than 2", debris, trash, organic, spongy or otherwise objectionable material. The presence of such material in the backfill may preclude uniform compaction and result in excessive localized point loads on or deflections in the piping system or fiberglass structure.

B. All materials included in Table 2.1 above are approved for final backfill.

PART 3 EXECUTION:

3.1 EXAMINATION AND PREPARTATION:

A. Examine utility routes and coordinate excavation work to eliminate installation conflicts.

B. Allow room for stockpiling excavated material and utility construction material during utility construction.

3.2 TRENCH EXCAVATION:

A. Procedure: Excavated to indicated or specified depths.

1. Excavate by open cut method.

2. The Contractor shall excavate the top 6-inches of topsoil and stockpile it separately from the general excavation. A minimum of 6-inches of topsoil shall be replaced over all backfilled areas.

3. During excavation, stockpile material suitable for backfilling in an orderly manner far enough from the bank of the trench to avoid overloading, slides, or cave-ins.

4. Grade as necessary to prevent surface water from flowing into trenches or other excavations.

5. Cut walls of trench as close to vertical as the stability of the material and trench safety will allow. Remove stones as necessary to avoid point-bearing. Over-excavate wet or unstable soil from the trench bottom to permit construction of a more stable bed for pipe. Over excavation shall be filled and tamped with clean dry sand, pea gravel, or other approved material to the required grade.

6. Excavate the trench the proper width as shown, or as required by the Contractor's Trench Safety Program. If the trench width below the top of pipe is wider than specified in this section or shown, install additional backfill. No additional payment will be made for additional material or work required for installation.

7. Accurately grade the trench bottom to provide proper bedding as required for pipe installation.

8. If any excavation is carried beyond the lines and grades required or authorized, the Contractor shall, at his own expense, fill such space with suitable material and properly compact the material as directed by the Engineer. No additional payment will be made.

B. Sheeting and Bracing: If trench safety methods do not include sloping of trench walls, install sheeting and bracing; or use appropriate trench box necessary to support the sides of trenches and other excavations with vertical sides, as required by current OSHA regulations.

C. Water in Excavation: Keep work free from ground or surface water at all times. Provide pumps of adequate capacity or other approved method to remove water from the excavation in such a manner that it will not interfere with the progress of the work or the proper placing of other work.

D. Trenching Progress: Trenching operations for any individual utility work crew shall not be in excess of 100 feet ahead of pipe laying operations in city streets or 2,000 feet in open country. Not more than two (2) consecutive cross-streets may be closed to traffic by any individual utility work crew at any given time. Ensure no trenches are left open when work is not in progress. Temporarily backfill any open trenches with un-compacted material and install proper barricades at the end of each work day.

E. Existing Pavement: Existing pavement over trenches that is not to be bored shall be removed to a width of 6 inches outside of the trench on each side. Remove to a neat line by sawing method. Take appropriate measures to prevent damage to existing pavement adjacent to the trench by wheels, tracks and/or stabilizers of excavating equipment. Remove brick pavement by hand, deliver and stack as directed by the Owner.

3.3 PIPE BEDDING:

A. Concrete Encasement:

1. Where shown, the Contractor shall install the pipe in concrete encasement.

2. Concrete for encasement shall be 3000 psi compressive strength as specified in Section 03300.

3. Precautions shall be used to prevent pipe floating, movement or deflection during construction.

4. Concrete for encasement, shall be included in the unit price bid per linear foot in place.

B. Within the Pipe Zone or Adjacent to Fiberglass Structures:

1. Accurately grade the bottom of the trench 4 inches below the bottom of the pipe and to the limits of the clear space on either side of the pipe.

2. Install materials which comply with Table 2.1 above accordance with "Pipe Bedding Detail" shown on the Drawings.

3. The initial layer of embedment material placed to receive the pipe shall be brought up to a grade slightly higher than that required for the bottom of the pipe and the pipe shall be placed thereon and brought to grade by tamping, or by removal of the slight excess amount of embedment under the pipe.

4. Adjustment to grade line shall be made by scraping away or filling with embedment materials. Wedging or blocking up of pipe will not be permitted.

5. Each pipe section shall have a uniform bearing on the embedment for the full length of the pipe, except immediately at the joint.

6. After each pipe has been graded, aligned, placed in final position on the bedding material and joint made, sufficient embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to hold the pipe in proper position and alignment during subsequent pipe jointing and embedment operations.

7. Sheeting and shoring will not be allowed in the pipe zone during or after installation of the pipe or embedment material, unless special provisions are made to ensure the specified compaction of bedding and pipe alignment is maintained after removal of sheeting and shoring.

8. Minimum compaction effort within the pipe zone and adjacent to fiberglass structures shall be in accordance with the following Table 3.3 based on the class of bedding material used:

TABLE 3.3
MINIMUM REQUIRED COMPACTION
FOR MATERIAL USED WITHIN PIPE ZONE OR FOR BACKFILL OF FIBERGLASS STRUCTURES

Classification of Bedding Material	Standard Proctor Density[a] (Relative Density[b] shown in parentheses)
Class I	Dumped
Class II	≥85% standard (≥40% relative)
Class III	86% - 95% standard (41% - 70% relative)
Class IV	>95% standard (>70% relative)
Class V	Not approved for bedding material

[a] Standard Proctor Density per ASTM D698, moisture content shall be ± 2% of optimum.
[b] Relative Density per ASTM D4254.

3.4 UTILITY INSTALLATION:

A. Water Lines: Limit clear on either side of the pipe to 12 inches. Above the pipe, cut as wide as necessary to sheet and brace and properly perform the work. Provide class of bedding as shown. Install piping and appurtenances as specified.

B. Excavation for Appurtenances: Excavate sufficiently for valves, fittings, manholes, valve vaults, utility pull boxes and similar structures to leave at least 18 inches clear between the outer surfaces and the embankment or shoring that may be used to hold and protect the embankment wall. Install valves, fittings, manholes or valve vault structure, piping and appurtenances as specified. Any other-depth excavation will be refilled with lean concrete or other suitable compacted material approved by the Engineer, at no additional cost to the Owner.

3.5 FINAL BACKFILL:

A. Criteria: Backfill trenches to ground surface with material as specified. Reopen trenches improperly backfilled to depth required for proper compaction. Refill and compact as specified, or otherwise correct the condition in an approved manner.

B. Take care to avoid contacting pipe or structure to be backfilled with compaction equipment. Do not use compaction equipment directly over the pipe until sufficient initial backfill has been placed to assure such equipment will not be damage or disturb the pipe.

C. All forms, lumber, trash and debris shall be removed from trenches, manholes and other utility structures prior to backfilling.

D. Dispose of unacceptable backfill material and provide suitable material for backfill at no additional cost to the Owner.

E. Open Areas:

1. Above the pipe zone, deposit earth backfill from excavated material, compact to minimum of 85 percent of maximum density per ASTM D698, while maintaining moisture within ± 2 percent of optimum. Excavated material placed shall be free of rock greater than two (2) inches in any direction. Provide small windrow above pipeline trench in open areas.

2. Backfill for valves, fittings, manholes, utility pull boxes and other utility structures shall be placed in accordance with applicable Specification Sections and Construction Details.

F. Pavement Section:

1. Reference the Construction Details.

2. Above the pipe zone to below the pavement, deposit crushed limestone flexible base, compact to minimum of 95 percent of maximum density per ASTM D698, while maintaining moisture within ± 2 percent of optimum; or deposit ASTM D2487 Class II material in 6-inch lifts, compact to 40 percent relative density according to ASTM D4254.

3. For valves, fittings, manholes, valve vaults or boxes in pavement sections, backfill with Class II material to bottom of proposed pavement. Backfill material shall be deposited in 6-inch lifts. Class II material must be compacted to 40 percent relative density according to ASTM D4254.

3.6 DISPOSAL OF EXCESS MATERIAL:

A. Remove waste and excess excavated material from the construction site before final inspection. Legally dispose of material:

1. At a licensed and approved site.

2. On adjacent private property with written and notarized permission from the property owner.

3. On Owner property with written and notarized permission from the Owner.

B. All cost associated with waste material removal and disposal shall be paid for by the Contractor.

END OF SECTION

SECTION 02231

AGGREGATE BASE COURSE

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Aggregate base material, consisting of crushed or uncrushed coarse and fine aggregate material, as necessary to meet the requirements herein and in conformity with lines, grades, compacted thickness and typical sections shown.

1.2 REFERENCES:

A. TxDOT Item 247--Flexible Base.

B. ASTM D698--Test Methods for Moisture-Density Relations of Soils (Standard).

1.3 SUBMITTALS:

A. Refer to Section 01300 for submittal requirements.

B. Samples: Aggregate samples of material as required by the testing laboratory.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Aggregate Base Course shall be hauled in tight trucks previously cleaned of all dirt and foreign material.

B. Place aggregate base course the same day as delivered to the jobsite unless otherwise approved by the Engineer.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Aggregate Base Course shall meet the requirements TxDOT Item 247--Flexible Base, Type A Grade 2, with material larger than 3 inches removed.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Place material only after the subgrade has been properly constructed and inspected.

3.2 PREPARATION:

A. Do not place fill or base on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT:

A. Place aggregate in maximum 8 inch layers and compact to 98% standard density± 2% of optimum moisture. For thicknesses over 8 inches, construct in multiple courses of equal thickness.

B. Upon completion, the material shall be smooth and in conformity with the typical sections as shown.

C. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES:

A. Correct any deviation in by loosening, adding or removing material, reshaping and recompacting at the Contractor's expense.

3.5 FIELD QUALITY CONTROL:

A. If the aggregate base material should lose the required density or finish before foundation is complete, it shall be reworked, recompacted, refinished and retested at the Contractor's expense.

END OF SECTION

SECTION 02280

TRAFFIC CONTROL

PART 1 GENERAL

1.1 SCOPE:

A. This section includes the development of a Traffic Control Plan (TCP) and the provision for proper traffic control within Texas Department of Transportation (TxDOT) and City of Midland (City) right-of-way.

B. Construction in areas outside of TxDOT or City right-of-way does not require a TCP; however, proper traffic control devices and procedures shall be used.

C. Proper traffic control shall consist of providing, installing, moving, replacing, maintaining, cleaning and removing upon completion of work, all barricades, signs, cones, lights and other such traffic control devices and handling of traffic during construction.

1.2 REGULATORY REQUIREMENTS:

A. All traffic control devices and procedures shall conform to those indicated in the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

1.3 SUBMITTALS:

A. The Contractor shall develop a TCP responsive to the TMUTCD for the utility construction within TxDOT and City right-of-way. Submit TCP to Engineer for approval. Revise and resubmit as necessary.

B. Submit one copy of the approved TCP to Engineer, TxDOT and Owner's representative.

1.4 SCHEDULING:

A. Coordinate implementation of TCP with Owner's representative.

PART 2 PRODUCTS

2.1 DEVICES:

A. In accordance with TMUTCD.

PART 3 EXECUTION

3.1 IMPLEMENTATION:

A. Prior to beginning work within TxDOT and City right-of-way, the Contractor shall designate in writing, a competent person who will be responsible for the TCP and available on the project site or in the immediate area, to ensure devices and procedures are in compliance with the TCP.

B. The City, TxDOT or the Owner's representative will have the authority to assure compliance with the TCP. Work may be stopped for failure to comply, until such time Contractor brings the project site into compliance with the TCP.

C. Since utility construction in areas outside of TxDOT and City right-of-way does not require a TCP, Contractor may proceed with construction in these areas without TCP approval, however proper traffic control devices and procedures shall be used.

D. All reflective traffic control devices such as barricades, vertical panels, signs, etc., shall be maintained by cleaning, replacing or a combination thereof, such that during darkness and rain, the original reflective characteristics of the devices are maintained.

3.2 MEASUREMENT:

A. This item shall be measured as a lump sum as indicated in the Contract Documents.

3.3 PAYMENT:

A. The TCP, work performed, and materials furnished in accordance with this item will be paid for at the lump sum bid for "Barricades, Signs and Traffic Control." This price shall be full compensation for furnishing all labor, materials, supplies, equipment and incidentals necessary to complete the work as specified.

B. Payment will be made on the following basis:

1. Twenty five (25) percent of the lump sum bid price will be paid when a copy of the TxDOT/City approved TCP is submitted to the Engineer.

2. Fifty (50) percent of the lump sum bid price will be paid on the first payable monthly construction estimate after barricades, signs and traffic handling devices have been installed in accordance with the TCP and construction has begun within TxDOT/City right-of-way.

3. Twenty five (25) percent of the lump sum bid price will be paid when barricades, signs and traffic handling devices have been removed upon completion of work within TxDOT/City right-of-way, if such devices have been properly maintained in accordance with this Section.

C. Additional payment for this item <u>will not</u> be made for areas outside of TxDOT or City right-of-way, for approving designs, testing, material shortages, closed construction seasons, curing periods, test periods, nor delays caused directly or indirectly by requirements of the Contract. Contractor's cost for traffic control outside of TxDOT and City right-of-way shall be considered subsidiary to and included in the unit price for the work being performed.

D. If additional work is added within TxDOT or City right-of-way by an approved field change or extra work order, or if work is suspended for the convenience of TxDOT or the City, through no fault of the Contractor, additional payment for Traffic Control may be authorized when approved by field change.

END OF SECTION

SECTION 02310

HORIZONTAL BORING FOR UTILITIES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Horizontal boring and welded steel encasement under existing roads, pipelines, creeks or other right-of-ways; including Texas Department of Transportation (TxDOT) right-of-way.

B. All materials, equipment and labor required for installing pipelines and encasement by boring and jacking as specified.

C. Construction, maintenance, and backfilling requirements of bore pits necessary for installing pipelines and encasement by methods of boring and jacking.

D. Mix design requirements, testing, furnishing and production of grout for:

1. Grouting voids in ground resulting from caving, loss of ground, or settlement.

1.2 MEASUREMENT AND PAYMENT:

A. Unit Prices.

1. Bore with encasement will be measured and paid for, at the unit price per linear foot. The unit price bid shall be full compensation for furnishing and placing all materials, equipment, labor, tools, carrier pipe, carrier pipe restraint, casing spacers, bore pits, encasement, grouting, support slabs, dewatering, monitoring plan, and incidentals necessary to complete the work.

2. Contractor shall pay for relocation of utilities, removal and replacement of surface improvements, such as sidewalks, asphaltic or concrete pavement, base and subbase, curbs, curb and gutter, driveways, topsoil, sodding, and hydro-mulch, as necessary for bore pit construction. No separate payment will be made for these items.

3. No separate payment will be made for grouting. Include all cost for pressure grouting of encasement, annular grouting, and grouting of voids in unit price for boring.

4. When open-cut construction is requested by Contractor for his convenience in areas designated for boring, and when approved in advance by Engineer, such areas shall be paid for at Unit Price for open-cut installation.

1.3 DEFINITIONS

A. Carrier Pipe: Sanitary or storm sewer or water line installed inside encasement.

B. Encasement: welded steel pipe installed for support of excavation.

C. Jacking: Installation of steel casing by use of hydraulic jacks while simultaneously removing spoils with the use of an auger.

D. Dry Augering Method: Installation of steel casing by excavating soil at advancing end of casing and transporting spoil through casing by otherwise uncased auger, while advancing casing by jacking at same rate as auger excavation progresses.

E. Wet Boring Method: Installation of casing or pipe by first drilling small diameter pilot hole from pit to pit, followed by removing excess soil and installing pipe or conduit by pull-back or jacking method.

F. Zone of Active Excavation: Area located within radial distance about surface point immediately above face of excavation equal to depth to bottom of excavation.

G. Critical Structure: Building, structure, bridge, pier, or similar construction partially or entirely located within zone of active excavation.

H. Ground Stabilization Grouting: Filling of voids, fissures, or under-slab settlement due to caving or loss of ground by injecting grout under gravity or pressure to fill void.

1.4 REFERENCES

A. ASME B 40.1 - Pressure Gauge and Gauge Attachments.

B. ASTM C 138. Standard Test Method for Unit Weight, Yield and Air Content (Gravimetric) of Concrete.

C. ASTM C 144. Standard Specification for Aggregate for Masonry Mortar.

D. ASTM C 150. Standard Specification for Portland Cement.

E. ASTM C 494. Standard Specification for Chemical Admixture for Concrete.

F. ASTM C 618. Standard Specification for Coal Fly Ash and Raw or Calcinated Natural Pozzolan for use as Mineral Admixture in Portland Cement Concrete.

G. ASTM C 869. Standard Specification for Foaming Agents Used in Making Preformed Foam for Cellular Concrete.

H. ASTM C 937. Standard Specification for Grout Fluidifier for Pre-placed Aggregate Concrete.

I. ASTM C 942. Standard Test Method for Compressive Strength of Grout for Pre-placed Aggregate Concrete into Laboratory.

J. ASTM C 1017. Standard Specification for Chemical Admixture for Use in Producing Flowing Concrete.

K. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.

L. ASTM D 648 - Standard Test Method for Deflection Temperature of Plastics under Flexural Load in the Edgewise Position.

M. ASTM D 695 - Standard Test Method for Compressive Properties of Rigid Plastics.

N. ASTM D 790 - Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

1.5 REGULATORY REQUIREMENTS:

A. TxDOT: Comply with TxDOT-issued permit.

B. Copies of permits will be furnished by the Engineer.

1.6 SUBMITTALS

A. Conform to requirements of Section 01300 - Submittal Procedures.

B. Bore Pits.

1. Prior to installation of pits obtain Engineer's approval for pit locations, size, depth, and areas for storage, material, and spoil handling. Acceptance by Engineer does not relieve Contractor from responsibility to obtain specified results.

C. Grouting

1. Submit description of materials, grout mix, equipment and operational procedures to accomplish each grouting operation. Description may include sketches as appropriate, indicating type and location of mixing equipment, pumps, injection points, venting method, flow lines, pressure measurement, volume measurement, grouting sequence, schedule, and stage volumes.

1.7 DESIGN CRITERIA:

A. Bore Pits:

1. Design steel plate deck, when required, for H-20 loading.

B. Steel Casing:

1. Contractor shall be responsible for selection of casing, pipe, and pipe joints to carry anticipated thrust of jacks or loads. Thicknesses specified on the drawings or in this section are minimum allowable per regulatory requirements.

1.8 SCHEDULING:

A. Coordinate with TxDOT representative.

B. Notify Engineer 48 hours in advance of boring operations.

PART 2 PRODUCTS

2.1 PIPING AND FITTINGS: AS REQUIRED BY DRAWINGS OR SECTION 02665 - WATER SYSTEMS.

2.2 STEEL CASINGS:

A. Provide steel pipe encasement sleeves designed and manufactured in conformance with AWWA C 200 and AWWA M11 except as modified herein. Steel to be minimum of ASTM A36, ASTM A1011 Grade 36, ASTM A53 Grade B, ASTM A135 Grade B, or ASTM A139 Grade B. Alternatively, steel pipe encasement may meet the API Specification 5L, Grade B, or Grade X42.

B. Provide minimum wall thickness as shown on Drawings or listed in applicable permits.

C. Casing pipe shall be new uncoated welded steel. Verify casing diameter required with dimensions of casing spacers and joint restraint devices.

D. For pipes up to 12 inch nominal diameter, use 8 inch wide spacers. For pipes 12 inch to 36 inch nominal diameter, use 12 inch wide spacers. For pipes above 36 inch nominal diameter, submit a manufacturer selected spacer size.

E. All bolts, nuts, washers, and hardware shall be elctro-plated.

F. Restrained Joints where required on PVC pipe:

1. Restraint devices: Manufacture of high strength ductile iron, ASTM A 536 up to 24 inches, and ASTM A 36 for sizes greater than 30 inches. Working pressure rating twice that of design test pressure.

2. Bolts and connecting hardware: High strength low alloy material in accordance with ANSI A21.11/AWWA C111.

2.3 CASING SPACERS:

A. Polyethylene Casing Spacers

1. Acceptable Manufacturers.

   a. Advanced Products & Systems, Inc.
   b. Pipeline Seal & Insulator Co.
   c. Raci Spacers North America.

2. Wood skids or concrete “donuts” are not acceptable.

3. Spacers shall be manufactured from injection molded, high density polyethylene having high impact strength, a low coefficient of friction, chemical resistant, and high dielectric resistance.

4. Extensions shall be available to locate the carrier pipe inside the casing per the drawings.

2.4 CASING END SEALS

A. Acceptable Manufacturers

1. Advanced Products & Systems, Inc.
2. Pipeline Seal & Insulator Co.
3. Engineer Approved Equal.

B. End seals shall be manufactured from 1/8 inch thick neoprene rubber.

C. End seals shall be one piece “pull-on” type, and shall be custom manufactured to the specific size of the carrier pipe and the casing pipe.

D. End seals shall be secured to the carrier pie and the casing pipe with ½ inch wide T-304 stainless steel bands with 100% non-magnetic worm gear mechanism.

2.5 CONCRETE: MEETING REQUIREMENT OF SECTION 03300 – CAST-IN-PLACE CONCRETE.

2.6 GROUT:

A. Grouting materials: Conform to Section 03300 – Cast-In-Place Concrete except as modified in the following paragraphs.

B. Grout Type Applications.

1. Grout for pressure grouting, backfill grouting and annular grouting: Sand-cement mortar mix.

2. Ground stabilization: Sand-cement mortar mix.

C. Do not include toxic or poisonous substances in grout mix or otherwise inject such substances underground.

D. Employ and pay for commercial testing laboratory, acceptable to Engineer, to prepare and test grout mix design. Develop one or more mixes based on

following criteria as applicable:

1. Size of annular void between pipe line and tunnel liner plate, or size of void between tunnel liner plate and surrounding soil;
2. Absence or presence of groundwater;
3. Adequate retardation;
4. Non-shrink characteristics; and
5. Pumping distances.

E. Prepare mixes that satisfy required application. Provide materials conforming to the following standards:

1. Cement: ASTM C 150;
2. Fly Ash: ASTM C 618;
3. Water: Potable;
4. Slurry: ASTM C 138; and
5. Sand for sand-cement mortar mix: ASTM C 144.

F. Provide grout meeting the following minimum requirements:

1. Minimum 28-day unconfined compressive strength: 1500 psi for water lines.
2. Determine strength by ASTM C 942.
3. Maximum allowable density: Less than 130 pcf.

G. Admixtures:

1. Use admixtures meeting ASTM C 494 and ASTM C 1017 as required, to improve pump ability, control time of set, hold sand in suspension and reduce segregation and bleeding.

2. Ensure that admixtures used in mix are compatible. Provide written confirmation from admixture manufacturers of their compatibility.

PART 3 EXECUTION

3.1 PREPARATION:

A. Conform to applicable provisions of Section 02110 – Site Clearing and Grubbing.

B. Utility Relocations: Relocate utility lines clear of pit and zone of potential significant settlement or other ground disturbance. (Coordinate with applicable utility company)

C. Install casings as required by Drawings, in accordance with this Section.

D. Install temporary solid plug at open end of water line to prevent contamination.

E. Maintain clean working conditions inside bore pits.

3.2 BORING:

A. Welded Steel Encasement: Place by boring and jacking methods.

B. Pits:

1. Construct pits on segments of line and within right-of-way. Locate auger pits where there is minimum interference with traffic or access to property. Avoid locating pits close to storm drainage channels, ditches, storm water lines, culverts, or near potentially contaminated areas.

2. Pit Size: Size pits to provide adequate room to meet operational requirements for auger construction as well as structures indicated on Drawings. Provide minimum 6-inch space between pipe and walls of auger pit. Maximum allowable width of pit shall be 5 feet. Width of pit at surface shall not be less than at bottom. Maximum allowable length of pit shall be no more than 5 feet longer than one full section of pipe and shall not exceed 25 feet.

3. Excavate bore pits to finished grade at least 6 inches lower than grade indicated by stakes.

4. Backfill in accordance with Section 02225 – Excavation, Backfilling, and Compacting for Utilities.

5. Provide and properly maintain safety protection against traffic, and accidental or unauthorized entry. Provisions to include concrete traffic barriers or other suitable barrier around periphery of pit as appropriate. Fully cover and secure pits where no construction activity is in progress.

6. Install sheeting, lining, shoring, and bracing required for protection of workmen and public in accordance with Section 02220 - Trench and Excavation Safety Systems.

7. Provide groundwater control and drainage from pits while work is in progress and until pit is properly backfilled. Conform to requirements of Section 02225, Paragraph 3.2.C.

C. Wet Boring:

1. Auger from approved pit locations. Excavate for pits and install shoring as outlined above under Paragraph 3.2.B.6, Pits. Auger mechanically with use of pilot hole entire length of crossing and check for line and grade. Diameter of auger hole not to exceed pipe bell diameter plus 2 inches. Place excavated material outside working pit and dispose of as specified. Use water or other fluids in connection with boring operation only to lubricate cuttings; jetting is not permitted.

2. In unconsolidated soil formations, gel-forming colloidal drilling fluid may be used. Fluid is to consist of at least 10 percent of high-grade processed bentonite and shall consolidate cuttings of bit, seal walls of hole, and shall furnish lubrication for subsequent removal of cuttings and installation of pipe.

3. Depending on character of soil encountered during augering operation, conduct operations without interruption, insofar as practical, to prevent hole from collapsing or pipe from seizing up in hole before installation is complete.

4. Remove and replace pipe damaged in augering operations.

D. Limits on Bore Length Without Encasement:

1. Do not exceed 75 feet for length of auger hole for PVC pipe 12 inches and less in diameter without receiving pit.

2. Do not exceed 40 feet for length of auger hole for PVC pipe 14 inches to 36 inches in diameter without receiving pit.

3. Intermediate receiving pits may be constructed as necessary to comply with maximum lengths.

E. Dry Augering of Casing:

1. Provide jacks, mounted on frame or against backstop, of capacity suitable for forcing excavating auger and casing through soil conditions to be encountered. Operate jacks so that even pressure is applied to casing.

2. Provide steerable front section of casing to allow vertical grade adjustments. Provide water level or other means to allow monitoring of grade elevation of auger casing.

3. Bentonite slurry may be used to lubricate casing during installation. Use of water to facilitate removal of spoil and to lubricate exterior casing is permitted; however, water jetting for excavation of soil is not allowed when jacking casing.

4. Tolerances from lines and grades shown on Drawings for pipelines installed in casing are plus or minus 3 inches in horizontal alignment, and plus or minus 2 inches in elevation.

F. Jacking:

1. Comply with Section 02220 – Trench and Excavation Safety Systems for all pits, end trenches, and other excavations relating to work required by specifications. Dewater as required to provide safe working conditions.

2. Wherever end trenches are cut into sides of embankment or beyond it, sheath securely and brace such work to prevent earth caving.

3. Make up only one joint at time in pit or trench prior to jacking.

4. Do not interfere with operation of railroad, street, highway, or other facility, nor to weaken or damage embankment or structure.

5. Use heavy-duty jacks sized for forcing casing through embankment. Use appropriate jacking head, usually of timber, and bracing between jacks and jacking head and jacking frame or backstop. Apply jacking pressure uniformly around ring of casing. Set casing to be jacked on guides, properly braced together, to support section of casing and to direct it in proper line and grade. Place jacking assembly in line with direction and grade of casing. Excavate embankment material just ahead of casing and remove material through casing. Force casing through embankment with jacks into excavated auger hole.

6. Conform excavation for underside of casing to contour and grade of casing, for at least one third of circumference of casing. Provide clearance of not more than 2 inches for upper half of casing. Taper off upper clearance to zero at point where excavation conforms to contour of casing.

7. Excavation may extend beyond end of casing depending on character of material, but shall not exceed 2 feet. Decrease advance excavation at direction of Engineer, when character of material being excavated makes it desirable to keep advance excavation closer to end of casing.

8. Jack casing from low or downstream end. Variation in final position of casing from line and grade as shown on Drawings will be permitted only to extent of plus or minus 3 inches in horizontal alignment, and plus or minus 2 inches in elevation, provided such variation is regular and only in one direction and that final grade of flow line is in direction indicated on Drawings.

9. Use cutting edge of steel plate around head end of casing extending short distance beyond end of casing with inside angles or lugs to keep cutting edge from slipping back onto casing.

10. Once jacking of casing is begun, carry on without interruption, insofar as practicable, to prevent casing from becoming firmly set in embankment.

11. Remove and replace casing damaged in jacking operations.

12. Backfill pits or trenches excavated to facilitate jacking operations immediately after completion of jacking of casing.

13. Grout annular space between casing and excavated hole when loss of embankment occurs or when clearance of 2 inches is exceeded.

3.3 PIPELINE INSTALLATION IN ENCASEMENT:

A. Pipeline: Secure casing spacers as detailed on Drawings. Install in completed casing.

B. Spacer Installation:

1. There must be no inadvertent metallic contact between encasement and carrier pipe. Place spacers to ensure that carrier pipe is adequately supported throughout length, particularly at ends, to offset settling, and possible electrical shorting unless otherwise approved by Owner. Place end spacer within 6 inches of end of encasement pipe, regardless of size of encasement and carrier pipe or type of spacer used. Spacing between spacers depends largely on load bearing capabilities of pipe coating and flexibility of pipe.

2. Grade bottom of trench adjacent to each end of encasement to provide firm, uniform, and continuous support for carrier pipe. When trench requires some backfill to establish final trench bottom grade, place backfill material in 6-inch lifts (8" loose lifts) and compact to density of undisturbed soil.

3. Install spacers in accordance with manufacturer's instructions. Take special care to ensure that sub-components are correctly assembled and evenly tightened, and that no damage occurs during tightening of insulators or carrier pipe insertion.

4. Seal annulus between carrier pipe and encasement with end seals at each end of encasement.

5. Insulator Spacing:

a. Spacing shall be as shown on Drawing with maximum distance between spacers to be 10 feet for pipe sizes 4 to 14 inches and 8 feet for pipe sizes 16 to 36 inches.

b. For PVC pipe or bell-and-spigot pipe, install spacers within one foot on each side of bell or flange and one in center of joint when 18- to 20-foot-long joints are used.

c. If encasement or carrier pipe is angled, bent, or dented, reduce spacing as directed by Engineer. Provide encasement with smooth, continuous interior surface.

C. Pipe Transport:

1. Carrier pipe must be pulled through the completed encasement pipe. Care must be exercised in order to avoid damage to pipe or over-belling.

D. Final Cleanup:

1. Clean interior of pipe after interior work is completed. Remove loose material, dirt, and debris from completed pipeline. After completion of work inside pipe, prevent dirt, water, and other debris from entering until pipeline work is completed.

3.4 GROUND WATER CONTROL:

A. Provide necessary ground water control measures to perform work and to provide safe working conditions. Comply with provisions of Section 02225 - Excavation, Backfilling and Compacting for Utilities.

B. When Contractor chooses pumping installations to control ground water level or installs pervious liner through water bearing layers, install and maintain instrumentation system to monitor water level and to detect movement in adjacent structures and property.

3.5 TRAFFIC CONTROL:

A. Conform to applicable provisions of Section 01500 – Construction Facilities and Temporary Controls and 02280 – Traffic Control.

B. During construction operations, furnish, and maintain barricades and lights to safeguard traffic and pedestrians, until such time as backfill has been completed and removed from site. Provide additional barricades and lights as directed by Engineer.

3.6 DISPOSAL OF EXCESS MATERIAL:

A. Remove spoil from job site and dispose in accordance with Section 02225 – Excavation and Compacting for Utilities.

END OF SECTION

SECTION 02511

PAVEMENT REPLACEMENT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. The repair and replacement of an open-cut trench pavement section within the confines of an existing roadway pavement section including, but not limited to, asphalt (hot-mix, surface treatment, etc.), brick, concrete, gravel, oil-sand, and unimproved streets and roadways.

1.2 REFERENCES:

A. TxDOT Item 247—Flexible Base Material.

B. TxDOT Item 300—Asphalts, Oils, and Emulsions.

C. TxDOT Item 310—Prime Coat (cutback asphaltic material only).

D. TxDOT Item 334—Hot Mix Cold-Laid Asphaltic Concrete Pavement.

E. TxDOT Item 360—Concrete Pavement.

F. TxDOT Item 421—Portland Cement Concrete.

G. TxDOT Item 433—Joint Sealant and Fillers.

H. TxDOT Item 536—Membrane Curing.

I. ACI 301—Specifications for Structural Concrete.

J. ASTM A615—Deformed and Plain Billet Steel Bars.

K. ASTM A616—Rail Steel Deformed and Plain Bars.

L. ASTM C260—Air-Entraining Admixtures for Concrete.

M. ASTM C494—Chemical Admixtures for Concrete.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Contractor shall certify the asphalt/concrete mixing plant will conform to the requirements of the TxDOT.

C. Contractor shall submit design mixtures for asphalt/concrete, including additive modifiers, for review and approval at least 30 days before any pavement is placed.

1.4 DELIVERY, STORAGE, AND HANDLING:

A. Asphaltic Concrete Material shall be hauled in tight trucks previously cleaned of dirt and foreign material.

B. All material shall be delivered and immediately placed or stockpiled. Care shall be taken when stockpiling to prevent contamination of materials.

1.5 ENVIRONMENTAL REQUIREMENTS:

A. Asphaltic Concrete shall not be placed when the ambient temperature is below 60 degrees F and is falling.

B. Asphaltic Concrete may be mixed and placed when the ambient temperature is above 50 degrees F and is rising.

C. Portland Cement Concrete shall not be placed when the ambient temperature is below 40 degrees F and falling.

D. Portland Cement Concrete may be placed when the ambient temperature is above 35 degrees F and rising.

E. Paving materials shall not be placed on wet or frozen subgrade.

PART 2 PRODUCTS

2.1 FLEXIBLE BASE:

A. TxDOT Item 247, Type A, Grade 1-2.

2.2 TACK COAT:

A. Asphaltic Materials: TxDOT Item 300, "Asphalts, Oils, and Emulsions".

B. Provide grade RC-250, or as approved by the Engineer.

2.3 HOT MIX, COLD-LAID ASPHALTIC CONCRETE SURFACE COURSE:

A. Shall meet the individual material and mixture material requirements as specified within TxDOT Item 334 for the type shown on the drawings.

2.4 REINFORCEMENT:

A. Reinforcing steel shall meet the requirements of ASTM A616, Grade 60 new billet steel bars.

B. Dowels for expansion joints shall meet the requirements of ASTM A615, Grade 60.

2.5 PORTLAND CEMENT CONCRETE:

A. Use either Type I or Type III, ASTM C-150 concrete.

B. Concrete mix shall have a minimum cement content of six sacks per cubic yard (3,000 psi compressive strength).

C. Mixing water shall be potable and not detrimental to the concrete.

D. The concrete shall contain 3 to 5 percent entrained air and shall meet the requirements of ASTM C260.

E. Do not use chemical admixtures such as water reducing, retarding and accelerating agents approved by the Engineer. If admixtures are approved, they shall meet the requirements of ASTM C494.

PART 3 EXECUTION

3.1 EXTENT OF REPAIR:

A. Roadway/street shall be restored to its original condition or better as depicted on the drawings.

B. The Contractor shall repair all pavement cuts, unless otherwise noted on the drawings.

3.2 FIELD QUALITY CONTROL:

A. The trench backfill supporting the pavement replacement shall be installed in accordance with Section 02225.

B. If, in the judgment of the Engineer, the quality of materials used or the completed installation (including compacted density, surface thickness or surface texture) is questionable, the Engineer may conduct the appropriate tests to verify the quality of the installation. These tests will be at the expense of the Contractor. If the installation does not meet the criteria listed in this section, the material shall be removed and replaced at the expense of the Contractor such that the installation meets the criteria in this section.

3.3 BARRICADES:

A. The Contractor shall maintain lights and barricades around the work areas until the pavement is ready for traffic.

B. Control work so as to minimize disruption of normal traffic flow and prevention of access to normal traffic routes.

3.4 GRAVEL, OIL-SAND AND OTHER NON-PERMANENT ROADWAYS:

A. Ensure trench is backfilled in accordance with Section 02225.

B. Place and compact a finished ten inch layer of flexible base material over the ditch as shown on the drawings for the finished surface of the roadway.

C. The thickness of each layer before compaction shall not exceed six inches.

3.5 ASPHALTIC CONCRETE ROADWAYS:

A. Ensure trench is backfilled in accordance with Section 02225.

B. Flexible Base Course:

1. Place and compact flexible base course under pavement sections over the ditch within roadways as shown on the drawings.

2. The thickness of each layer before compaction shall not exceed six inches.

C. Tack Coat:

1. Shall be applied to saw-cut edges, adjacent concrete or other appurtenances within the confines of the paved area. Apply at a rate of 0.15 gallons per square yard.

D. Laying:

1. Shall meet the requirements of TxDOT Item 334, or as approved by the Engineer.

E. Compacting:

1. Contractor shall use any equipment deemed necessary. All equipment shall be approved by the Engineer.

F. Density:

1. As specified within TxDOT Item 334.

G. Surface Tests:

1. The finished surface of the replacement asphalt shall be at the same elevation and grade as the original pavement before cutting, or as shown on the drawings.

2. The completed surface, when tested with a straight edge spanning between the undisturbed saw-cut pavement sections at the adjacent trench walls, shall show no deviation in excess of 1/16 inch per foot from the sawed edge.

H. Construction Joints:

1. Place courses as nearly continuously as possible. If work is interrupted, cut back the previously-laid material to produce a slightly beveled edge for the full thickness of the course. Remove old material which has been cut away and lay the new mix against the fresh cut.

2. When the asphalt is laid against existing or old asphalt, the existing or old asphalt shall be cut to provide a straight smooth joint.

3. Apply tack coat to old asphalt edge as previously described in this specification, prior to laying new material.

3.6 PORTLAND CEMENT CONCRETE PAVEMENT:

A. Ensure trench is backfilled in accordance with Section 02225.

B. Preparation:

1. Moisten underlying pavement layer to minimize absorption of water from fresh concrete.

2. Coat surfaces of manholes, drop inlets, etc. with oil to prevent bond with concrete.

C. Forming:

1. If available, use adjacent saw-cut edges of existing concrete pavement as forms to match grade.

2. Use forming as necessary to contain the placed concrete when saw-cut edges are not available on both sides of the trench (i.e. Ditch is parallel to and at the edge of the roadway).

3. Ensure completed edge of concrete matches the line and grade of adjacent roadway, if no grade changes are depicted on the drawings.

4. Thickness of placed concrete shall match existing pavement.

D. Reinforcement:

1. If reinforcement is required, the size and location will be shown on the plans.

E. Concrete Pavement:

1. Place concrete in accordance with TxDOT Item 360—Concrete Pavement, unless otherwise noted.

2. Place concrete over the ditch within roadways as shown on the drawings.

3. Ensure reinforcement, inserts, embedded parts, formed joints, etc. are not disturbed during concrete placement.

4. Match pattern of expansion/control joints in existing concrete pavement.

5. Finished surface of concrete shall match the existing pavement.

F. Surface Tests:

1. The finished surface of the replacement concrete shall be at the same elevation and grade as the original pavement before cutting, or as shown on the drawings.

2. The completed surface, when tested with a straight edge spanning between the undisturbed saw-cut pavement sections as the adjacent trench walls, shall show no deviation in excess of 1/16 inch per foot from the sawed edge.

3.7 MEASUREMENT AND PAYMENT:

A. Pavement replacement will be paid for by the unit identified in the bid form, which shall be the total payment for tamping the backfill, placing and compacting the base material, finishing and replacing the pavement as per this section.

END OF SECTION

SECTION 02520

CONCRETE PAVEMENT, SIDEWALKS, CURB AND GUTTER AND APPROACHES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Portland cement concrete pavements with monolithic curb, sidewalks, curb and gutter and approaches on a prepared subgrade or subbase course in conformity with lines, grades and typical cross sections shown.

1.2 REFERENCES:

A. ACI 301—Specifications for Structural concrete.

B. ASTM A615—Deformed and Plain Billet-Steel Bars.

C. ASTM A616—Rail-Steel Deformed and Plain Bars.

D. ASTM C260—Air-Entraining Admixtures for concrete.

E. ASTM C494—Chemical Admixtures for concrete.

F. TxDOT Item 360—Concrete Pavement.

G. TxDOT Item 421—Hydraulic Cement Concrete.

H. TxDOT DMS 6310—Joint Sealants and Fillers.

I. TxDOT DMS 4650—Hydraulic Cement Concrete Curing Materials and Evaporation Retardants.

1.3 SUBMITTALS FOR REVIEW:

A. Refer to Section 01300 for submittal requirements.

B. Submit data on all joint materials and curing compounds to be incorporated into the project 30 days prior to use.

C. Submit design mixtures, including additive modifiers, for review and approval at least 30 days before any concrete pavement is placed. The design mixes shall be prepared by a certified independent testing laboratory employed and paid by the Contractor.

1.4 SITE CONDITIONS:

A. Do not place concrete when surface temperature is less than 40 degrees F or surface is wet or frozen.

PART 2 PRODUCTS

2.1 FORM MATERIALS:

A. Forms for concrete Pavement shall comply with the requirements of TxDOT Item 360—Concrete Pavement.

B. Forms for sidewalks, curb and gutter and concrete approaches shall be as approved by the Engineer.

2.2 REINFORCEMENT:

A. Reinforcing Steel shall meet the requirements of ASTM A616, Grade 60 new Billet-steel bars.

B. Dowels for expansion joints shall meet the requirements of ASTM A615, Grade 60.

2.3 CONCRETE MATERIALS:

A. Use Class "P" concrete as specified in TxDOT Item 421—Hydraulic Cement Concrete.

B. Mixing water shall be potable and not detrimental to the concrete.

C. The concrete shall contain 3 to 5 percent entrained air and shall meet the requirements of ASTM C260.

D. Do not use chemical mixtures such as water reducing, retarding and accelerating agents unless approved by the Engineer. The admixtures shall meet the requirements of ASTM C494.

2.4 ACCESSORIES:

A. Curing material shall meet the requirements of DMS 4650—Hydraulic Cement Concrete Curing Materials and Evaporation Retardants.

B. Joint fillers and backer rods shall meet the requirements of DMS 6310—Joint Sealants and Fillers.

2.5 CONCRETE MIX:

A. The concrete mix shall meet the requirements of Class "P" Portland cement concrete as specified in TxDOT Item 421—Hydraulic Cement Concrete.

B. The minimum concrete flexural strength shall be 680 psi at 28 days using third-point loading.

C. Use accelerating admixtures in cold weather only when approved by the Engineer. Use of admixtures will not relax cold weather placement requirements.

D. Use calcium chloride only when approved by Engineer.

E. Use set retarding admixtures during hot weather only when approved by Engineer.

2.6 SOURCE QUALITY CONTROL AND TESTS:

A. One set of three (3) test cylinders for each daily pour or for every 50 CY placed, whichever is greater.

B. Tests on cement and aggregate will be performed to ensure conformance with specified requirements.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Place concrete only on approved underlying material.

B. Any underlying material determined to be unsatisfactory for any reason, shall be corrected at the Contractor's expense.

3.2 PREPARATION:

A. Moisten underlying pavement layer to minimize absorption of water from fresh concrete.

B. Coat surfaces of manholes, drop inlets, etc. with oil to prevent bond with concrete.

C. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

3.3 FORMING:

A. Place and secure forms to correct location, dimension, profile and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.4 REINFORCEMENT:

A. The size and location of reinforcement shall be as shown on the plans.

3.5 CONCRETE PAVEMENT:

A. Place concrete in accordance with TxDOT Item 360—Concrete Pavement unless noted within this specification.

B. Place concrete using the slip form technique. Other methods may be used if approved by the Engineer.

C. Ensure reinforcement, inserts, embedded parts, formed joints, etc. are not disturbed during concrete placement.

D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

E. Concrete pavement panels shall have a maximum size of 25 feet by 25 feet. Typical joint layout shall be as shown.

3.6 SIDEWALKS:

A. Sidewalks shall be constructed in sections of approximately 32 feet in length. One-half inch expansion joints with filler board shall be constructed at the beginning and end of each sidewalk section. Filler board shall be approved by the Engineer. Expansion joints shall not contain dowels unless shown. A three inch cushion of granular material shall be placed on the subgrade, unless otherwise shown.

B. After the surface has been worked to a true plane, one inch deep control joints shall be made every five feet unless otherwise shown on the plans. Sidewalk thickness shall be as shown on the plans.

3.7 CURB AND GUTTER:

A. Curb and gutter adjacent to asphalt pavement shall be constructed in sections of approximately thirty feet in length and five feet in width, unless otherwise shown on the plans. Expansion joints shall be placed at every thirty feet section and at the beginning and end of every curb return. Where walks or other concrete improvements join the curb, a one-half inch wide expansion joint shall be placed at the back of the curb. The expansion joint will consist of a one-half inch filler board without dowels. Filler board shall be approved by the Engineer.

B. Control joints will be placed ten feet apart along the length of each section. Joints shall be cut through the curb and one and one-half inches below the surface of the curb and gutter.

C. Concrete pavement with monolithic curb shall be constructed as shown.

3.8 CONCRETE APPROACHES:

A. Concrete approaches shall be constructed as shown.

3.9 JOINTS:

A. Place joints as specified or shown.

B. For concrete pavement with monolithic curb, curb joints shall be of the same type and location as the adjacent concrete pavement.

C. Joint sealant for concrete pavement shall meet the requirements of TxDOT Class 5 joint sealant as described in DMS 6310—Joint Sealants and Fillers.

3.10 FINISHING:

A. Concrete surfaces shall receive a light broom finish.

B. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.11 JOINT SEALING:

A. Place sealant in accordance with manufacturer's recommendations.

B. Joint reservoir dimensions shall be as shown.

3.12 TOLERANCES:

A. Refer to Section 01400 for tolerance requirements.

B. The maximum variation of surface flatness shall be 1/4 inch in 10 ft for straight-line grades.

C. Horizontal tolerances shall be ± 1/4 inch in forms.

3.13 FIELD QUALITY CONTROL:

A. Field inspection and testing will be performed under the provisions of Section 01400.

B. Testing firm will take beams and perform slump and air entrainment tests in accordance with ACI 301.

C. One additional test beam will be taken during cold weather and cured on site under same conditions as concrete it represents.

D. One slump test will be taken for each set of test beams taken.

E. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature and test samples taken.

3.14 PROTECTION:

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures and mechanical injury.

B. Do not permit vehicular traffic over pavement for at least 4 days minimum after finishing unless directed by the Engineer. This period may be extended if required by the Engineer.

END OF SECTION

SECTION 02665

WATER SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Water lines including valves, valve boxes, service meters, hydrants, thrust restraint, fittings, and other appurtenances for water transmission systems.

1.2 MEASUREMENT AND PAYMENT:

A. Unit Prices.

1. Payment for water lines installed by open-cut, boring with or without casing, Horizontal Directional Drilling (HDD) is on linear foot basis for each size of pipe installed. Separate pay items are used for each type of installation.

a. Water lines installed by open cut.
b. Water lines in casing installed by open cut.
c. Water lines in casing installed by jack and bore.
d. Water lines that are installed by HDD (only with Engineer approval).
e. Trenchless installation methods may use alternate pipe materials with Engineer approval. Include all costs of pipe and fittings necessary for transition between materials in price of installation.

2. Payments for valves are on a Unit Price basis. Separate pay item are used for each type of installation.

a. Installation of gate vale assemblies (2 inches to 30 inches in diameter), including valve box or manhole as shown on the drawings.

b. Installation of combination air release valve assemblies, including all fittings, piping, isolation valve, enclosure, vent, and related accessories as shown on the drawings.

c. Installation of blow-off valve assemblies, including all fittings, piping, meter box, and related accessories as shown on the drawings.

3. Items without a separate pay item, but required for a complete installation and operational water transmission system are incidental to the bid. These items include, but are not limited to:

a. Fittings, sleeves, couplings and other appurtenances, including bends (vertical or horizontal), tees, caps, etc..
b. Mechanical joint restraint devices are required, thrust

blocking will not be allowed.

c. Tracer wire, connectors, and test stations.

d. Marking tape.

e. Hydrostatic testing.

f. Disinfection.

1.3 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. ASTM A126 - Gray Iron Castings for Valves, Flanges and Pipe Fittings.

2. ASTM A307 - Specification for Carbon Steel Bolts and Studs 60,000 psi Tensile.

3. ASTM A536 - Ductile Iron Castings.

4. ASTM D1784 - Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds.

5. ASTM D1785 - Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.

6. ASTM D2466 - Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.

7. ASTM D3139 - Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals.

8. ASTM F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

B. American Water Works Association (AWWA):

1. AWWA C104 - Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water.

2. AWWA C105 - Polyethylene Encasement for Ductile Iron Piping for Water and other Liquids.

3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3 inches through 48 inches, for Water and other Liquids.

4. AWWA C153 - Ductile Iron Compact Fittings, 3 inches through 12 inches, for Water and other Liquids.

5. AWWA C509 - Resilient-Seated Gate Valves for Water Systems.

6. AWWA C550 - Protective Interior Coatings for Valves and Hydrants.

7. AWWA C600 - Installation of Ductile-Iron Water Mains and Appurtenances.

8. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 inches through 48 inches, for water.

C. ANSI 16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

D. 30 TAC 290, Texas Administrative Code, Volume 30, Chapter 290, Water Hygiene.

1.4 SUBMITTALS:

A. Procedures for submittals: Section 01300.

B. Product Data: Manufacturer's product data sheets on all materials incorporated into work.

C. Quality Control Submittals: For information only.

1. Certificates: Manufacturer's certificates attesting compliance with applicable specifications for grades, types, classes, and other properties.

2. Test Reports: Results of field quality control tests including hydrostatic tests/pressure tests.

D. Contract Closeout Submittals: Refer to Section 01700.

1. Protect Record Documents: Submit documents in accordance with Section 01700. Accurately record installed location of valves, hydrants, piping and service connections, and accessories.

1.5 QUALITY ASSURANCE:

A. Pipeline installation shall be in accordance with manufacturer's recommendations and as supplemented by these Specifications.

B. Pipe shall be kept clean of all foreign matter.

1. At temporary termination of pipe laying, provide suitable cover to close open end until burying operations are resumed.

C. Jointing shall be by trained employees.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Deliver, store, and handle products under provisions of Section 01600.

B. Each load of pipe delivered to the job site shall be inspected by the Engineer.

1. Pipe transported without adequate protection shall be rejected and removed immediately from the job site.

2. Inadequate wall thickness or tolerances greater than specified: Randomly selected samples of the pipe shall be forwarded immediately to an approved testing laboratory with instructions to check the pipe for compliance with applicable product standards, ASTM Specifications, and other applicable Specifications.

3. When the testing laboratory reports concur that the pipe does not meet Specifications, the defective pipe shall be removed immediately from the job site by the Contractor.

4. If defective, all costs for shipping of samples, laboratory testing, removal of defective pipe, and replacement pipe shall be the sole responsibility of the Contractor.

PART 2 PRODUCTS

2.1 PIPE:

A. PVC Water Pipe – AWWA C900 – Gasketed.

1. DR 21 – Pressure Rated 200 PSI.
2. All pipe shall bear NSF 61 seal of approval.
3. Joints shall be integral bell with flexible elastomeric seal.

B. PVC Water Pipe – AWWA C900 – Fusible.

1. DR 21 – Pressure Rated 200 PSI.
2. All pipe shall bear NSF 61 seal of approval.
3. Joints shall be fusion.

C. Ductile Iron Water Pipe – AWWA C151.

1. Pressure Class 200 PSI.
2. Cement lined interior, AWWA C104.
3. Exterior shall be bituminous coated, AWWA C151.
4. Wrap buried pipe with 8 mil polyethylene encasement, AWWA C105.

D. Service Line: High-Density Polyethylene (HDPE) pressure pipe per AWWA C901; ASTM D2737:

1. CTS SDR-11; PE4710, 200 PSI.
2. Provide stainless steel stiffeners at connections.
3. All pipe shall bear NSF 61 seal of approval.

E. PVC Water Pipe - (less than 2 inches): ASTM D1784:

1. Schedule 40 or 80, as shown.
2. Solvent weld joints, ASTM D2855.
3. All pipe shall bear NSF 61 seal of approval.

F. Galvanized and Steel Pipe: ASTM A53:

1. Galvanized, standard wall; threaded.

2.2 FITTINGS:

A. Buried Fittings (size 3 inches through 48 inches):

1. Ductile Iron, AWWA C110 (non-compact) or AWWA C153 (compact).

2. Cement lined interior, AWWA C104.

3. Exterior shall be bituminous coated.

4. Fittings shall be mechanical joint or flanged pipe as shown.

5. Wrap buried fittings with 8-inch polyethylene encasement, AWWA C105.

6. Working pressure rated to 350 psi.

B. Above-grade Fittings (size 3 inch through 48 inch):

1. Ductile Iron Flanged Fittings, AWWA C110.
2. Cement lined interior AWWA C104.
3. Exterior shall be bituminous coated.
4. Working pressure rated at 350 psi.
5. Face and drill in accordance with ANSI B16.1 for Class 150 or 300 flanges, as required.

C. Above-grade Fittings (smaller than 3 inch):

1. Galvanized steel, ASTM A53.
2. Standard wall; threaded.

2.3 COUPLINGS:

A. Flanged Coupling Adapters:

1. Conform to ASTM A536, Ductile Iron.
2. Products: Series 2100 MEGAFLANGE® Restrained Flange Adapter as produced by EBAA Iron, Inc., or approved equal.

B. Flexible Couplings:

1. Type: Gasketed, sleeve type, straight cast.

2. Products: Dresser Style 38 or style 162 (transition coupling), or approved equivalent.

3. Service: Supply couplings with working pressures which meet or exceed the joining pipe rating.

C. Retainer Glands:

1. Mechanical joint fittings to PVC: Ductile Iron, ASTM A536, Grade 65-45-12.

a. Product: EBAA Iron Series 2000, or Engineer-approved equivalent.

2. Mechanical joint fittings to Ductile Iron: Ductile Iron ASTM A536, Grade 60-10-10.

a. Product: EBAA Iron Series 1100, or Engineer-approved equivalent.

D. Service Clamps:

1. Product: Mueller, or approved equivalent.
2. Type: Bronze, two-piece with O-Ring seal.
3. Use: Copper tubing size (CTS) polyethylene pipe service connections.

2.4 Mechanical Joint Restraint Devices:

A. Restraint devices: Manufacture of high strength ductile iron, ASTM A 536 up to 24 inches, and ASTM A 36 for sizes greater than 30 inches. Working pressure rating twice that of design test pressure.

B. Bolts and connecting hardware: High strength low alloy material in accordance with ANSI A21.11/AWWA C111.

C. All mechanical joint fittings shall use followers capable of being secured to the pipe at all connections. Additionally, all gasketed joints within a specified distance from mechanical joint fittings shall have bell restraint harnesses installed. Refer to the Drawings to determine the number of bell harnesses required for each type of fitting.

1. Approved Manufacturer's:

a. EBAA Iron
b. Star Pipe and Products
c. Engineer Approved Equal

2.5 FLANGE BOLTS AND GASKETS:

A. Gaskets shall be 1/16-inch cloth insert, red rubber, and full face.

B. Bolts shall be in accordance with the following:
1. Pressure Applications: ASTM A307B.
2. 304 stainless steel.

2.6 TAPPING SLEEVES:

A. Material:

1. Shell: 304 Stainless Steel.
2. Lugs: 304 Stainless Steel.
3. Bolts, Washers & Nuts: NC Rolled Thread, 304 Stainless Steel.
4. Gaskets: Virgin SBR compounded for water service.
5. Outlet Flange:

a. 304 Stainless Steel or Ductile Iron, ASTM 536.
b. Meet or exceed all applicable requirements of ANSI B16.1, Class 125.

B. Certified to ANSI/NSF 61.

2.7 VALVES:

A. Approved Gate Valve Manufacturers (AWWA C515):

1. M&H
2. Clow
3. Mueller
4. Engineers approved equal.

B. Gate Valves (2-inch through 48-inch):

1. Type: Solid Wedge, resilient-seat type.

2. Standards: AWWA C509 and ANSI NSF 61 certified.

3. Material: Body, Bonnet, Wedge and Gland shall be cast of ASTM A536 Grade 65-45-12 ductile iron. Stem material, body bolts and bonnet bolts shall be stainless steel. The wedge shall be encapsulated with synthetic rubber to allow zero leakage at the rated pressure. The rubber seat shall be retained with a stainless steel ring with stainless steel bolts. All gaskets and O-rings are to be EPDM. Thirty (30) inch and larger valves shall have a 316 stainless steel track on both sides of the body which maintains a smooth surface between the rubber seating area and the iron body of the valve.

4. Working Pressure: Rated to 200 psi minimum.

5. Stem: Non-rising stem (NRS) with O-ring valve packing and 2-inch square nut, unless shown otherwise.

6. Joints: Mechanical (buried); Flanged (above grade).

7. Opening: Counter-clockwise.

8. Finish: Ferrous surfaces of valve interior epoxy-coated, AWWA C550.

9. Manufacturer: J&S Valve, Inc., Huffman, TX, or Engineer-approved equal.

10. Wrapping: Wrap valve body with 8 mil polyethylene encasement in a manner which will not interfere with valve operations, buried service.

C. Gate Valves (smaller than 2-inch):

1. Type: Iron body, bronze-mounted, double disc, parallel seat.

2. Standard: AWWA C500.

3. Working Pressure: Rated to 200 psi minimum.

4. Stem: Non-rising stem with O-ring valve packing and 2-inch square nut, except as shown otherwise.

5. Joints: Mechanical (buried), Flanged (above ground).

6. Opening: Counter-clockwise.

7. Finish: Ferrous surfaces of valve interior epoxy-coated, AWWA C550.

8. Wrapping: Wrap valve body with 8 mil polyethylene encasement in a manner which will not interfere with valve operations, buried service.

2.8 TEST TAPS:

A. Contractor shall install branch saddle tap with ¼-turn brass shutoff valve/corporation stop located on the top of the water line within approximately 5 feet of each gate valve along the pipeline route such that each section of pipe between gate valves has a single 2-inch tap for air relief and adding make-up water to that section during charging and pressure testing of the pipeline.

2.9 TRACER WIRE SYSTEM:

A. Tracer wire:

1. Tracer wire for open cut/open ditch and through casing pipe shall be a #12 AWG HS-CCS high-strength copper clad steel conductor (HS-CCS), insulated with a 30 mil, high-density, high molecular weight polyethylene (HDPE) insulation, and rated for direct burial use at 30 volts.

2. HS-CCS conductor must be at 21% conductivity for locate purposes, break load 250 lbs. minimum.

3. HDPE insulation shall be RoHS compliant and utilize virgin grade material. Insulation color shall meet the APWA color code standard for identification of buried utilities.

a. Manufacturers supplying copper clad steel tracer wire must have available detailed performance data including 5 years of underground testing in terms of durability related to damage of protective insulation and effects of potential corrosion of the specific copper clad steel used. Origin of copper clad steel manufacturer is required and steel core must be manufactured in the United States. If manufacturer has not completed 5 year corrosion testing, a 5 year warranty must be provided.

b. Tracer wire shall be Copperhead™ HS-CCS HDPE 30 mil or pre-approved equal and made in the USA.

i. Part# 1430B-HS in appropriate spool length.
ii. Utilize the least amount of connection/splice points as possible. Spools come in 500', 1000', and 2500' lengths to maximize continuous wire runs.

B. Anode:

1. The tracer wire system shall be terminated and grounded at all dead end points with the appropriate anode to complete the electrical circuit.

2. Anode shall be Copperhead™ Anode must be used or a pre-approved equal and made in the USA. Part # (Ano-1005), 1# x 1.315"D x 18.5"L, Magnesium Drive in Anode.

3. The anode provided is intended to include an HDPE cap and 10' of factory installed Copperhead™ red 14 AWG copper clad steel tracer wire with 30 mil high-density high molecular weight polyethylene (HDPE) insulation. The factory installed wire is rated for direct burial use at 30 volts. HDPE insulation shall be RoHS compliant and utilize virgin grade material. Package includes one Copperhead SnakeBite™ connector, part # SCB-01-SR, which is filled with non-hardening, dielectric, moisture displacement silicon for corrosion protection. The connector is provided to splice the factory installed anode tracer wire to the mainline tracer wire.

C. Connector:

1. Connectors shall be Copperhead™ SnakeBite Locking Connector or pre-approved equal and made in the USA, Part # LSC1430B-25.

2. Wire Type: Copperhead™ CCS 30 mil copper clad steel tracer wire, Range: Min #14 / Max #10.

3. Molded Plastic Temperature Rating: -45˚C (-49˚F) to 125˚C (257˚F).

4. Vertellus Moisture Displacement Gel Material Temperature Rating: 154˚C (309˚F).

D. Test Stations:

1. Test stations shall be Copperhead™ SnakePit™ or pre-approved equal and made in the USA, Part number LD14B Lite Duty Box.

2. The appropriate test station is intended to include encapsulated magnet, corrosion-resistant insulated brass wire lug, wax pad to cover wire connections after installation of wire, color-coded and tamper-proof locking lid with top access connection point. Lid removal shall not be required to use station.

3. Test stations shall be located at the beginning and the end of each continuous run of new water line installed, and at intervals along water line as recommended by the manufacturer.

2.10 MARKER TAPE:

A. Metallic Marking Tape

1. To be installed in trench with water line.

2. Tape characteristics:

a. Minimum width of 8 inches,
b. Total thickness of 5 mil. consisting of 1 mil. polypropylene clear film with reverse printing laminated to 0.5 mil. aluminum foil core, and 3.5 mil. polyethylene backing.

3. Tape shall be detectable with a non-ferrous metal detector.

4. Tape shall be provided by Pro-Line Safety Products Co., or approved equivalent.

5. Contractor shall furnish appropriate tape color for raw/untreated water in compliance with American Public Works Association standards, and tape shall be marked with “Caution - Buried Water Line Below” or Engineer-approved equivalent.

6. Tape shall be installed in trench approximately 24-inches above the top of pipe and compacted to provide a maximum of 24" finished cover above tape.

2.11 ACCESSORIES:

A. Valve markers:

1. Product: Carsonite Composite Utility Water Line marker, or approved equivalent.
2. Color: Blue.
3. Length: 6'0", Mark at 18" for proper burial depth.
4. Decal: "Water Valve" or “CAV” or “BOV” in white lettering.
5. Location: At all water valves.

B. Water line markers:

1. Product: Carsonite Composite Utility Water Line marker, or approved equivalent.
2. Color: Blue.
3. Length: 6'0", Mark at 18" for proper burial depth.
4. Decal: "Water Line" in white lettering.
5. Location: max 1,000 feet spacing along water line route.

C. Valve Boxes/Covers:

1. Product: Tyler Pipe 6850 Series telescoping cast iron valve box or a 6" PVC Class 160 riser or approved equivalent.
2. Cover: Cast Iron, marked, "Water" with a tight fit to valve box.

PART 3 EXECUTION

3.1 Preparation:

A. Conform to applicable installation specifications for types of pipe used.

B. Employ workmen who are skilled and experienced in laying pipe of type and joint configuration being furnished. Provide watertight pipe and pipe joints.

C. Lay pipe to lines and grades shown on Drawings.

D. Confirm that nine feet minimum separation from gravity sanitary sewers and manholes or separation of four feet minimum from force mains as specified in this Section in all directions unless special design is provided on Drawings.

E. Where above clearances cannot be attained, and special design has not been provided on Drawings, obtain direction from Engineer before proceeding with construction.

F. For projects involving multiple subdivisions or locations, limit water line installation to maximum of two project site locations. Maximizing 2 pipe installation crews shall be permitted, unless otherwise approved by Engineer.

G. Coordinate with the City of Missouri City Public Works and MUD operators for opening and closing of valves for connection and for chlorination.

H. If asbestos-cement (A.C.) pipe is encountered, follow safety practices outlined in American Water Works Association's publication, "Work Practices for A/C Pipe". Strictly adhere to "recommended practices" contained in this publication and make them "mandatory practices" for this Project.

I. Contractor is responsible for assuring chosen manufacturer fulfills requirements for extra fittings and, therefore, is responsible for costs due to downtime if requirements are not met.

3.2 Handling, Cleaning and Inspection:

A. Handling:

1. Place pipe along project site where storm water or other water will not enter or pass through pipe. Pipe ends shall remain sealed until pipe is ready to be installed. Contractor shall follow preventative and corrective measures during construction as stated in C-651 Sec. 4.3.

2. Load, transport, unload, and otherwise handle pipe and fittings to prevent damage of any kind. Handle and transport pipe with equipment designed, constructed and arranged to prevent damage to pipe, lining and coating. Do not permit bare chains, hooks, metal bars, or narrow skids or cradles to come in contact with coatings. Where required, provide pipe fittings with sufficient interior strutting or cross bracing to prevent deflection under their own weight.

3. Hoist pipe from trench side into trench by means of sling of smooth steel cable, canvas, leather, nylon or similar material.

4. For large diameter water lines, handle pipe only by means of sling of canvas, leather, nylon, or similar material. Sling shall be minimum 36 inches in width. Do not tear or wrinkle tape layers.

5. Use precautions to prevent injury to pipe, protective linings and coatings.

a. Package stacked pipe on timbers. Place protective pads under banding straps at time of packaging.

b. Pad for trucks with carpet or other suitable material. Use nylon straps around pipe for lift when relocating pipe with crane or backhoe.

c. Do not lift pipe using hooks at each end of pipe.

d. Do not place debris, tools, clothing, or other materials on pipe.

6. Repair damage to pipe or protective lining and coating before final acceptance.

7. Reject pipe with visible cracks (not meeting exceptions) and remove from project site.

B. Cleaning: Thoroughly clean and dry interior of pipe and fittings of foreign matter before installation, and keep interior clean until Work has been accepted. Keep joint contact surfaces clean until jointing is completed. Do not place debris, tools, clothing or other materials in pipe. Each joint of pipe 14" and larger shall be broom swept to remove all debris as the pipe is laid. After pipe laying and joining operations are completed, clean inside of pipe and remove debris. All pipe 14" and larger shall be broom swept to remove

all debris as the pipe is laid.

C. Inspection: Before installation, inspect each pipe and fitting for defects. Reject defective, damaged or unsound pipe and fittings and remove them from site.

3.3 Earthwork:

A. Conform to applicable provisions of Section 02225 – Excavation, Backfilling, and Compacting for Utilities.

B. Bedding: Use bedding materials in conformance with Section 02225 – Excavation, Backfilling, and Compacting for Utilities.

C. Backfill: Use bank run sand or earth or native soil as specified in Section 02225 – Excavation, Backfilling, and Compacting for Utilities. Backfill excavated areas in same day excavated. When not possible, cover excavated areas using steel plates on paved areas and other protective measures elsewhere.

D. Place material in uniform layers of prescribed maximum loose thickness and wet or dry material to approximately optimum moisture content. Compact to prescribed density Water tamping is not allowed.

E. Pipe Embedment: Including 6-inch pipe bedding and backfill to 6 inches above top of pipe.

3.4 Pipe Cutting:

A. Cut pipe 12 inches and smaller with standard wheel pipe cutters. Cut pipe larger than 12 inches in manner approved by Engineer. Make cuts smooth and at right angles to axis of pipe. Bevel plain end with heavy file or grinder to remove sharp edges.

3.5 Piping Installation:

A. General Requirements:

1. Lay pipe in subgrade free of water.

2. Make adjustments of pipe to line and grade by scraping away subgrade or filling in with granular material.

3. Properly form bedding to fully support bell without wedging or blocking up bell.

4. Open Cut Construction: Keep pipe trenches free of water which might impair pipe laying operations. Grade pipe to provide uniform support along bottom of pipe.

5. Excavate for bell holes after bottom has been graded and in advance of placing pipe. Lay not more than nominal city block length or not more than 300 feet of pipe in trench ahead of backfilling operations. Cover or backfill laid pipe if pipe laying operations are interrupted and during non-working hours. Place backfill carefully and simultaneously on each side of pipe to avoid lateral displacement of pipe and damage to joints. If adjustment of pipe is required after it has been laid, remove and re-lay as new pipe.

B. Install pipe continuously and uninterrupted along each street on which work is to be performed. Obtain approval of Engineer prior to skipping any portion of Work.

C. Protection of Pipeline: Securely place stoppers or bulkheads in openings and in end of line when construction is stopped temporarily and at end of each day's work.

D. Critical Location Investigation:

1. Horizontal and vertical location of various underground lines shown on Drawings, including but not limited to water lines, gas lines, storm sewers, sanitary sewers, telecommunication lines, electric lines or power ducts, pipelines, concrete and debris, are based on best information available but are only approximate locations. At Critical Locations shown on Drawings, field verify horizontal and vertical locations of such lines within zone 2 feet vertically and 4 feet horizontally of proposed work.

   a. Verify location of existing utilities minimum of 7 working days in advance of pipe laying activities based on daily pipe laying rate. Use extreme caution and care when uncovering these lines.

   b. Notify Engineer in writing immediately upon identification of obstruction. In event of failure to identify obstruction in minimum of 7 days, Contractor will not be entitled to extra cost for downtime including, but not limited to, payroll, equipment, overhead, demobilization and remobilization, until 7 days has passed from time Engineer is notified of obstruction.

2. Notify involved utility companies of date and time that investigation excavation will occur and request that their respective utility lines be marked in field. Comply with utility or pipeline company requirements that their representative be present during excavation. Provide Engineer with 48 hours notice prior to field excavation or related work.

3. Survey vertical and horizontal locations of obstructions relative to project baseline and datum and plot on 11 inch by 17 inch copy of Drawings. For large diameter water lines, submit to Engineer for approval, horizontal and vertical alignment dimensions for

connections to existing lines, tied into project baseline, signed and sealed by R.P.L.S.

E. Laying Large Diameter (12" or greater) Water Line:

1. Lay not more than 50 feet of pipe in trench ahead of backfilling operations.

2. Dig trench proper width as shown. When trench width below top of pipe becomes 4 feet wider than specified, install higher class of pipe or improved bedding, as determined by Engineer. No additional payment will be made for higher class of pipe or improved bedding.

3. Use adequate surveying methods and equipment; employ personnel competent in use of this equipment. Horizontal and vertical deviations from alignment as indicated on Drawings shall not exceed 0.10 feet. Measure and record "as-built" horizontal alignment and vertical grade at maximum of every 100 feet on record drawings.

4. Prevent damage to coating when placing backfill. Use backfill material free of large rocks or stones, or other material which could damage coatings.

5. Before assembling couplings, lightly coat pipe ends and outside of gaskets with cup grease or liquid vegetable soap to facilitate installation.

6. Prior to proceeding with critical tie-ins submit sequence of work based on findings from "critical location" effort.

F. For tie-ins to existing water lines, provide necessary material on hand to facilitate connection prior to shutting down existing water line. Provide City a minimum of two weeks notice prior to shutting down existing water line.

3.6 Joints and Jointing:

A. Rubber Gasketed Bell-and-Spigot Joints for PVC pipe.

1. After rubber gasket is placed in spigot groove of pipe, equalize rubber gasket cross section by inserting tool or bar recommended by manufacturer under rubber gasket and moving it around periphery of pipe spigot.

2. Lubricate gaskets with nontoxic water-soluble lubricant before pipe units are joined.

3. Fit pipe units together in manner to avoid twisting or otherwise displacing or damaging rubber gasket.

4. After pipe sections are joined, check gaskets to ensure that no displacement of gasket has occurred. If displacement has occurred, remove pipe section and remake joint as for new pipe. Remove old

gasket, inspect for damage and replace if necessary before remaking joint.

5. Where preventing movement of 16-inch diameter or greater pipe is necessary due to thrust, use restrained joints as shown on Drawings.

   a. Include buoyancy conditions for soil unit weight when computing thrust restraint calculations.
   b. Do not include passive resistance of soil in thrust restraint calculations.

B. Flanged Joints where required on Ductile Iron Pipe.

1. AWWA C 207. Prior to installation of bolts, accurately center and align flanged joints to prevent mechanical prestressing of flanges, pipe and equipment. Align bolt holes to straddle vertical, horizontal or north-south center line. Do not exceed 3/64 inch per foot inclination of flange face from true alignment.

2. Use full-face gaskets for flanged joints. Provide 1/8-inch-thick cloth inserted rubber gasket material. Cut gaskets at factory to proper dimensions.

3. Use stainless steel (304) nuts and bolts to match flange material. Use stainless steel nuts and bolts (304) underground. Tighten bolts progressively to prevent unbalanced stress. Maintain at all times approximately same distance between two flanges at points around flanges. Tighten bolts alternately (180° apart) until all are evenly tight. Draw bolts tight to ensure proper seating of gaskets. Provide Densco petroleum based tape or approved equal for all exposed portions of nuts, bolts and pipe.

4. Full length bolt isolating sleeves and washers shall be used with flanged connections. Furnish kits in accordance with City's "Approved Products List."

C. Restrained Joints:

1. Thrust restraint lengths shown on Drawings are minimum anticipated lengths. These lengths are based on deflections indicated and on use of PVC pipe. Adjustments in deflections or use of other pipe material may result in reduction or increase of thrust lengths. Perform calculations by pipe manufacturer to verify proposed thrust restraint lengths. Submit calculations for all pipe materials sealed by a registered Professional Engineer in State of Texas for review by Engineer. Make adjustments in thrust restraint lengths at no additional cost to City.

2. Passive resistance of soil will not be permitted in calculation of thrust restraint.

3. Installation.

a. Install restrained joints mechanism in accordance with manufacturer's recommendations.

b. Examine and clean mechanism; remove dirt, debris and other foreign material.

c. Apply gasket and joint NSF 61 FDA food grade approved lubricant.

d. Verify gasket is evenly seated.

e. Do not over stab pipe into mechanism.

4. Prevent any lateral movement of thrust restraints throughout pressure testing and operation.

D. Large Diameter Water Main Joint Testing: In addition to testing individual joints with feeler gauge approximately 1/2 inch wide and 0.015-inch thick, use other joint testing procedure approved or recommended by pipe manufacturer which will help ensure watertight installation prior to backfilling. Perform tests at no additional cost to City.

E. Make curves and bends by deflecting joints or other method as recommended by manufacturer and approved by Engineer. Submit details of other methods of providing curves and bends which exceed manufacturer's recommended deflection prior to installation.

1. Deflection of pipe joints shall not exceed maximum deflection recommended by pipe manufacturer, unless otherwise indicated on Drawings.

2. If deflection exceeds that specified but is less than 5 percent, repair entire deflected pipe section such that maximum deflection allowed is not exceeded.

3. If deflection is equal to or exceeds 5 percent from that specified, remove entire portion of deflected pipe section and install new pipe.

4. Replace, repair, or reapply coatings and linings as required.

5. Assessment of deflection may be measured by Engineer at location along pipe. Arithmetical averages of deflection or similar average measurement methods will not be deemed as meeting intent of standard.

6. When rubber gasketed pipe is laid on curve, join pipe in straight alignment and then deflect to curved alignment.

3.7 Securing, Supporting and Anchoring:

A. Support piping as shown on Drawings and as specified in this Section, to maintain line and grade and prevent transfer of stress to adjacent structures.

B. Use adequate temporary blocking of fittings when making connections to distribution system and during hydrostatic tests. Use sufficient anchorage and blocking to resist stresses and forces encountered while tapping existing water line.

3.8 Polyethylene Wrap for Ductile Iron Pipe:

A. Wrap pipe and appurtenances (except fire hydrants and fusion bond or polyurethane coated fittings) with 8-mil polyethylene film.

B. Do not use polyethylene wrap if pipe is cathodically protected.

C. Conform to requirements of AWWA C105.

3.9 Cleanup and Restoration:

A. Provide cleanup and restoration crews to work closely behind pipe laying crews, and where necessary, during disinfection and hydrostatic testing, service transfers, abandonment of old water lines, backfill and surface restoration.

B. For small diameter water lines do not exceed a total of 50% of total project linear feet of disturbed right-of-way and easement until site is restored.

1. Exceeding any of the above footage limitations shall be considered a material breach of the Contract and subject to termination in accordance with the General Conditions.

C. For large diameter water lines, do not install more than 2,000 linear feet of water line, without previous 2,000 linear feet being restored. Failure to comply with this requirement shall be considered a material breach of the Contract and subject to termination in accordance with the General Conditions.

3.10 Cleaning Piping Systems:

A. Remove construction debris or foreign material and thoroughly broom clean and flush piping systems. Provide temporary connections, equipment and labor for cleaning. City must inspect water line for cleanliness prior to filling.

3.11 Disinfection of Water Lines:

A. Conform to requirements of Section 02675 – Water System Disinfection.

3.12 Field Hydrostatic Tests:

A. Conform to requirements of Section 02670 - Hydrostatic Testing of Pipelines.

END OF SECTION

SECTION 02675

WATER SYSTEM DISINFECTION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Disinfection of potable water distribution (and transmission) system.

B. Disinfection of all potable water piping inside of building.

C. Disinfection of water treatment structures and reservoirs.

D. Testing and reporting results.

1.2 REFERENCES:

A. AWWA B300 - Standard for Hypochlorite's.

B. AWWA B301 - Standard for Liquid Chlorine.

C. AWWA C651 - Standard for Disinfecting Water Mains.

D. AWWA C652 - Disinfection of Water Storage Facilities.

E. 30 TAC 290.38 through 290.49 - Rules and Regulations for Public Water Systems, *Texas Administrative Code*.

1.3 SUBMITTALS FOR INFORMATION:

A. Section 01300 - Submittals: Procedures for Submittals.

B. Test Reports: Indicate results comparative to specified requirements.

C. Certificate: Certify that cleanliness of water distribution system meets or exceeds specified requirements.

1.4 PROJECT RECORD DOCUMENTS:

A. Submit under provisions of Section 01700.

B. Disinfection Report:

1. Type and form of disinfectant used.

2. Date and time of disinfectant injection start and time of completion.

3. Test locations.

4. Initial and 24-hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.

5. Date and time of flushing start and completion.

6. Disinfectant residual after flushing in ppm for each outlet tested.

C. Bacteriological Report:

1. Date issued, project name and testing laboratory name, address and telephone number.

2. Time and date of water sample collection.

3. Name of person collecting samples.

4. Test locations.

5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.

6. Coliform bacteria test results for each outlet tested.

7. Certification that water conforms, or fails to conform, to bacterial standards of AWWA C651, C652 and 30 TAC 290.38 through 290.46.

1.5 QUALITY ASSURANCE:

A. Perform work in accordance with AWWA C651 and C652.

B. Testing Firm: Approved laboratory by the Texas Department of Health, Bureau of Laboratories.

C. The Contractor may use the:

City of Midland Water Lab
3303 W. Illinois
Space 22
Midland, TX 79703

Phone: 432-681-7618

Water is analyzed in this laboratory at the following times:
Monday – Thursday
8:00 AM – 12:00 PM and 1:00 PM – 3:00 PM

D. Submit bacteriologist's signature and authority associated with testing.

E. Bacteriologist tests shall indicate negative. If other than negative disinfection, shall be repeated at contractor's expense.

1.6 REGULATORY REQUIREMENTS:

A. Conform to AWWA C651 and C652 and 30 TAC 290.38 through 290.46 for performing the work of this section.

PART 2 PRODUCTS

2.1 DISINFECTION:

A. Chemicals: AWWA B300, Hypochlorite and AWWA B301, Liquid Chlorine.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Verify that piping system and structures have been cleaned, inspected and pressure tested.

B. Perform scheduling and disinfecting activity with start-up, testing, adjusting and balancing, demonstration procedures, including coordination with related systems.

3.2 EXECUTION:

A. Provide and attach equipment required to perform the work of this section.

B. Inject disinfectant into piping system, tank, or structure while filling. Disinfection agent may be introduced with permanent chlorination equipment when possible, or other means of application. Application of chlorine gas under pressure directly to the water is not permitted.

C. Maintain disinfectant in system for 24 hours.

D. Flush, circulate and clean until required cleanliness is achieved; use municipal domestic water.

E. Replace permanent system devices removed for disinfection.

3.3 FIELD QUALITY CONTROL:

A. Section 01400 - Quality Assurance: Field Inspection and Testing.

B. Analyze samples in accordance with AWWA C651 and C652 and 30 TAC 290.44.

C. New water mains shall be thoroughly disinfected, then flushed and sampled on 2 consecutive days in accordance with AWWA C651. Section 5.1.1 before being placed into service.

D. Samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure, which shall be repeated if contamination persists. A minimum of one sample for each 1,000 feet of completed water line is required, or the next available sampling joint beyond 1,000 feet as designated by the Engineer.

END OF SECTION

SECTION 02685

CLEANING OF POTABLE WATER PIPES

PART 1 GENERAL

1.1 SUMMARY:

A. General:

1. Before any newly constructed potable water mains will be permitted to be placed into service in the Water Distribution System, it shall be cleaned in advance of testing an disinfection of the new water main.

B. Related Specification Sections include, but are not necessarily limited to:

1. Section 02665 – Water Systems.
2. Section 02675 – Water System Disinfection.

1.2 PRICE AND PAYMENT PROCEDURES:

A. Measurement and Payment:

1. Measurement:

a. This Item is considered subsidiary to the water main being Cleaned and Tested.

2. Payment:

a. The work performed and the materials furnished in accordance with this Item are subsidiary to cleaning and shall be subsidiary to the unit price bid per linear foot of water pipe complete in place, and no other compensation will be allowed.

1.3 REFERENCES:

A. Reference Standards:

1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date.

2. American Water Works Association/American (AWWA):

a. C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type.
b. C303, Concrete Pressure Pipe, Bar-Wrapped, Steel-Cylinder Type.
c. C651, Disinfecting Water Mains.
d. C655, Field De-Chlorination.

1.4 SUBMITTALS:

A. Submittals:

For 24-inch and larger water mains, provide the following:

1. Cleaning Plan – Prior to the start of construction, submit a water main cleaning plan detailing the methods and schedule, including:

a. A detailed description of cleaning procedures.
b. Flushing procedures.
c. Plans and hydraulic calculations to demonstrate adequate flushing velocities.
d. Control of water.
e. Disposal.

2. Disinfection Plan – prior to the start of construction submit a disinfection plan including:

a. The method mixing and introducing chlorine.
b. Flushing.
c. De-chlorination.
d. Sampling.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CLEANING:

A. General:

1. All water mains shall be cleaned by flushing prior to bacteriological testing.

B. Flushing Method:

1. Prepare the main by installing blow-offs at appropriate locations, of sufficient sizes and numbers, and with adequate flushing to achieve a minimum velocity in the main of 2.5 feet per second.

a. Minimum blow-off sizes for various main sizes are as follows:

i 4-inch through 8-inch main – ¾-inch blow-off.
ii 10-inch through 12-inch main – 1-inch blow-off.
iii 16-inch and greater main – 2-inch blow-off.

b. Flushing shall be subject to the following limitations:

i Limit the volume of water for flushing to 3 times the volume of the water main.
ii Do not unlawfully discharge chlorinated water.
iii Do not damage private property.
iv Do not create a traffic hazard.

c. Once Flushing is complete:

i Corporations stops used for flushing shall be plugged.

C. Daily main cleaning:

1. Wipe joints and then inspect for proper installation.

2. Sweep each joint and keep clean during construction.

3. Install a temporary plug on all exposed mains at the end of each working day or an extended period of work stoppage.

END OF SECTION

SECTION 02750

FUSIBLE POLYVINYLCHLORIDE PIPE

PART 1 GENERAL

1.1 DESCRIPTION:

A. SCOPE:

1. This section specifies fusible polyvinylchloride pipe and appurtenances for water transmission systems, including standards for dimensionality, testing, quality, acceptable fusion practice, safe handling and storage.

B. PIPE DESCRIPTION:

1. Pipe supplier shall furnish fusible polyvinylchloride pipe conforming to all standards and procedures, and meeting all testing and material properties as described in this specification.

2. Pipe shall conform to the following dimensionality and general characteristics table:

Pipe Description	Nominal Diameter (in.)	DR	Color	Pressure Class (psi)	Required Inside Diameter (min in.)
AWWA C-900	30	21	Blue	200	28.00
AWWA C-900	24	21	Blue	200	22.00

1.2 QUALITY ASSURANCE:

A. REFERENCES:

1. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those other standards are included as references under this section as if referenced directly. In the event of a conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

2. Unless otherwise specified, references to documents shall mean the documents in effect at the time of design, bid, or construction, whichever is earliest. If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.

3. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Referenced	Title
ANSI/AWWA C110/A21.10	American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, for Water and Other Liquids.
ANSI/AWWA C111/A21.11	American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
ANSI/AWWA C153/A21.53	AWWA Standard for Ductile-Iron Compact Fittings for Water Service
AWWA C605	Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
AWWA C651	Standard for Disinfecting Water Mains
AWWA C900	Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. through 12 in. (100mm Through 300mm), for Water Distribution
AWWA C905	Standard for Polyvinyl Chloride (PVC Pressure Pipe and Fabricated Fittings, 14 in. through 48 in. (350mm Through 1200mm), for Water Distribution and Transmission
AWWA M23	AWWA Manual of Supply Practices PVC Pipe—Design and Installation, Second Edition
ASTM C923	Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
ASTM D1784	Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
ASTM D1785	Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D2152	Test Method for Degree of Fusion of Extruded Poly(Vinyl Chloride) (PVC) Pipe and Molded Fittings by Acetone Immersion
ASTM D2241	Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR)
ASTM D2665	Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings
ASTM D3034	Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM F477	Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F679	Standard Specification for Poly(Vinyl Chloride) (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings
ASTM F1057	Standard Practice for Estimating the Quality of Extruded Poly (Vinyl Chloride) (PVC) Pipe by the Heat Reversion Technique
ASTM F1417	Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air
UNI-B-6	Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe
UNI-PUB-08	Tapping Guide for PVC Pressure Pipe
NSF-14	Plastics Piping System Components and Related Materials
NSF-61	Drinking Water System Components--Health Effects
PPI TR-2	PVC Range Composition Listing of Qualified Ingredients

B. MANUFACTURER REQUIREMENTS:

1. All piping shall be made from PVC compound conforming to cell classification 12454 per ASTM D1784.

C. FUSION TECHNICIAN REQUIREMENTS:

1. Fusion Technician shall be fully qualified by the pipe supplier to install fusible polyvinylchloride pipe of the type(s) and size(s) being used. Qualification shall be current as of the actual date of fusion performance on the project.

D. SPECIFIED PIPE SUPPLIERS:

1. Fusible polyvinylchloride pipe shall be used as manufactured under the trade names Fusible C-900®, Fusible C-905®, and FPVC®, for Underground Solutions, Inc., Poway, CA, (858) 679-9551. Fusion process shall be as patented by Underground Solutions, Inc., Poway, CA, Patent No. 6,982,051. Owner and engineer are aware of no other supplier of fusible polyvinylchloride pipe that is an equal to this specified pipe supplier and products.

E. WARRANTY:

1. The pipe shall be warranted for one year from Substantial Completion per the pipe supplier's standard terms.

2. In addition to the standard pipe warranty, the fusion services shall be warranted for one year from Substantial Completion per the fusion service provider's standard terms.

F. PRE-CONSTRUCTION SUBMITTALS:

1. The following PRODUCT DATA is required from the pipe supplier and/or fusion provider:

a. Pipe Size;
b. Dimensionality;
c. Pressure Class per applicable standard;
d. Color;
e. Recommended Minimum Bending Radius;
f. Recommended Maximum Safe Pull Force;
g. Fusion technician qualification indicating conformance with this specification.

G. POST-CONSTRUCTION SUBMITTALS:

1. The following AS-RECORDED DATA is required from the contractor and/or fusion provider to the owner or pipe supplier upon request:

a. Approved datalogger device reports.

b. Fusion joint documentation containing the following information:

i. Pipe Size and Thickness;
ii. Machine Size;
iii. Fusion Technician Identification;
iv. Job Identification;
v. Fusion Joint Number;
vi. Fusion, Heating, and Drag Pressure Settings;
vii. Heat Plate Temperature;
viii. Time Stamp;
ix. Heating and Cool Down Time of Fusion;
x. Ambient Temperature.

PART 2 PRODUCTS

2.1 FUSIBLE POLYVINYLCHLORIDE PRESSURE PIPE FOR POTABLE WATER:

A. Fusible polyvinylchloride pipe shall conform to AWWA C900, AWWA C905, ASTM D2241 or ASTM D1785 for standard dimensions, as applicable. Testing shall be in accordance with the referenced AWWA standards for all pipe types.

B. Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.

C. Fusible polyvinylchloride pipe shall be manufactured in a standard 40' nominal length, or custom lengths as specified.

D. Fusible polyvinylchloride pipe shall be blue in color for potable water use.

E. Pipe shall be marked as follows:

1. Nominal pipe size;
2. PVC;
3. Dimension Ratio, Standard Dimension Ratio, or Schedule;
4. AWWA pressure class, or standard pressure rating for non-AWWA pipe, as applicable;
5. AWWA standard designation number, or pipe type for non-AWWA pipe, as applicable;
6. NSF-61 mark verifying suitability for potable water service;
7. Extrusion production-record code;
8. Trademark or trade name;
9. Cell Classification 12454 and/or PVC material code 1120 may also be included.

F. Pipe shall be homogeneous throughout and be free of visible cracks, holes, foreign material, blisters, or other visible deleterious faults.

2.2 FUSION JOINTS:

A. Unless otherwise specified, fusible polyvinylchloride pipe lengths shall be assembled in the field with butt-fused joints. The Contractor shall follow the pipe supplier's written guidelines explicitly for this procedure. All fusion joints shall be completed as described in this specification.

2.3 CONNECTIONS AND FITTINGS FOR PRESSURE APPLICATIONS:

A. Connections shall be defined in conjunction with the coupling of project piping, as well as the tie-ins to other piping systems.

B. DUCTILE IRON MECHANICAL AND FLANGED FITTINGS:

1. Acceptable fittings for use with fusible polyvinylchloride pipe shall include standard ductile iron fittings conforming to AWWA/ANSI C110/A21.10, or AWWA/ANSI C153/A21.53 and AWWA/ANSI C111/A21.11.

2. Connections to fusible polyvinylchloride pipe may be made using a restrained retainer gland product for PVC pipe, as well as for MJ or flanged fittings.

3. Bends, tees and other ductile iron fittings shall be restrained with the use of mechanical joint restraint.

4. Ductile iron fittings and glands must be installed per the manufacturer's written instructions.

5. Interior linings for Ductile Iron fittings shall meet the following requirements for potable water service and be NSF-61 certified:

a. Liquid Epoxy shall be 100% solids liquid epoxy, Tnemec Epoxyline Series FC22.
b. Polyurethane shall be DuraShield 210-61 or 310-61.

6. Exterior coatings for Ductile Iron fittings shall meet the following requirements for buried service duty:

a. Polyurethane shall be DuraShield 210 or 310.
b. Liquid Epoxy shall be 100% solids liquid epoxy, Tnemec Epoxyline Series FC22.
c. Coal tar epoxy shall be Sherwin Williams Targuard.

C. FUSIBLE POLYVINYL CHLORIDE SWEEPS OR BENDS:

1. Fusible polyvinyl chloride sweeps or bends shall conform to the same sizing convention, diameter, dimensional tolerances and pressure class of the pipe being joined using the sweep or bend.

2. Fusible polyvinyl chloride sweeps or bends shall be manufactured from the same fusible polyvinyl chloride pipe being used for the

installation, and shall have at least 2 feet of straight section on either end of the sweep or bend to allow for fusion of the sweep to the pipe installation. There shall be no gasketed connections utilized with a fusible polyvinyl chloride sweep.

3. Standard fusible polyvinyl chloride sweep or bend angles shall not be greater than 22.5 degrees, and shall be used in nominal diameters ranging from 4 inch through 16 inch.

D. SLEEVE-TYPE COUPLINGS:

1. Sleeve-type mechanical couplings shall be manufactured for use with PVC pressure pipe, and shall be restrained as indicated in the construction documents.

2. Sleeve-type couplings shall be rated at the same or greater pressure carrying capacity as the pipe itself.

3. Sleeve-couplings, if used, must be installed per the manufacturer's written instructions.

E. EXPANSION AND FLEXIBLE COUPLINGS:

1. Expansion-type mechanical couplings shall be manufactured for use with PVC pipe, and may be restrained or unrestrained as indicated in the construction documents.

2. Expansion-type mechanical couplings shall be rated at the same or greater pressure carrying capacity as the pipe itself.

3. Expansion or flexible couplings, if used, must be installed per the manufacturer's written instructions.

F. CONNECTION HARDWARE:

1. Bolts and nuts for buried service shall be made of non-corrosive, high-strength, low-alloy steel having the characteristics specified in ANSI/AWWA C111/A21.11, regardless of any other protective coating.

PART 3 EXECUTION

3.1 DELIVERY AND OFF-LOADING:

A. All pipe shall be bundled or packaged in such a manner as to provide adequate protection of the ends during transportation to the site. Pipe ends shall be covered during transport. Any pipe damaged in shipment shall be replaced as directed by the Owner or Engineer.

B. Each pipe shipment should be inspected prior to unloading to see if the load has shifted or otherwise been damaged. Notify Owner or Engineer immediately if more than immaterial damage is found. Each pipe shipment

should be checked for quantity and proper pipe size, color, and type.

C. Pipe should be loaded, off-loaded, and otherwise handled in accordance with AWWA M23, and all of the pipe supplier's guidelines shall be followed.

D. Off-loading devices such as chains, wire rope, chokers, or other pipe handling implements that may scratch, nick, cut, or gouge the pipe are strictly prohibited.

E. During removal and handling, be sure that the pipe does not strike anything. Significant impact could cause damage, particularly during cold weather.

F. If appropriate unloading equipment is not available, pipe may be unloaded by removing individual pieces. Care should be taken to insure that pipe is not dropped or damaged. Pipe should be carefully lowered, not dropped, from trucks.

3.2 HANDLING AND STORAGE:

A. Any length of pipe showing a crack or which has received a blow that may have caused an incident fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work. Damaged areas, or possible areas of damage may be removed by cutting out and removing the suspected incident fracture area. Limits of the acceptable length of pipe shall be determined by the Owner or Engineer.

B. Any scratch or gouge greater than 10% of the wall thickness will be considered significant and can be rejected unless determined acceptable by the Owner or Engineer.

C. Pipe lengths should be stored and placed on level ground. Pipe should be stored at the job site in the unit packaging provided by the manufacturer. Caution should be exercised to avoid compression, damage, or deformation to the ends of the pipe. The interior of the pipe, as well as all end surfaces, should be kept free from dirt and foreign matter.

D. Pipe shall be handled and supported with the use of woven fiber pipe slings or approved equal. Care shall be exercised when handling the pipe to not cut, gouge, scratch or otherwise abrade the piping in any way.

E. If pipe is to be stored for periods of 1 year or longer, the pipe should be shaded or otherwise shielded from direct sunlight. Covering of the pipe which allows for temperature build-up is strictly prohibited. Pipe should be covered with an opaque material while permitting adequate air circulation above and around the pipe as required to prevent excess heat accumulation.

F. Pipe shall be stored and stacked per the pipe supplier's guidelines.

3.3 FUSION PROCESS:

A. GENERAL:

1. Fusible polyvinylchloride pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier's guidelines.

2. Fusible polyvinylchloride pipe will be fused by qualified fusion technicians, as documented by the pipe supplier.

3. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine.

4. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process. Fusion machines must incorporate the following elements:

    a. HEAT PLATE - Heat plates shall be in good condition with no deep gouges or scratches. Plates shall be clean and free of any debris or contamination. Heater controls shall function properly; cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused, per the pipe supplier's guidelines.

    b. CARRIAGE – Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Insert pins shall be installed with no interference to carriage travel.

    c. GENERAL MACHINE - Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.

    d. DATA LOGGING DEVICE – An approved datalogging device with the current version of the pipe supplier's recommended and compatible software shall be used. Datalogging device operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.

5. Other equipment specifically required for the fusion process shall include the following:

    a. Pipe rollers shall be used for support of pipe to either side of the machine.

    b. A weather protection canopy that allows full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in inclement, extreme temperatures, and /or windy weather, per the pipe supplier's recommendations.

    c. An infrared (IR) pyrometer for checking pipe and heat plate temperatures.

d. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.

e. Facing blades specifically designed for cutting fusible polyvinylchloride pipe shall be used.

B. JOINT RECORDING:

1. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine. The fusion data logging and joint report shall be generated by software developed specifically for the butt-fusion of fusible polyvinyl chloride pipe. The software shall register and/or record the parameters required by the pipe supplier and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report.

3.4 GENERAL INSTALLATION:

A. Installation guidelines from the pipe supplier shall be followed for all installations.

B. The fusible polyvinylchloride pipe will be installed in a manner so as not to exceed the recommended bending radius.

C. Where fusible polyvinylchloride pipe is installed by pulling in tension, the recommended Safe Pulling Force established by the pipe supplier shall not be exceeded.

D. Installation shall be in accordance with Section 02665.

3.5 Horizontal Directional Drilling (HDD):

A. FPVC pipe to be installed by HDD shall follow applicable ASTM procedures.

B. The pipe supplier shall verify the pipe size, allowable tensile load, and DR selection for each HDD on the project to determine that it meets the minimum safety factors required per ASTM guidelines.

C. The use of rollers and pipe ballast may be required to facilitate pipe installation into the bore hole. Use of drilling mud and friction reducing methods to ensure that the maximum tensile loads are not exceeded during installation shall be the responsibility of the Contractor.

3.6 PREPARATION PRIOR TO MAKING CONNECTIONS INTO EXISTING PIPING SYSTEMS:

A. Approximate locations for existing piping systems are shown in the construction documents. Prior to making connections into existing piping systems, the contractor shall:

1. Field verify location, size, piping material, and piping system of the existing pipe.

2. Obtain all required fittings, which may include saddles, sleeve type couplings, flanges, tees, or others as shown in the construction documents.

3. Have installed all temporary pumps and/or pipes in accordance with established connection plans.

B. Unless otherwise approved, new piping systems shall be completely assembled and successfully tested prior to making connections into existing pipe systems.

3.7 PIPE SYSTEM CONNECTIONS:

A. Pipe connections shall be installed per applicable standards and regulations, as well as per the connection manufacturer's guidelines and as indicated in the construction documents. Pipe connections to structures shall be installed per applicable standards and regulations, as well as per the connection manufacturer's guidelines.

3.8 TAPPING FOR POTABLE AND NON-POTABLE WATER APPLICATIONS:

A. Tapping shall be performed using standard tapping saddles designed for use on PVC piping in accordance with AWWA C605. Tapping shall be performed only with use of tap saddles or sleeves. NO DIRECT TAPPING WILL BE PERMITTED. Tapping shall be performed in accordance with the applicable sections for Saddle Tapping per Uni-Pub-8.

B. All connections requiring a larger diameter than that recommended by the pipe supplier, shall be made with a pipe connection as specified and indicated on the Drawings.

C. Equipment used for tapping shall be made specifically for tapping PVC pipe:

1. Tapping bits shall be slotted "shell" style cutters, specifically made for PVC pipe. 'Hole saws' made for cutting wood, steel, ductile iron, or other materials are strictly prohibited.

2. Manually operated or power operated drilling machines may be used.

D. Taps may be performed while the pipeline is filled with water and under pressure ('wet' tap), or when the pipeline is not filled with water and not under pressure ('dry' tap).

3.9 TESTING:

A. Testing shall comply with all applicable jurisdictional building codes, statutes, standards, regulations, and laws. Installed pipeline shall be flushed clear of debris prior to initiation of hydrostatic testing.

B. HYDROSTATIC TESTING FOR PRESSURE PIPING:

1. Hydrostatic testing for piping systems that contain mechanical jointing as well as fused PVC jointing shall comply with AWWA C605.

2. Unless agreed to or otherwise designated by the Owner or Engineer, hydrostatic testing following installation shall use a pressure equal to 150% of working pressure at point of test, but not less than 125% of normal working pressure at highest elevation shall be applied. The duration of the pressure test shall be for two (2) hours.

3. In preparation for pressure testing the following parameters must be followed:

   a. All air must be vented from the pipeline prior to pressurization. This may be accomplished with the use of the air relief valves or corporation stop valves, vent piping in the testing hardware or end caps, or any other method which adequately allows air to escape the pipeline at all high points. Venting may also be accomplished by 'flushing' the pipeline in accordance with the parameters and procedures as described in AWWA C605.

   b. The pipeline must be fully restrained prior to pressurization. This includes complete installation of all mechanical restraints per the restraint manufacturer's guidelines, whether permanent or temporary to the final installation. This also includes the installation and curing of any and all required thrust blocking. All appurtenances included in the pressure test, including valves, blow-offs, and air-relief valves shall be checked for proper installation and restraint prior to beginning the test.

   c. Temporary pipeline alignments that are being tested, such as those that are partially installed in their permanent location shall be configured to minimize the amount of potentially trapped air in the pipeline.

C. PARTIAL TESTING:

1. Segments of the pipe may be tested separately in accordance with standard testing procedure and Section 02665, as approved by the Engineer.

END OF SECTION

SECTION 02911

TOPSOILING AND FINISHED GRADING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Topsoiling and finished grading.

1.2 SUBMITTALS:

A. Shop Drawings:

1. See Section 01300 for requirements for the mechanics and administration of the submittal process.

2. Project Data: Test reports for furnished topsoil.

1.3 PROJECT CONDITIONS:

A. Location of Work: All areas within limits of grading designated on the Drawings and all areas outside limits of grading which are disturbed in the course of the work.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Topsoil:

1. Original surface soil typical of the area.

2. Existing topsoil stockpiled under Section 02110 – Site Clearing and Grubbing.

3. Capable of supporting native plant growth.

2.2 TOLERANCE:

A. Finish Grading Tolerance: 0.1 FT plus/minus from required elevations.

PART 3 EXECUTION

3.1 PREPARATION:

A. Correct, adjust and/or repair rough graded areas.

1. Cut off mounds and ridges.

2. Fill gullies and depressions.

3. Perform other necessary repairs.

4. Bring all sub-grades to specified contours, even and properly compacted.

B. Loosen surface to depth of 2 inches, minimum.

C. Remove all stones and debris over 2 inches in any dimension.

3.2 ROUGH GRADE REVIEW:

A. Reviewed by Engineer in Section 02110, Site Clearing & Grubbing.

3.3 PLACING TOPSOIL:

A. Do not place when subgrade is wet or frozen enough to cause clodding.

B. Spread to compacted depth of 4 inches for all areas designated to receive hydro mulch seeding.

C. Provide finished surface free of stones, sticks, or other material 1 inch or more in any dimension.

D. Provide finished surface smooth and true to required grades.

E. Restore stockpile area to condition of rest of finished work.

F. Placing topsoil is incidental to hydro mulch seeding, Section 02921.

3.4 ACCEPTANCE:

A. Upon completion of topsoiling, obtain Engineer's acceptance of grade and surface.

B. Make test holes where directed to verify proper placement and thickness of topsoil.

END OF SECTION

SECTION 02921

HYDRO MULCH SEEDING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Seeding, fertilizing, mulching, and maintenance of areas indicated on Drawings.

1.2 SUBMITTALS:

A. Conform to requirements of Section 01300.

B. Submit certification from supplier that each type of seed conforms to these specifications and requirements of Texas Seed Law. Certification shall accompany seed delivery.

C. Submit certificate stating that fertilizer complies with these specifications and requirements of Texas Fertilizer Law.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Topsoil: Conform to material requirements of Section 02911 – Topsoil and Finished Grading.

B. Seed: Conform to U.S. Department of Agriculture rules and regulations of Federal Seed Act and Texas Seed Law. Seed shall be certified 90 percent pure and furnish 80 percent germination and meet following requirements:

1. Rye: Fresh, clean, Italian rye grass seed (lollium multi-florum), mixed in labeled proportions. As tested, minimum percentages of impurities and germination must be labeled. Deliver in original unopened containers.

2. Bermuda: Extra-fancy, treated, lawn type common bermuda (Cynodon dactylon). Deliver in original, unopened container showing weight, analysis, name of vendor, and germination test results.

3. Wet, moldy, or otherwise damaged seed will not be accepted.

4. Seed requirements, application rates, and planting dates are:

TYPE	APPLICATION RATE POUNDS/A	PLANTING DATE
Hulled Common Bermuda Grass 98/88 Unhulled Common Bermuda Grass 98/88	40 40	Jan 1 to Mar 31
Hulled Common Bermuda Grass 98/88	40	Apr 1 to Sep 30
Hulled Common Bermuda Grass 98/88 Unhulled Common Bermuda Grass 98/88 Annual Rye Grass (Gulf)	40 40 30	Oct 1 to Dec 31

C. Fertilizer: Dry and free flowing, inorganic, water soluble commercial fertilizer, which is uniform in composition. Deliver in unopened containers which bear manufacturers guaranteed analysis. Caked, damaged, or otherwise unsuitable fertilizer will not be accepted. Fertilizer shall contain minimum percentages of following elements:

1. Nitrogen: 10 Percent
2. Phosphoric Acid: 20 Percent
3. Potash: 10 Percent

D. Mulch:

1. Virgin wood cellulose fibers from whole wood chips having minimum of 20 percent fibers 0.42 inches in length and 0.01 inches in diameter.

2. Cellulose fibers manufactured from recycled newspaper and meeting same fiber content and size as for cellulose fibers from wood chips.

3. Dye mulch green for coverage verification purposes.

E. Soil Stabilizer: "Terra Tack 1" or approved equal.

F. Weed control agent: Pre-emergent herbicide for grass areas, such as "Benefin," or approved equal.

PART 3 EXECUTION

3.1 PREPARATION:

A. Place and compact topsoil in accordance with requirements of Section 02310 – Topsoil and Finished Grading.

3.2 APPLICATION:

A. Seed: Apply uniformly at rates given in Paragraph 2.1 B for type of seed and planting date.

B. Fertilizer: Apply uniformly at rate of 500 pounds per acre.

C. Mulch: Apply uniformly at rate of 50 pounds per 1000 square feet.

D. Soil Stabilizer: Apply uniformly at rate of 40 pounds per acre.

E. Weed Control Agent: Apply at manufacturer's recommended rate prior to hydro mulching.

F. Suspend operations under conditions of drought, excessive moisture, high winds, or extreme or prolonged cold. Obtain Engineer approval before resuming operations.

G. Hydro mulch shall be applied to all disturbed areas.

3.3 MAINTENANCE:

A. Maintain grassed areas minimum of 90 days, or as required to establish an acceptable cover. For areas seeded in fall, continue maintenance following spring until acceptable cover is established.

B. Maintain grassed areas by watering, fertilizing, weeding, and trimming.

C. Repair areas damaged by erosion by regrading, rolling and replanting.

D. Reseed small, sparse grass areas. When sparse areas exceed 20 percent of planted area, reseed by hydro mulch.

E. Mow grass when height reaches 3 1/2 inches or greater on average before final acceptance. Mow to height of 2 1/2 inches.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Cast-in-place concrete consisting of Portland cement, aggregate, water, and admixtures.

B. Mix design requirements.

C. Formwork, reinforcement, joints, and placing requirements.

1.2 REFERENCES:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

A. ASTM A615--Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

B. ASTM C31--Making and Curing Concrete Test Specimens in the Field.

C. ASTM C33--Concrete Aggregates.

D. ASTM C39--Compressive Strength of Cylindrical Concrete Specimens.

E. ASTM C94--(1986; Rev. b) Ready-Mixed Concrete.

F. ASTM C143--Slump of Portland Cement Concrete.

G. ASTM C172--Sampling Freshly Mixed Concrete.

H. ASTM C173--Air Content of Freshly Mixed Concrete by the Volumetric Method.

1.3 SUBMITTALS:

A. Section 01300--Submittals: Procedures for submittals.

B. Certificates: Mill certificates for bulk cement.

C. Product Data: Manufacturer's data sheets for Engineer approved additives and bonding agents.

D. Submit test data on proposed design mixes for each type of concrete to be used in the project to verify that the Specification requirements are met or exceeded.

1.4 QUALITY ASSURANCE:

A. Project Controls: Provide necessary controls during evaluation of material, mix designs, production and delivery of concrete, placement, compaction, finishing and curing necessary to assure that Work will be accomplished in such a manner to produce the Work in accordance with Contract Documents.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Materials shall be delivered, stored, and handled in a manner to prevent deterioration, contamination, or any other circumstance that would be harmful to cast-in-place concrete.

1.6 PROJECT CONDITIONS:

A. Do not place concrete during rain, sleet, or snow unless protection is provided and approved by the Engineer.

B. Coordinate concrete placement schedule with other related work.

C. Notify Engineer at least 24 hours before placement.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Cement: ASTM C 94, Type I cement, unless approved by the Engineer. Only one brand of any one type of cement shall be used for exposed concrete surfaces of any individual structure.

B. Fine Aggregate: Aggregate meeting the requirements of ASTM C33.

C. Coarse Aggregate: Aggregate sizes No. 467 or No. 57 according to ASTM C33 or as approved by the Engineer.

D. Water: Potable water free from detrimental chemicals and solids that will decrease the strength of the concrete.

E. Embedded Items: Embedded items shall be of the size and type shown or as needed for the application.

F. Curing Materials: Curing materials shall be burlap, impervious sheets, or membrane-forming compounds.

G. Dowels: Plain carbon steel bars, minimum yield point of 40,000 psi for use in slabs on grade.

H. Expansion Joint Filler Strips: Pre-molded non-extruding, resilient bituminous or non bituminous type for use in concrete paving or construction, thickness as shown.

I. Form Materials: Wood, metal or other Engineer approved materials that will produce the specified finishes without adversely affecting the concrete surfaces.

J. Form Coating: Non-staining form oil or form-release agent that will not deleteriously affect concrete surfaces nor impair subsequent applications.

K. Form Ties: Metal, factory-fabricated removable snap-off type, that will not leave holes less than 1/4 inch nor more than 1 inch deep and not more than 1 inch in diameter.

L. Joint Sealant: As shown or approved by Engineer for sealing joints in concrete against moisture infiltration.

M. Reinforcement: Bar reinforcement shall be deformed, Grade 60 conforming to ASTM A615. Mesh reinforcement shall be welded wire fabric with wires at right angles to each other.

N. Bonding Agent: As approved by Engineer.

O. Admixtures: Air-entraining, retarders, and other admixtures as approved by Engineer.

2.2 MIX DESIGN:

A. Concrete Class: Concrete mixes shall be proportioned to obtain the following characteristics:

1. Class "A": Minimum compressive strength of 3000 psi in 28 days with a minimum of 5 bags of cement per cubic yard.

2. Class "B": Minimum compressive strength of 2500 psi in 28 days with a minimum of 4 bags of cement per cubic yard.

B. All concrete shall be Class "A", unless specified otherwise.

C. Air Content: Total air content of exterior concrete shall be maintained at 5 to 7 percent by volume of concrete.

D. Slump: Slump shall be 3 to 5 inches. If admixtures are used, slump shall be as approved by Engineer.

2.3 STORAGE:

A. Materials shall be stored so as not to deteriorate or become contaminated.

PART 3 EXECUTION

3.1 FORMWORK:

A. Formwork shall be made mortar tight, properly aligned and adequately supported to produce concrete conforming accurately to the indicated

shapes, lines, dimensions, with surfaces free of offsets, waviness, or bulges.

B. Unless otherwise shown exposed external corners shall be chamfered, beveled, or rounded by moldings placed in the forms. Chamfer shall be 1" nominal.

C. Surfaces shall be thoroughly cleaned and coated before each use.

D. Forms shall be removed at a time and in a manner that will not damage the concrete.

3.2 REINFORCEMENT:

A. Reinforcement shall be fabricated to the shapes required.

B. Reinforcement shall be interrupted 2 inches clear on each side of expansion joints.

C. Reinforcement shall be continuous through contraction and construction joints.

D. Supports fabricated of plastic, or other Engineer approved material, shall be used to support reinforcement during placing operations.

E. Dowels and tie bars shall be installed at right angles to joints, accurately aligned parallel to the finished surface, and rigidly held in place and supported during concrete placement.

F. One end of dowels shall be oiled or greased.

3.3 INSTALLATION OF ANCHORAGE ITEMS:

A. Installation of anchorage items shall be as shown or required to ensure sufficient anchorage for purpose intended.

3.4 JOINTS:

A. Contraction Joints: Joints shall be installed as specified or shown.

B. Expansion Joints: Joints shall be installed as specified or shown.

C. Construction Joints: Construction joints shall be located as shown or approved by the Engineer.

3.5 PLACING:

A. Surfaces to receive concrete shall be clean and free from frost, ice, mud, and water.

B. Concrete may be placed directly on impervious surfaces that are thoroughly moistened but not muddy.

C. During cold weather, in-place concrete shall be protected from freezing weather, throughout the curing period.

D. During hot weather, a retarder may be used if approved by the Engineer.

E. Concrete to receive other construction shall be struck to the proper level leaving a textured surface to receive the additional construction.

3.6 CONSOLIDATION OF CONCRETE:

A. Except for slabs 4 inches or less, each layer of concrete shall be consolidated with internal concrete vibrators supplemented by hand-spading, rodding, and tamping.

B. Vibrating equipment shall be adequate to thoroughly consolidate the concrete.

C. Concrete in slabs 4 inches and less shall be consolidated by compacting and screening.

3.7 FINISHING CONCRETE:

A. Formed Surfaces:

1. Fins and loose material shall be removed.

2. Unsound concrete, voids over 1/2 inch in diameter, and tie-rod and bolt holes shall be cut back to solid concrete, reamed, brush-coated with cement grout, and filled solid with a stiff Portland-cement-sand mortar mix.

3. Patchwork shall finished flush with adjoining concrete surfaces and, where exposed, shall match adjoining surfaces in texture and color.

B. Unformed Surfaces:

1. Surfaces shall be finished to a true plane with no deviation exceeding 5/16 inch when tested with a 10-foot straightedge.

2. Surfaces shall be screed and floated to the required finish level with no coarse aggregate visible before finishing as specified below.

C. Monolithic Finish:

1. Monolithic finish shall be given to flatwork unless otherwise specified.

2. After the surface moisture has disappeared, floated surfaces shall be steel-troweled to a smooth, even, dense finish, free from blemish including trowel marks.

3. Edges shall be chamfered.

3.8 CURING:

A. Curing shall start as soon as free water has disappeared from concrete surfaces after placing and finishing.

B. Curing materials shall be applied and maintained so as to protect the concrete from moisture loss for 7 days.

C. Curing shall be accomplished by impervious sheet or membrane-forming curing compound.

D. Concrete surfaces shall be thoroughly wetted before covering with impervious sheet materials.

E. Membrane-forming curing compound shall be applied with mechanical spraying equipment at a coverage rate as recommended by manufacturer.

F. Curing compound shall not be used on surfaces receiving applications depending on adhesion or bonding.

3.9 TESTING:

A. The frequency and type of tests shall be determined by the Engineer.

B. Aggregates: Aggregates shall be sampled and tested in accordance with ASTM C33.

C. Sampling of Concrete: Samples of concrete for air, slump, unit weight, and strength tests shall be taken in accordance with ASTM C172.

D. Air Content: Tests for air content shall be performed in accordance with ASTM C173.

E. Slump: Tests shall be performed in accordance with ASTM C143.

F. Cylinders: Cylinders shall be molded and cured according to ASTM C31 and tested in accordance with ASTM C39.

END OF SECTION

SECTION 03600

GROUT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Grout for leveling column base plates, steel beams bearing on masonry, machinery and other equipment and/or accessories.

1.2 REFERENCES:

A. ASTM C33 - Concrete Aggregates.

B. ASTM C109 - Compressive Strength of Hydraulic Cement Mortars.

C. ASTM C230 - Flow Table for use in Test of Hydraulic Cement.

D. CRD-C-611 - Methods of Test for Flow of Grout Mixtures (Flow-Cone Method).

E. CRD-C-621 - Specification for Non-Shrink Grout.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Product Data: Manufacturer's product data sheets.

C. Quality Control Submittals: For information only.

1. Certification: Manufacturer's certification, or certified laboratory test reports, confirming that materials meet specification requirements.

2. Installation instructions.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Deliver non-shrink grout to project site in unopened containers with manufacturer's labels intact.

B. Store non-shrink grout material in dry shelter and protect from moisture.

C. Containers that are torn or damaged such that non-shrink grout material has been exposed to elements shall be discarded.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Products of the following manufacturers are acceptable subject to meeting specification requirements:

1. Cormix Construction Chemicals (Gifford-Hill).
2. Dayton Superior Corp.
3. Euclid Chemical Co.
4. Five Star Products, Inc.
5. L&M Construction Chemicals.
6. Master Builders.
7. Symons.

B. Substitutions: Under provision of Section 01600.

2.2 NON-SHRINK GROUT:

A. Qualities: Premixed, non-metallic, non-shrink grout material manufactured under rigid quality control, especially for use in transferring heavy loads.

1. Non-metallic natural aggregate, non-staining and noncorrosive.

2. Resist attack by oil and water.

3. Minimum initial setting time of approximately one hour at 70 degrees Fahrenheit.

4. Minimum compressive strength of 8500 psi at 28 days when placed at a fluid consistency.

5. Free of gas-producing or gas-releasing agents.

6. Not greater than .04 expansion at 3, 14 and 28 days. Expansion at 28 days not less than expansion at 3 and 14 days.

B. Standards:

1. Overall Product: CRD-C-621.
2. Compressive Strength: ASTM C109, 2 inch cubes.
3. Bleed Performance: CRD-C-611.
4. Flow Factor: ASTM C230.

2.3 RELATED MATERIALS:

A. Water: Potable.

B. Pea Gravel: Clean pea gravel, ASTM C33, coarse aggregate graded so that at least 90 percent passes a 3/8 inch sieve and 90 percent is retained by a No. 4 sieve.

C. Membrane-Forming Curing Compound: As specified in Section 03300.

2.4 MIXING:

A. Mix materials in accordance with manufacturer's instructions.

B. Mix as close to area to be grouted as possible. Provide adequate means to transport mixed grout as quickly as possible, and in manner to prevent segregation.

C. No more grout shall be mixed at one time than can be placed in a period of 15 minutes. After grout has been mixed, do not re-temper by adding additional water.

D. For less than a 4-inch clearance, or where size or shape of space makes grouting difficult, grout mix shall consist of grout material and water.

E. For greater than 4-inch clearances where coarse aggregate will not obstruct free passage of grout, grout may be extended by adding clean pea gravel if allowed or recommended by the grout manufacturer. Follow manufacturer's recommendation for maximum amount of pea gravel that may be added to mixture.

F. Use minimum amount of water necessary to produce a flowable grout without causing either segregation or bleeding.

PART 3 EXECUTION

3.1 PROCEDURES:

A. Installation methods and procedures shall conform to the printed instructions of the grout manufacturer and these specifications. Where there is a conflict between these specifications and the printed instructions of the grout manufacturer, the printed instructions of the grout manufacturer shall take precedence.

3.2 PREPARATION:

A. Remove defective concrete, laitance, dirt, oil, grease and other foreign material from concrete surfaces by bush-hammering, chipping, or other similar means, until a second clean concrete surface is achieved.

B. Lightly roughen concrete, but not enough to interfere with proper placement of grout.

C. Remove foreign materials from surfaces in contact with grout.

D. Align, level and maintain final positioning of components to be grouted. Coat shim with a thin film of grease or wax to facilitate removal.

E. Provide relief holes to avoid trapping air beneath base plate.

F. Take special precautions during extreme weather conditions according to the manufacturer's written instructions.

G. Saturate concrete surfaces with clean water for period of time specified by manufacturer. Remove excess water just prior to grouting.

H. Immediately prior to grouting, clean surfaces free of contaminates.

3.3 FORMWORK:

A. Build leak proof forms that are strong and securely anchored and shored to withstand grout pressures. Build forms high enough to provide a "head" of grout where it is required to force grout into difficult locations.

B. Provide enough clearance between formwork and areas to be grouted to permit proper placement of grout.

3.4 PLACING:

A. Place grout in accordance with manufacturer's instructions.

B. Place non-shrink grouting material quickly and continuously by most practical means permissible; pouring, pumping, or under gravity pressure. Do not use either pneumatic-pressure or dry packing methods without authorization of Engineer.

C. When practical, apply grout from one side only to avoid entrapping air.

D. Final installation shall be thoroughly compacted and free from air pockets. To facilitate placement, a ½- to 1-inch chain or metal strap may be pulled back and forth under the equipment during grouting. Remove chain or strap before initial set takes place.

E. Do not vibrate place grout mixture or allow it to be placed if area is being vibrated by nearby equipment, except when approved by grout manufacturer.

F. Do not remove leveling shims for at least 48 hours after grout has been placed. After shims have been removed, fill voids with non-shrink grout.

3.5 CURING:

A. Cure grout for 3 days at a temperature of not less than 50 Fahrenheit after placing by keeping wet and covered with curing paper, by coating with a concrete membrane-forming curing compound, or by other approved methods.

END OF SECTION

SECTION 15100

VALVES: BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Valving, actuators, and valving appurtenances.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Society of Mechanical Engineers (ASME):

a. B1.20.1, Pipe Threads, General Purpose.

b. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

c. B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.

d. B16.34, Valves – Flanged, Threaded, and Welding End.

2. ASTM International (ASTM):

a. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

b. D256, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.

c. D638, Standard Test Method for Tensile Properties of Plastics.

d. D648, Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.

e. D695, Standard Test Method for Compressive Properties of Rigid Plastics.

f. D2240, Standard Test Method for Rubber Property-Durometer Hardness.

3. American Water Works Association (AWWA):

a. C207, Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 IN through 144 IN.

b. C500, Standard for Metal-Seated Gate Valves for Water Supply Service.

c. C504, Standard for Rubber-Seated Butterfly Valves.

d. C507, Standard for Ball Valves, 6 IN through 48 IN (150 MM through 1200 MM).

e. C509, Standard for Resilient-Seated Gate Valves for Water Supply Service.

f. {C541, Standard for Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates.}

g. {C542, Standard for Electric Motor Actuators for Valves and Slide Gates.}

h. C550, Standard for Protective Coatings for Valves and Hydrants.

i. C606, Standard for Grooved and Shouldered Joints.

4. American Water Works Association/American National Standards Institute (AWWA/ANSI):

a. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

5. National Electrical Manufacturers Association (NEMA):

a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).

b. MG 1, Motors and Generators.

1.3 DEFINITIONS

A. The following are definitions of abbreviations used in this Specification Section or one (1) of the individual valve sections:

1. CWP: Cold water working pressure.
2. SWP: Steam working pressure.
3. WOG: Water, oil, gas working pressure.
4. WWP: Water working pressure.

1.4 SUBMITTALS

A. Shop Drawings:

1. See Division 01 for requirements for the mechanics and administration of the submittal process.

2. Product technical data including:

a. Acknowledgement that products submitted meet requirements of standards referenced.
b. Manufacturer's installation instructions.
c. Valve pressure and temperature rating.
d. Valve material of construction.
e. Special linings.
f. Valve dimensions and weight.
g. Valve flow coefficient.
h. Wiring and control diagrams for electric or cylinder actuators.

3. Test reports.

B. Operation and Maintenance Manuals:

1. See Division 1 for requirements for:

a. The mechanics and administration of the submittal process.
b. The content of Operation and Maintenance Manuals.

C. Informational Submittals:

1. Verification from valve actuator manufacturer that actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted, and that the valve actuator responds correctly to the valve position command.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, refer to individual valve Specification Sections for acceptable manufacturers.

2.2 MATERIALS

A. Refer to individual valve Specification Sections.

2.3 VALVE ACTUATORS

A. Valve Actuators - General:

1. Provide actuators as shown on Drawings or specified.

2. Counterclockwise opening as viewed from the top.

3. Direction of opening and the word OPEN to be cast in handwheel or valve bonnet.

4. Size actuator to produce required torque with a maximum pull of 80 LB at the maximum pressure rating of the valve provided and withstand without damage a pull of 200 LB on handwheel or chainwheel or 300 foot-pounds torque on the operating nut.

5. Unless otherwise specified, actuators for valves to be buried, submerged or installed in vaults or manholes shall be sealed to withstand at least 20 FT of submergence.

6. Extension stem:

   a. Install where shown or specified.
   b. Solid steel with actuator key and nut, diameter not less than stem of valve actuator shaft.
   c. Pin all stem connections.
   d. Center in valve box or grating opening band with guide bushing.

B. Buried Valve Actuators:

1. Provide screw or slide type adjustable cast iron valve box, 5 IN minimum diameter, 3/16 IN minimum thickness, and identifying cast iron cover rated for traffic load.

2. Box base to enclose buried valve gear box or bonnet.

3. Provide 2 IN standard actuator nuts complying with AWWA C500, Section 3.16.

4. Provide at least two (2) tee handle keys for actuator nuts, with 5 FT extension between key and handle.

5. Extension stem:

   a. Provide for buried valves greater than 4 FT below finish grade.
   b. Extend to within 6 IN of finish grade.

6. Provide concrete pad encasement of valve box as shown for all buried valves unless shown otherwise.

C. Plastic Valve Vault:

1. Provide in non-traffic areas only on valve applications 3-1/2 IN and less.

2. Nominal 7-1/2 IN DIA top section.

3. Design unit for screw type extension section having nominal 9 IN DIA bell.

4. Cast iron ring and lid.

5. Constructed of injection molded polyolefin compound with fibrous inorganic component reinforcing and UV stabilization.

6. Armor Access Boxes.

D. Exposed Valve Manual Actuators:

1. Provide for all exposed valves not having electric or cylinder actuators.

2. Provide handwheels for gate and globe valves.

a. Size handwheels for valves in accordance with AWWA C500.

3. Provide lever actuators for plug valves, butterfly valves and ball valves 3 IN DIA and smaller.

a. Lever actuators for butterfly valves shall have a minimum of 5 intermediate lock positions between full open and full close.

b. Provide at least two (2) levers for each type and size of valve furnished.

4. Gear actuators required for plug valves, butterfly valves, and ball valves 4 IN DIA and larger.

5. Provide gearing for gate valves 20 IN and larger in accordance with AWWA C500.

6. Gear actuators to be totally enclosed, permanently lubricated and with sealed bearings.

7. Provide chain actuators for valves 6 FT or higher from finish floor to valve centerline.

a. Cadmium-plated chain looped to within 3 FT of finish floor.

b. Equip chain wheels with chain guides to permit rapid operation with reasonable side pull without "gagging" the wheel.

8. Provide cast iron floor stands where shown on Drawings.

a. Stands to be furnished by valve manufacturer with actuator.

b. Stands or actuator to include thrust bearings for valve operation and weight of accessories.

E. Submerged Actuators:

1. Mount the valve actuator on top of an extension bonnet 3 FT above any adjacent personnel access, or as shown.

2. The valve and bonnet connection shall be flanged and watertight.

3. Provide a top brace support for the bonnet.

a. Mount the brace 6 IN below the top of the wall as shown.

4. Provide intermediate stem extension guides as required.

5. Materials:

a. Extension bonnet: Cast iron ASTM A126 or steel.
b. Braces and anchor bolts: Type 316 stainless steel.

F. Electric Actuators (480 V, 3 PH) (Valves 6 IN and Larger):

1. Conform to AWWA C542.

2. Provide electric valve actuators with integral control devices. Where scheduled, provide a remote pushbutton station.

3. Furnish electric actuator integral with valve consisting of:

a. Motor.
b. Gearing.
c. Handwheel.
d. Limit and torque switches.
e. Lubricants.
f. Heating elements.
g. Wiring.
h. Terminals for motor power and controls.
i. Drive nut.

4. Housing/enclosure:

a. Provide cast iron gear housing and cast iron load bearing enclosure.

b. Non load bearing enclosure and housing: Aluminum or cast iron.

c. Rated for area classification shown on Drawings.

d. Provide O-ring seals for covers and entries.

e. Terminal and limit switch compartment covers are to be fastened to gear housing by stainless steel fasteners with capture device to prevent loss.

5. Motors:

a. Provide motors that are totally enclosed, high torque design made expressly for valve actuator service and capable of operating the valve under full differential pressure for complete open-close and reverse cycle of travel at least twice in immediate succession without overheating.

b. Design motors in accordance with NEMA MG 1 standards, with Class B insulation, and to operate successfully at any voltage within 10 percent above or below rated voltage.

c. Provide positive method to ensure motor bearings are permanently lubricated.

d. Provide three (3) thermal switches imbedded in windings:

i. 120 degrees apart.
ii. Provide motor shutdown at high temperature.

e. Motor housing:

i. Aluminum or cast iron.
ii. Totally enclosed nonventilated with cooling fins.

f. Provide motor capable of operating in any position.

g. Provide motor sealed from gearcase to allow any mounting position.

h. Provide motors suitable for 480 V, 3 PH, 60 Hz.

6. Gearing:

a. Provide power gearing consisting of heat treated steel helical gears, carburized and hardened alloy steel worm, and alloy bronze worm gear, all grease or oil bath lubricated, designed for 100 percent overload, and effectively sealed against entrance of foreign matter.

b. Provide gearing mechanism constructed to permit field changes of reduction gear ratio.

c. Design actuators so that motor comes up to speed before stem load is encountered in either opening or closing operation.

d. Limit switch gearings and feedback device reduction gearing:

i. Steel or bronze.

e. Support rotating shafts with anti-friction bearings.

f. Provide separate drive nut/thrust bearing assembly:

i. Mounted to base of actuator.
ii. High tensile bronze.
iii. Quarter turn actuator: Provide 90 degree mounting intervals.
iv. Provide grease fitting on drive assembly.

7. Handwheel:

   a. Permanently attached for manual operation.

   b. Positive declutch mechanism to engage and disengage handwheel.

   c. Handwheel shall not rotate during motor operation.

   d. Inoperable motor shall not prevent manual operation.

8. Limit torque and thrust loads in both closing and opening directions by torque limit switches.

   a. Provide torque switches with micrometer adjustment and reference setting indicator.

      i. Assure adjustment variation of approximately 40 percent in torque setting.

   b. Provide switches having rating of not less than 6 A at 120 Vac and 2.2 A at 115 Vdc.

   c. Limit and torque switches shall have totally sealed contacts.

9. Furnish electric actuator with two (2) geared limit switch assemblies with each switch assembly having four (4) separate limit switches:

   a. Assure each limit switch assembly is geared to driving mechanism and is independently adjustable to trip at any point at and between the fully open and fully closed valve position.

   b. Provide minimum of two (2) normally open contacts and two (2) normally closed contacts at each end of valve travel.

   c. Provide switches with inductive contact rating of not less than 6 A at 120 Vac, 3 A at 240 Vac, 1.5 A at 480 Vac, 2.2 A at 115 Vdc and 1.1 A at 230 Vdc.

   d. Limit switches shall be fully adjustable when power is applied to actuator.

10. Provide space heating elements sized to prevent condensation in both motor and geared limit switch compartment(s).

    a. Furnish heating elements rated at 120 Vac with heaters continuously energized.

11. Open-close actuator controls:

a. Provide control assembly with necessary holding relays, reversing starter, control transformers of sufficient capacity to provide control power, space heating element power and valve position transmitter.

b. Provide control assembly in an enclosure rated for the defined area classification.

c. Controls for open/close actuator:

i. Provide remote pushbutton station where scheduled with enclosure rated for area classification shown on Drawings with:

- Open pushbutton.
- Close pushbutton.
- Stop pushbutton.
- Remote/local switch.
- Full open light.
- Full close light.
- Open and close relays as required.

ii. Provide control enclosure to accept:

- Remote open/close switches.

iii. Provide contacts in control enclosure:

- Remote/local contact.
- Full open contact.
- Full close contact.

iv. Wire all components to an internal terminal strip and include mounted wiring diagram inside enclosure.

12. Additional requirements for modulating valve actuators:

a. Proportional position servo-amplifier mounted integral with the actuator control compartment.

b. Positioning of valve shall be proportional to a 4-20 mA signal input to the position servo-amplifier when remote control has been selected.

c. Servo-amplifier adjustments shall include zero, span, gain, and dead-band.

d. Provide 4-20 mA signal position control as shown on the drawings that interfaces with the position control/position feedback instrumentation wiring to and from PLC.

G. Pneumatic Actuators

1. Acceptable manufacturers:

   a. K-Tork
   b. Or Engineer approved equal

2. Pneumatic actuators shall be designed and constructed as follows:

   a. Shall be vane with lip seals design housed in a split housing.

   b. The lip seal on the vane shall be dual opposed injection molded polyurethane and must totally isolate the shaft seals from the air supply.

   c. Stainless steel expanders shall be fitted beneath the vane lip seal to ensure continual seal-to-case contract. O-ring vane seals are unacceptable.

   d. Actuator housing shall be zinc (ILZRO-16) or aluminum (ASTM-380 or ASTM-356T%) and must be externally coated with corrosion resistant baked epoxy enamel coating. Actuator housing interior surfaces shall be electrolyses nickel plated, baked epoxy enamel or Teflon impregnated.

   e. Actuator shall have stainless steel threaded travel stops allowing adjustment at each end of stroke. All fasteners shall be stainless steel.

   f. The actuator shall be designed hold the valve in position without fluttering when in any position and during modulation.

   g. The actuator shall have a minimum working pressure of 150 psig and be designed with a minimum factor of safety of 3 based on the yield strength of the material.

3. Operators shall be sized to open and close valves based on customer supplied air of 80 psig. The rated torque capabilities of each operator shall be 1.25 times the maximum valve torque required to seat, unseat, operation (dynamic) without jerking the disc and hold the valve open under any operation condition. Visual position indication shall be provided on all actuators.

4. Provide handwheel operation between the valve and pneumatic operator to allow the valve to be manually opened or closed. Provide with handwheel operator engage/disengage lever. Pneumatic operator shall be provided with a manual air bleed to release air pressure and allow manual operation of the valve. Air bleed shall be an integral part of the actuator.

5. OPEN/CLOSE Actuators:

a. Shall consist of a solenoid (to control air to actuator vane), position indicator and limit switches housed in NEMA 4 enclosures.

b. Solenoid valve shall be four-way and control the actuator by exhausting or applying air to the appropriate side of the vane actuator.

c. Solenoid valves shall have integral manual override mechanisms to allow manual operation in the event of power failure.

d. Solenoid valve shall be the diaphragm type and ported to allow contaminants up to 40 microns.

e. Solenoid valves shall be sized to open valve in 45 seconds and have speed control devices that allow an increase or decrease by a factor of two in cycle time for both open and closed travel time.

f. Solenoid valves shall be a two position spring return and designed so that the valve being controlled will fall in the open or closed position as specified in the control strategy on loss or power, or control signal.

g. The solenoid valves may be either externally mounted or internally mounted. Externally mounted solenoid valves shall be manufactured by AUTOMATIC SWITCH CO or approved equal.

h. Solenoid valve body and internals shall be brass or stainless steel.

i. Provide all actuators with two limit switches for open-close limit stops. Limit switches shall be hermetically sealed proximity-type limit switches. Switches shall be solid state and include integral solid state voltage spike and current surge protection.

j. Provide all actuators with position indicators (green for open and red for closed).

k. Actuator components shall be designed for a 120 VAC power supply.

l. Provide wiring terminal strip pre-wired and labeled.

2.4 FABRICATION

A. End Connections:

1. Provide the type of end connections for valves as required in the Piping Schedules presented in Specification Section 15060 or as shown on the Drawings.

2. Comply with the following standards:

a. Threaded: ASME B1.20.1.

b. Flanged: ASME B16.1, Class 125 unless otherwise noted or AWWA C207.

c. Bell and spigot or mechanical (gland) type: AWWA/ANSI C111/A21.11.

d. Soldered: ASME B16.18.

e. Grooved: Rigid joints per Table 5 of AWWA C606.

B. Refer to individual valve Specification Sections for specifications of each type of valve used on Project.

C. Nuts, Bolts, and Washers:

1. Wetted or internal to be stainless steel (type 316).

a. Exposed to be zinc or cadmium plated.

D. On Insulated Piping: Provide valves with extended stems to permit proper insulation application without interference from handle.

E. Epoxy Interior Coating: Provide epoxy interior coating for all ferrous surfaces in accordance with AWWA C550.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Setting Buried Valves:

1. Locate valves installed in pipe trenches where buried pipe indicated on Drawings.

2. Set valves and valve boxes plumb.

3. Place valve boxes directly over valves with top of box being brought to surface of finished grade.

4. Install in closed position.

5. Place valve on firm footing in trench to prevent settling and excessive strain on connection to pipe.

6. After installation, backfill up to top of box for a minimum distance of 4 FT on each side of box.

C. Support exposed valves and piping adjacent to valves independently to eliminate pipe loads being transferred to valve and valve loads being transferred to the piping.

D. For grooved coupling valves, install rigid type couplings.

E. Install electric or cylinder actuators above or horizontally adjacent to valve and gear box to optimize access to controls and external handwheel.

F. For threaded valves, provide union on one (1) side within 2 FT of valve to allow valve removal.

G. Install valves accessible for operation, inspection, and maintenance.

3.2 ADJUSTMENT

A. Adjust valves, actuators and appurtenant equipment to comply with Division 01.

1. Operate valve, open and close at system pressures.

B. For all 120 Vac and 480 Vac electric actuators, employ and pay for services of valve actuator manufacturer's field service representative to:

1. Inspect valve actuators covered by this Specification Section.

2. Supervise adjustments and installation checks:

a. Open and close valves electrically under local manual and demonstrate that all limit switches are properly adjusted and that switch contacts are functioning properly by verifying the inputs are received at the remote input/output (RIO) panels or local control panel as appropriate.

b. Simulate a valve position command signal at the RIO panel or local control panel as appropriate and demonstrate that the valve is controlled to the desired position without excessive hunting.

3. Provide Owner with a written statement that the valve actuator manufacturer has verified that the actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted and that the valve actuator responds correctly to the valve position command.

END OF SECTION

SECTION 15101

GATE VALVES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Gate valves for water service.

1.2 REFERENCES:

A. ASTM B62--Standard Specifications for Composition Bronze or Ounce Metal Castings.

B. ANSI B16.1--Cast Iron Pipe Flanges and Flanged Fittings.

C. AWWA C509--Resilient Seated Gate Valve.

D. AWWA C500--Double Disc Gate Valve.

1.3 SYSTEM DESCRIPTION:

A. Valves 4-inch through 48-inch shall be manufactured in accordance with AWWA C509. Valves smaller than 4-inch shall be manufactured in accordance with AWWA C500.

B. Where the requirements of these specifications conflict with AWWA C509 and AWWA C500, these specifications shall govern.

1.4 SUBMITTALS:

A. Provide the following information in accordance with Section 01300:

1. Dimensional information.
2. Manufacturer's installation, operation, and maintenance instructions.
3. Recommended list of spare parts.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Storage: Store all valves and appurtenances in accordance with the manufacturer's written instructions. Protect all valves and appurtenances from damage.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Gate Valves (AWWA C515):

1. Clow.
2. EJ Iron Works.

3. Mueller.
4. M&H.
5. Approved equivalent.

2.2 VALVES:

A. Gate Valves (4-inch through 48-inch):

1. Type: Solid wedge, resilient-seat type.
2. Standard: AWWA C509.
3. Working Pressure: Rated to 200 psi minimum.
4. Stem: Non-rising stem with O-ring valve packing and 2-inch square nut, except as shown otherwise.
5. Joints: Mechanical (buried); Flanged (above grade).
6. Opening: Counterclockwise.
7. Finish: Ferrous surfaces of valve interior epoxy-coated, AWWA C550.
8. Wrapping: Wrap valve body with 8 mil polyethylene encasement in a manner which will not interfere with valve operation, buried service.

2.3 MANUAL VALVE ACTUATORS:

A. Provide manual actuators/operators for valves.

B. Manual actuators shall be locking lever-type on valves 8-inch diameter or less. Levers shall be capable of being locked in the "OPEN," "CLOSED," and at least 8 intermediate positions. Levers shall lock by means of a visible spring loaded locking system that must be released before operating the valve.

C. Manual actuators for valves 10-inch diameter and larger shall be rotary manual (gear) type. Rotary manual actuators shall have hand wheel input. Rotary manual actuators shall be enclosed lubricated, and sealed. Provide "OPEN" and "CLOSED" position stops that are externally adjustable. An external indicator shall show the position of the valve disc.

D. Actuators shall be factory-installed only. Attaching the actuators to the valves while in the field is not acceptable.

E. Actuator orientation shall be in accordance with the direction of the Owner and Engineer.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install valves in accordance with manufacturer's instructions and as shown.

B. Demonstrate valve operation by manual control at valve.

END OF SECTION

SECTION 15113

COMBINATION AIR RELEASE VALVES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Standard combination air release valves for water service.

1.2 REFERENCES:

A. ASTM A48--Standard Specification for Composition Bronze or Ounce Metal Castings Class 30.

B. ASTM A240--Standard Specification for Heat Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.

C. ASTM A270--Standard Specification for Seamless and Welded Austenitic Stainless Steel Sanitary Tubing.

D. ASTM A276--Standard Specification for Stainless Steel Bars and Shapes.

E. ASTM B124--Standard Specification for Copper and Copper Alloy Forging Rod, Bar, and Shapes.

1.3 DEFINITIONS:

A. Standard Combination Air Valve--A device with a single body that contains two valves to vent or admit air to the interior of a pipeline.

B. CAV--Combination air valve.

1.4 SUBMITTALS:

A. Provide the following information in accordance with Section 01300:

1. Manufacturer's catalog information.
2. Manufacturer's installation, operation, and maintenance instructions.
3. Recommended list of spare parts with illustration drawing.

1.5 SYSTEM DESCRIPTION:

A. CAVs shall be suitable at operation up to 200 pounds per square inch pressure.

B. The CAV shall allow large volumes of air to escape out the large orifice (valve) when filling a pipeline and closes when liquid enters the valve.

C. When the large orifice is closed, the small air release orifice shall open to allow small amounts of air to escape automatically.

D. The large orifice shall also allow large volumes of air to enter when the pipeline drained.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Storage: Store all valves and appurtenances in accordance with the manufacturer's written instructions. Protect all valves and appurtenances from damage.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Per the Construction Details.

2.2 MANUFACTURED UNITS:

A. CAVs shall have a bottom connection for the connection to the pipeline and a top connection for venting or admitting air.

B. Both connections shall be topped with female iron pipe threads.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install CAVs in accordance with manufacturer's instructions and as shown.

3.2 FINAL TESTING:

A. Demonstrate that materials or equipment furnished under this Specification are operating properly at the time of project final acceptance.

B. Rework or replace materials as required for proper operation.

END OF SECTION

PART 2
APPENDIX 1

GEOTECHNICAL INVESTIGATION REPORT

BORE B-1 - MIDLAND DRIVE



12/5/2019, 8:49:26 AM

1:4,000

0 0.04 0.09 0.18 mi

0 0.05 0.1 0.2 km

- Sewer Pressure Main
- Sewer Gravity Main
- Sewer Manhole
- Water Pressure Main
- Water Hydrant
- AOZ 4
- City Limit
- Parcel

Street Centerline

- Arterial; Collector
- County Road; Frontage; Park; Residential
- Interstate; State Highway; State Loop
- Lease Road; Misc

PACKET 9.1812 December 15, 2020

City of Midland GIS App

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE WATER SYSTEM IMPROVEMENTS WATERLINE**

Date: 03/05/2019

Location: **MIDLAND DRIVE @ 32°03'45.74"N ; 102°09'24.19"W**

Type: AIR ROTARY

Boring No.: **B-1**

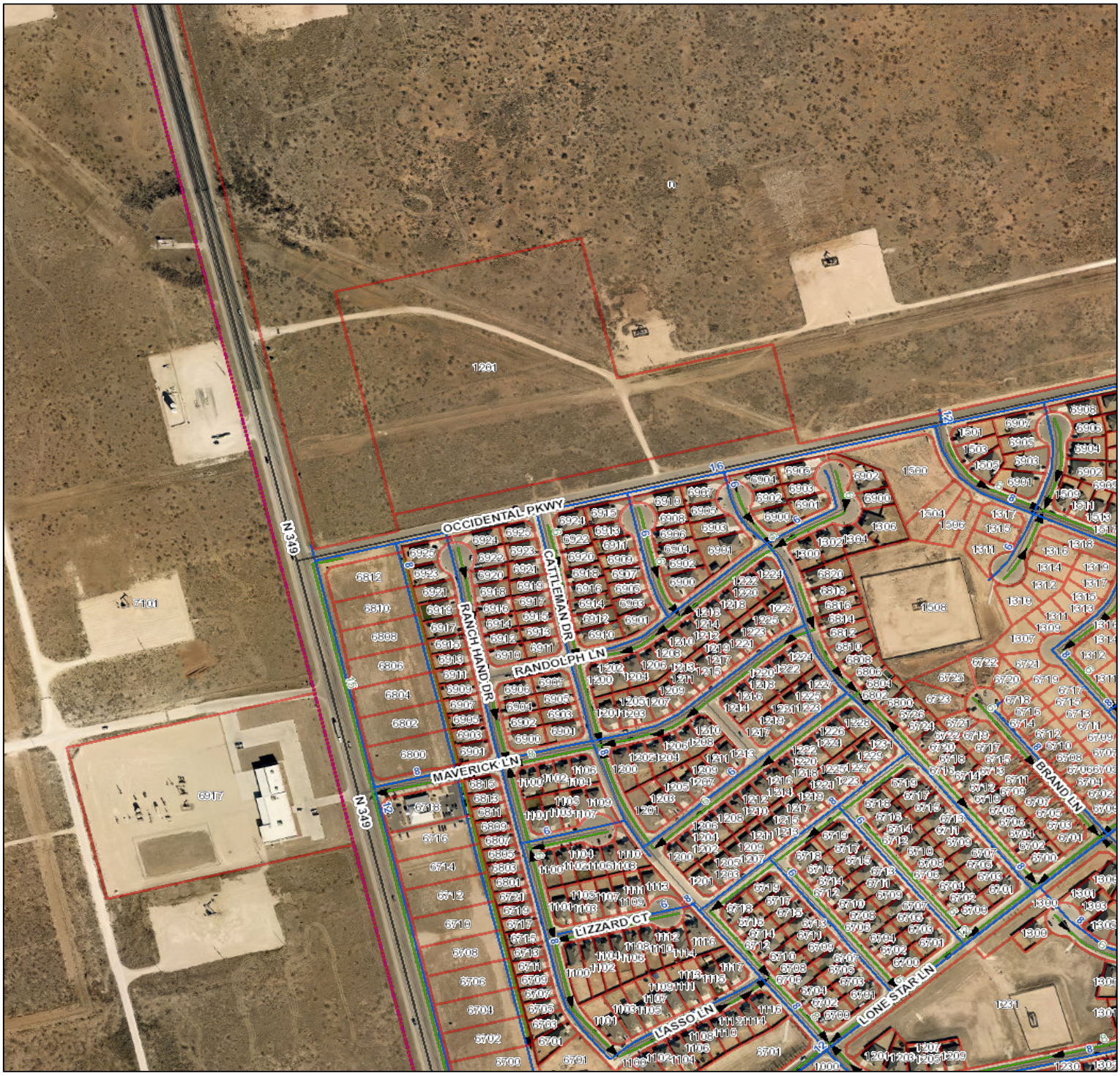
DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	BROWN CLAYEY SAND				4.5+	
		ST					4.5+	
		SS		9				
5		ST					4.5+	
		ST					4.5+	
		SS		26				
10								
		SS	LIGHT BROWN CLAYEY SAND WITH CALCAREOUS NODULES	32				
15								
		SS		50/3				
20			TOTAL DEPTH OF BORING 20 FEET					

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

18-7227

BORE B-2 - BIG SPRING & OCCIDENTAL



12/5/2019, 9:00:01 AM

- Sewer Pressure Main
- Sewer Gravity Main
- Sewer Manhole
- Water Pressure Main
- Water Hydrant
- AOZ 4
- City Limit
- Parcel

Street Centerline

- Arterial; Collector
- County Road; Frontage; Park; Residential
- Interstate; State Highway; State Loop
- Lease Road; Misc

1:4,000

0 0.04 0.09 0.18 mi

0 0.05 0.1 0.2 km

PACKET 9.1814 December 15, 2020

City of Midland GIS App

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE WATER SYSTEM IMPROVEMENTS WATERLINE** Date: 03/05/2019

Location: **BIG SPRING & OCCIDENTAL @ 32°04'51.72"W ; 102°05'27.92"W** Type: AIR ROTARY Boring No.: **B-2**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	BROWN CLAYEY SILTY SAND TO CLAYEY SAND				1.0	
		ST					3.0	
		SS		52/9"				
5			TAN WEATHERED LIMESTONE					
		AU						
		SS		75/8"				
10			TAN CLAYEY SAND WITH CALCAREOUS NODULES, GRAVEL, AND INTERBEDDED THIN LIMESTONE SEAMS					
		SS		50/1"				
15								
		SS		50/2"				
20			TOTAL DEPTH OF BORING 20 FEET					

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

18-7227



NOT TO SCALE

BORING LOCATION PLAN

FIGURE 1
NE WATER SYSTEM IMPROVEMENTS
HIGH SERVICE PUMP STATION BUILDING
MIDLAND, TEXAS

NE WATER SYSTEM IMPROVEMENTS
HIGH SERVICE PUMP STATION BUILDING
MIDLAND, TEXAS

SUMMARY OF CLASSIFICATION TESTS

Boring No.	Depth (ft)	Liquid Limit %	Plasticity Index	% Passing #200 Mesh Sieve	Water Content %	USCS	Description
B-1	2-3½'	27	14	37	10.3	SC	Brown Clayey Sand
B-1	7-8½'	44	27	---	12.7	SC	Light Red-Brown Clayey Sand with calcareous nodules
B-1	13½-15'	61	39	---	14.4	SC	Tan Clayey Sand with calcareous nodules
B-1	23½-25	---	non-plastic	12.4	19.3	SM	Light Red-Brown and Tan Clayey Medium Grained Sand with trace gravel and calcareous nodules
B-2	3½-5'	21	10	28	8.2	SC	Brown Clayey Sand
B-2	8½-10'	20	9	35	9.0	SC	Light Red-Brown Clayey Sand with calcareous nodules
B-2	18½-20'	46	28	39	13.4	SC	Tan Clayey Sand with calcareous nodules and gravel

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE WATER SYSTEM IMPROVEMENTS** Date: 03/05/2019

Location: **WATER PURIFICATION PLANT** Type: AIR ROTARY Boring No.: **B-1**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	RED-BROWN CLAYEY SAND WITH CALCAREOUS NODULES AND ASPHALT FRAGMENTS (FILL)				4.5+	
		ST					4.5+	
5		SS	BROWN CLAYEY SAND	9				
		ST					4.5+	
		ST	LIGHT RED-BROWN CLAYEY SAND WITH CALCAREOUS NODULES				4.5+	
		SS		16				
10			LIGHT RED-BROWN AND TAN CLAYEY SAND WITH GRAVEL AND CALCAREOUS NODULES					
5		SS		35				
			TAN CLAYEY SAND WITH CALCAREOUS NODULES					
20		SS		59				
5		SS	LIGHT RED-BROWN AND TAN CLAYEY MEDIUM GRAINED SAND WITH TRACE GRAVEL AND CALCAREOUS NODULES	21				
30		SS		50/3"	*			
5		SS		50/1"				
			CONGLOMERATE					
40		SS		50/2"				
5		SS		50/0"				

TOTAL DEPTH OF BORING 47 FEET
DUE TO AUGER REFUSAL IN THE SOUND CONGLOMERATE

NOTE

GROUNDWATER WAS PRESENT AT A DEPTH OF ABOUT 28 FEET DURING AND AT COMPLETION OF DRILLING UTILITIES.

*PACKET 9.1818 December 15, 2020

18-7227

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE WATER SYSTEM IMPROVEMENTS** Date: 03/05/2019

Location: **WATER PURIFICATION PLANT** Type: AIR ROTARY Boring No.: **B-2**

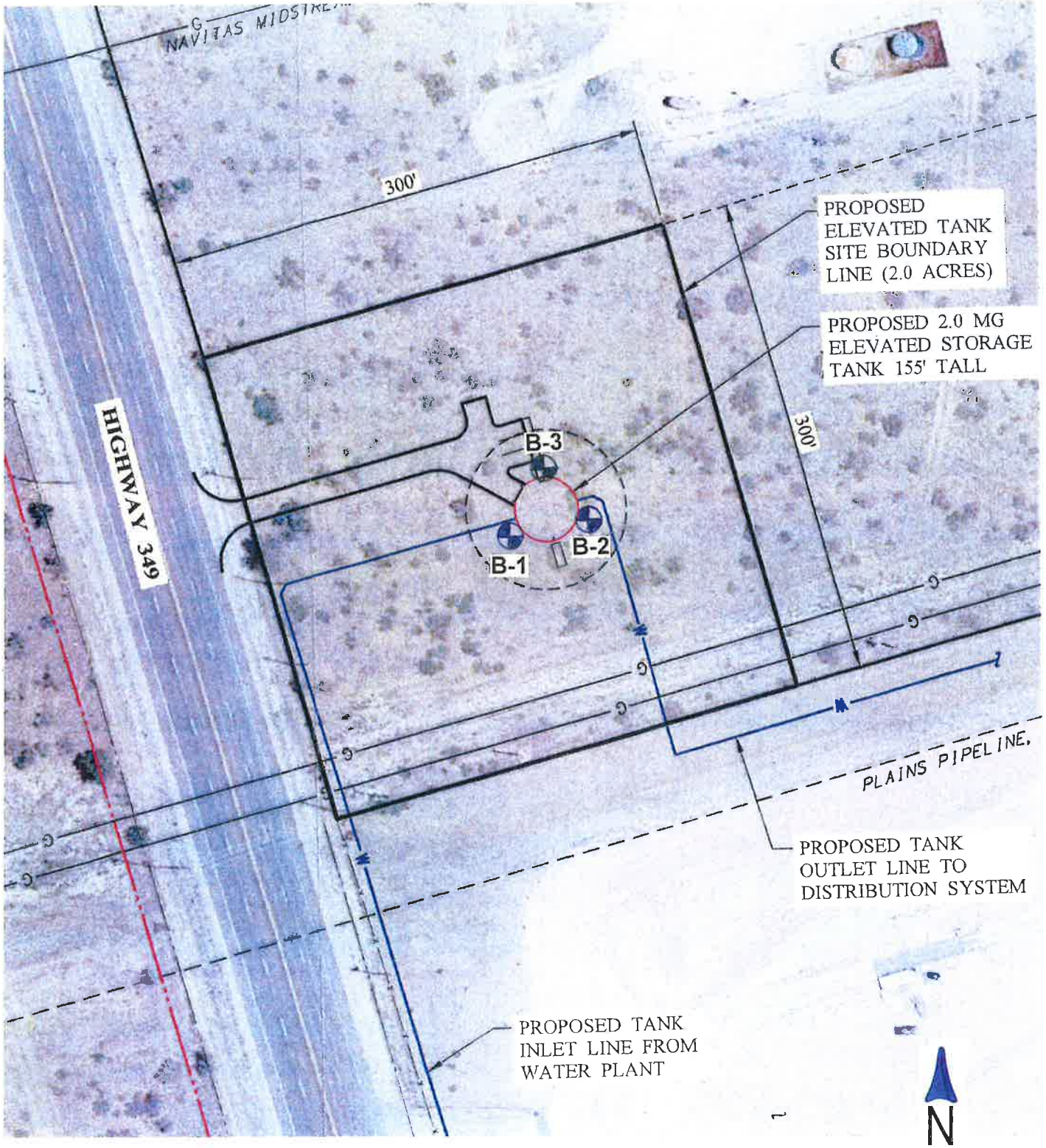
DEPTH IN FEET	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)
0	ST	RED-BROWN CLAYEY SAND				4.5+
	ST					4.5+
5	SS		7			
	ST	LIGHT RED-BROWN CLAYEY SAND WITH CALCAREOUS NODULES				4.5+
	ST					4.5+
10	SS		3			
	TCP	RED-BROWN CLAYEY SAND		50 = 4"	50 = 4"	
5						
20	TCP	TAN CLAYEY SAND WITH CALCAREOUS NODULES AND GRAVEL		50 = 4"	50 = 2"	
	TCP			50 = 4"	50 = 1"	
5						
30	TCP			50 = 5"	50 = 3"	
	TCP	CONGLOMERATE		50 = 1"	50 = 0	
5						
40	TCP			50 = 1"	50 = 0	
	TCP	CONGLOMERATE WITH THIN INTERBEDDED CALICHE SEAMS		50 = 1"	50 = 0	
5						
50	TCP			50 = 2"	50 = 1"	

TOTAL DEPTH OF BORING 50 FEET

NOTE

GROUNDWATER WAS PRESENT AT A DEPTH OF ABOUT 23 1/2 FEET DURING AND AT COMPLETION OF DRILLING UTILITIES.

PACKET 9.1819 December 15, 2020



NOT TO SCALE

BORING LOCATION PLAN

FIGURE 1
NE WATER SYSTEM IMPROVEMENTS
ELEVATED STORAGE TANK
HIGHWAY 349
MIDLAND, TEXAS

PACKET 9.1820 December 15, 2020

Project No.: 18-7227 Date: March 2019

NE WATER SYSTEM IMPROVEMENTS
ELEVATED WATER STORAGE TANK
MIDLAND, TEXAS

SUMMARY OF CLASSIFICATION TESTS

Boring No.	Depth (ft)	Liquid Limit %	Plasticity Index	% Passing #200 Mesh Sieve	Water Content %	USCS	Description
B-1	3½-5'	18	7	16	3.5	SC	Tan Clayey Sand with gravel and calcareous nodules
B-2	5-8½'	18	8	34	1.2	SC	Tan Clayey Sand with gravel and calcareous nodules
B-3	3½-5'	----	non-plastic	14	1.9	SM	Tan Clayey Sand with gravel and calcareous nodules

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE ELEVATED STORAGE TANK** Date: 03/04/2019

Location: **HIGHWAY 349** Type: AIR ROTARY Boring No.: **B-1**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)
0		ST	BROWN CLAYEY SAND				4.5+
		AU					
5		SS		50/2"			
		AU	TAN CLAYEY SAND WITH GRAVEL AND CALCAREOUS NODULES				
		SS		58/7"			
10							
5		SS		50/4"			
20		SS	TAN CLAYEY SAND WITH CALCAREOUS NODULES AND INTERMITTENT LIMESTONE LAYERS	50/6"			
5		SS		50/5"	*		
30		SS		50/5"			
		SS	- GRAY SHALE SEAM	50/3"			
5			TAN SANDSTONE WITH INTERMITTENT SAND SEAMS				
40		SS		50/5"			
		SS		50/4"			
5			BROWN SANDSTONE WITH INTERMITTENT SAND SEAMS				
50		SS		50/1"			

TOTAL DEPTH OF BORING 50 FEET

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE ELEVATED STORAGE TANK** Date: 03/04/2019

Location: **HIGHWAY 349** Type: AIR ROTARY Boring No.: **B-2**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)
		ST	BROWN CLAYEY SAND				4.5+
5		SS		50/3"			
10		TCP	- TRACE THIN LIMESTONE SEAMS BELOW 11 FEET		50 = 2	50 = 1/2"	
5		TCP	TAN CLAYEY SAND WITH GRAVEL AND CALCAREOUS NODULES		50 = 1/4"	50 = 0	
20		TCP			50 = 0	50 = 0	
5		TCP			50 = 5"	50 = 3"	
30		TCP			50 = 1/4"	50 = 0	
5		TCP	TAN SANDSTONE WITH INTERMITTENT SAND SEAMS		50 = 1/2"	50 = 0	
40		TCP			50 = 1/2"	50 = 0	
5		TCP	BROWN SANDSTONE WITH INTERMITTENT SAND SEAMS		50 = 1/4"	50 = 0	
50		TCP			50 = 1/4"	50 = 0	

TOTAL DEPTH OF BORING 50 FEET

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE ELEVATED STORAGE TANK** Date: 03/04/2019

Location: **HIGHWAY 349** Type: AIR ROTARY Boring No.: **B-3**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	BROWN CLAYEY SAND				4.5+	
5		SS		50/3"				
10		TCP	- TRACE INTERMITTENT LIMESTONE SEAMS BELOW 10 FEET		50 = 1/4"	50 = 0		
5		TCP	TAN CLAYEY SAND WITH GRAVEL AND CALCAREOUS NODULES		50 = 0	50 = 0		
20		TCP			50 = 1/4"	50 = 0		
5		TCP			50 = 1/4"	50 = 0		
30		TCP			50 = 1/2"	50 = 0		
5		TCP	TAN SANDSTONE WITH INTERMITTENT SAND SEAMS		50 = 0	50 = 0		
40		TCP			50 = 0	50 = 0		
5		TCP	BROWN SANDSTONE WITH INTERMITTENT SAND SEAMS		50 = 1/2"	50 = 0		
50		TCP			50 = 0	50 = 0		

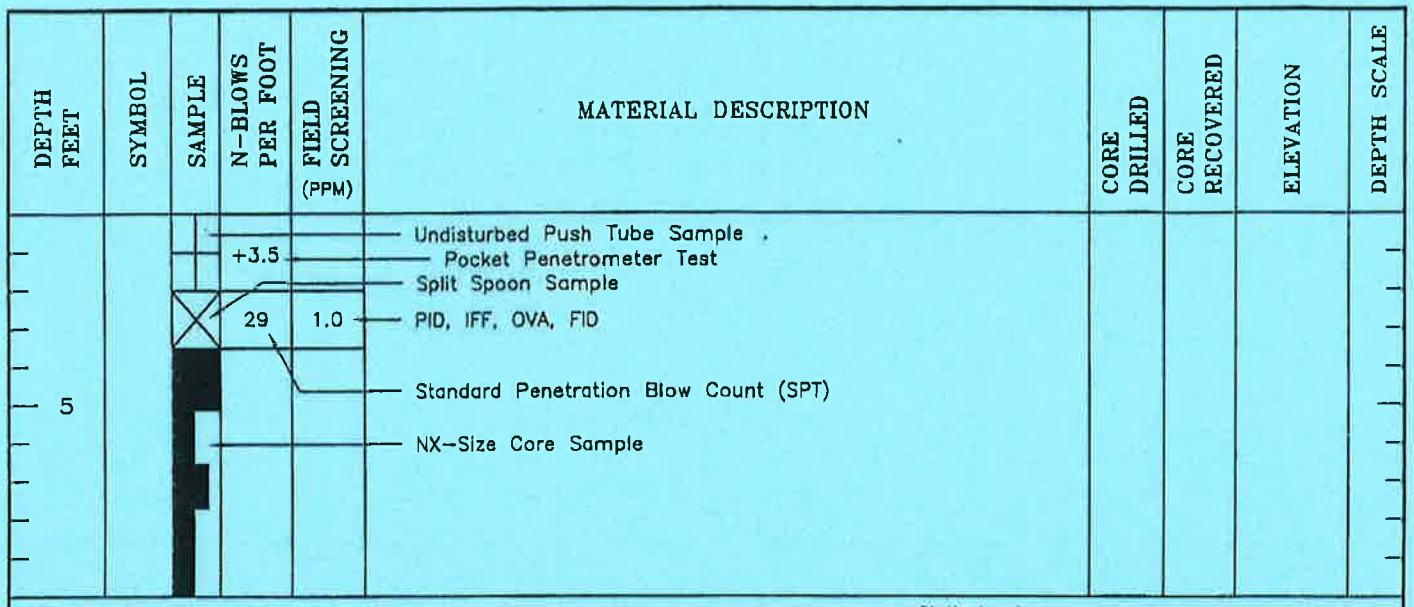
TOTAL DEPTH OF BORING 50 FEET

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

ENPROTEC, INC.

EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS



Water Encountered — Water Level Encountered During Drilling

Static Level (date) — Stabilized Water Level

UNIFIED SOIL CLASSIFICATION DESCRIPTION OF SYMBOLS AND DIVISIONS

- Well-Graded Gravels, Gravel Sand Mixtures (GW)
- Poorly-Graded Gravels, Gravel Sand Mixtures (GP)
- Silty Gravel, Gravel Sand-Silt Mixtures (GM)
- Clayey Gravels, Gravel-Sand-Clay Mixtures (GC)
- Well-Graded Sands, Gravelly Sands (SW)
- Poorly-Graded Sands, Gravelly Sands (SP)
- Silty Sands, Poorly-Graded, Sand-Silt Mixtures (SM)
- Clayey Sands, Poorly-Graded, Sand-Clay Mixtures (SC)
- Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands (ML)
- Inorganic Clays of Low to Medium Plasticity Gravelly, Sandy or Silty Clays, Lean Clays (CL)
- Organic Silts and Organic Silty Clays of Low Plasticity (OL)
- Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils (MH)
- Inorganic Clays of High Plasticity, Fat Clays (CH)
- Organic Clays of Medium to High Plasticity, Organic Silts (OH)
- Caliche and Other Impervious Layer (HP)

BEDROCK SYMBOLS

- Conglomerate (CGL)
- Sandstone (SS)
- Limestone (LS)
- Shale (Sh)
- Weathered Shale (WS)
- Sandy Shale (SSh)
- Shaley Limestone (Sh LS)
- Dolomite (DOL)

MISCELLANEOUS SYMBOLS

- Asphaltic Concrete (HMAC)
- Cement Grout (CMT)
- Bentonite (BENT)

The LOG of BORING is a representation of the subsurface material at specific boring location and within the depth explored. The transition between strata may be gradual and variations in material types and depths between borings can be expected. Water level observations represent those conditions at the time of exploration and may vary with time and location of site.

SOIL COLOR CLASSIFICATION
Determined by
MUNSELL SOIL COLOR CHARTS
1990 EDITION REVISED

GENERAL NOTES

SAMPLE IDENTIFICATION

Soil Samples are visually classified in general accordance with the Unified Soil Classification System (ASTM D2487 or D 2488)

DRILLING AND SAMPLING SYMBOLS

ST:	Shelby Tube - 3" O.D., except where noted
SS:	Split-Spoon
THD:	THD Cone Penetrometer
AU:	Auger Sample
DB:	Diamond Bit
CB:	Carbide Bit
WS:	Wash Sample

SOIL PROPERTY SYMBOLS

N:	Standard "N" penetration: Blows per foot, or fraction thereof, of a 140 pound hammer 30 inches on a split-spoon
Qp:	Calibrated Penetrometer Resistence, TSF
Qu:	Unconfined Compression Strength, TSF
LL:	Liquid Limit, %
PI:	Plasticity Index

SOIL STRENGTH CHARACTERISTICS

NON-COHESIVE (GRANULAR) SOILS

RELATIVE DENSITY	BLOWS PER FOOT(N)
Very Loose	0-4
Loose	5-10
Firm	11-30
Dense	31-50
Very Dense	51 +

COHESIVE (CLAYEY) SOILS

COMPARATIVE CONSISTENCY	BLOWS PER FOOT(N)	UNCONFINED COMPRESSIVE STRENGTH (Qu)
Very Soft	0-2	0 - 0.25
Soft	3-4	0.25 - 0.50
Medium Stiff	5-8	0.50 - 1.00
Stiff	9-15	1.00 - 2.00
Very Stiff	16-30	2.00 - 4.00
Hard	31 +	4.00 +

SOIL CHARACTERISTICS

PARTICLE SIZE

Boulders	8 in. +	Coarse Sand	5mm-0.6 mm	Silt	0.074mm-.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074 mm		

DEGREE OF EXPANSIVE POTENTIAL	PI
Low	0-15
Moderate	15-25
High	25 +

DEGREE OF PLASTICITY	PI
None to Slight	0-4
Slight	5-10
Moderate	11-30
High	31 +

City Council Meeting

Item Number: 10

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION AWARDING A CONTRACT TO CB&I STORAGE TANK SOLUTIONS LLC, FOR THE MIDLAND NE WATER SYSTEMS IMPROVEMENTS - ELEVATED STORAGE TANK (PACKET B) FOR A COST OF $4,999,000.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS (GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the execution of a contract for the Midland NE Water Systems Improvements-Elevated Storage Tank (Packet B) for the Utilities Department.

Recommended City Council Action:

Approve

Fiscal Impact:

$4,999,000 is appropriated from Fund 394 into a project in Fund 370.

Discussion:

Motion 128-2020 approved plans and specifications and authorized advertisement for bids for the Midland NE Water Systems Improvements-Elevated Storage Tank (Packet B). Request for proposals were issued to one hundred seventy-eight (178) vendors and we received three (3) bids. Staff recommends awarding the contract to CB&I Storage Tank Solutions LLC. Please see the attached memo from Carl Craigo, Utilities Director, for additional information.

Therefore, please consider a resolution awarding a contract to CB&I Storage Tank Solutions LLC of Houston, Texas for the Midland NE Water Systems Improvements-Elevated Storage Tank (Packet B) in the amount of $4,999,000.00.



City Manager's Office

INTEROFFICE MEMORANDUM

TO: Erika Martinez, Purchasing Manager

FROM: Carl Craigo, PE, Utilities Director

SUBJECT: Consider a resolution awarding a construction contract North East Elevated Tower and appropriating bond funds

DATE: December 15, 2020

Enprotec Hibbs and Todd under the Utilities on call program prepared plans and specification for the North East elevated tower project. The project is to construct and elevated tower on City/Airport land on the east side of 349 north of where the Craddick Hwy will eventually extend.

Council, under motion 128-2020, approved the prepared plans and specifications to send for proposal.

Three proposals were received on November 18, 2020. The scoring committee met on November 25, 2020 to evaluate the proposals and based on the scoring criteria selected CB&I Storage Tank Solutions, LLC has the recommended proposer.

The project is expected to cost $4,999,000 and take 480 days to complete once construction starts. Funds will be allocated from previous CO issuance.

RESOLUTION NO. _____

RESOLUTION AWARDING A CONTRACT TO CB&I STORAGE TANK SOLUTIONS LLC, FOR THE MIDLAND NE WATER SYSTEMS IMPROVEMENTS - ELEVATED STORAGE TANK (PACKET B) FOR A COST OF $4,999,000.00; AND AUTHORIZING THE APPROPRIATION OF FUNDS

WHEREAS, Motion 128-2020 approved plans and specifications authorized the advertisement for bids for the Midland NE Water Systems Improvements - Elevated Storage Tank (Packet B); and

WHEREAS, the bids were opened on November 18, 2020, with the lowest and most responsible bid being submitted by submitted by CB&I Storage Tank Solutions LLC, as shown on the bid documents attached hereto as Exhibit A and incorporated herein for all purposes; and

WHEREAS, the City Council finds the amount proposed by CB&I Storage Tank Solutions LLC, to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to award a contract to CB&I Storage Tank Solutions LLC, for the Midland NE Water Systems Improvements - Elevated Storage Tank (Packet B);

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, a contract with CB&I Storage Tank Solutions, for the Midland NE Water Systems Improvements - Elevated Storage Tank (Packet B). Said contract to be kept on file in the office of the City Secretary, referenced by the date and number of this Resolution.

SECTION TWO. $4,999,000.00 is hereby appropriated from Fund 394 into a project in Fund 370.

SECTION THREE. That the City Comptroller is hereby authorized and directed to pay CB&I Storage Tank Solutions LLC, pursuant to the terms of said contract from

available project funds upon receipt of proper invoices or statements approved by the City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

Enprotec / Hibbs & Todd, Inc., 402 Cedar Street, Abilene, Texas 79601

TABULATION OF BIDS FOR: Northeast Water System Improvements Bid Package B, City of Midland, Texas

BIDS RECEIVED: 11/18/2020

PE Firm Registration No. 1151

PACKAGE B - GENERAL				CB&I Storage Tank Solutions, LLC		Phoenix Fabricators & Erectors, LLC		Landmark Structures I, LP	
Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	LS	Mobilization, Bonds & Insurance	$ 244,951.00	$ 244,951.00	$ 100,000.00	$ 100,000.00	$ 245,000.00	$ 245,000.00
2	1	LS	Stormwater Pollution Prevention Plan	$ 16,900.00	$ 16,900.00	$ 15,000.00	$ 15,000.00	$ 2,000.00	$ 2,000.00
3	1	LS	Traffic Control Plan	$ 2,500.00	$ 2,500.00	$ 8,000.00	$ 8,000.00	$ 2,000.00	$ 2,000.00
4	200	LF	Trench and Excavation Safety Plan	$ 5.00	$ 1,000.00	$ 15.00	$ 3,000.00	$ 5.00	$ 1,000.00
5	1	LS	Owner's Allowance for SCADA System Integrator Contract	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00
6	1	LS	Owner's Allowance for Work Directed by Owner	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00
			GENERAL SUB-TOTAL		**$ 565,351.00**		**$ 426,000.00**		**$ 550,000.00**

PACKAGE B - BASE				CB&I Storage Tank Solutions, LLC		Phoenix Fabricators & Erectors, LLC		Landmark Structures I, LP	
Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	LS	Elevated Storage Tank	$ 4,433,649.00	$ 4,433,649.00	$ 4,650,500.00	$ 4,650,500.00	$ 4,581,000.00	$ 4,581,000.00
			BASE SUB-TOTAL		**$ 4,433,649.00**		**$ 4,650,500.00**		**$ 4,581,000.00**

GENERAL SUB-TOTAL		**$ 565,351.00**		**$ 426,000.00**		**$ 550,000.00**
BASE SUB-TOTAL		**$ 4,433,649.00**		**$ 4,650,500.00**		**$ 4,581,000.00**
GENERAL + BASE TOTAL		**$ 4,999,000.00**		**$ 5,076,500.00**		**$ 5,131,000.00**

PACKAGE B - PROPOSAL TIME	Phoenix Fabricators & Erectors, LLC	Landmark Structures I, LP	CB&I Storage Tank Solutions, LLC
DESCRIPTION	DAYS	DAYS	DAYS
Total number of calendar days to substantially complete the Work	480	480	480

Proposal Review Committee Summary Scoring Sheet

City of Midland
Northeast Water System Improvements
Package B - Elevated Storage Tank
Proposal Date : November 18, 2020 - 2:00 PM
Owner Bid No.: 18003230
eHT Project No.: 7227

		Respondants					
Contractor Name:		CB&I		Phoenix		Landmark	
Evaluation Criteria	**Weighting**	**Response**	**Score**	**Response**	**Score**	**Response**	**Score**
Proposal Pricing - BaseTotal	50%	$4,999,000	50.00	$5,078,500	49.20	$5,131,000	48.68
Qualifications	30%	-	30	-	30	-	30
Proposal Time (Max 480 Days)	10%	480	10.00	480	10.00	480	10.00
Safety (EMR 3 Yr Avg)	10%	0.40	10.00	0.83	4.82	0.84	4.76
Total	100%	-	100.00	-	94.02	-	93.44
Acknowledgments	**Ranking:**	**1**		**2**		**3**	
Bid Bond	Y/N	Y		Y		Y	
Addendum #1	Y/N	Y		Y		Y	
Addendum #2	Y/N	Y		Y		Y	

As a member of the Proposal Evaluation Committee I acknowledge that this proposal evaluation was completed in conformance with the RFP requirements.

Committee Member Name	Position	Signature
Cory D. Moose.	Asst. Util Director	
Bobby Wojciechowski	Commissioner, Ward 1	
Raymond Sadler	Superintendent	

CITY OF
MIDLAND, TEXAS

CONFORMED SET

PROJECT MANUAL

FOR

NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE B

CONTRACT B– NEW ELEVATED STORAGE TANK

NOVEMBER 2020

Enprotec / Hibbs & Todd
402 Cedar, Abilene, Texas 79601
Phone: (325) 698-5560 Fax: (325) 690-3240
Website: e-ht.com
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE B

SEAL SHEET
(1 of 2)

Design Professional Responsibility:
Bid Documents, Contract Documents and General Requirements.

_____
Joseph T. Mangrem, P.E.
Enprotec/ Hibbs & Todd, Inc.
Firm Registration No. 1151

Design Professional Responsibility:
Civil: Divisions 1, 2, 3, 9 & Specification 13211.
Mechanical: Divisions 11 & 15.

_____
Jonathan A. Baum, P.E.
Enprotec/ Hibbs & Todd, Inc.
Firm Registration No. 1151

Enprotec / Hibbs & Todd
402 Cedar, Abilene, Texas 79601
Phone: (325) 698-5560 Fax: (325) 690-3240
Website: e-ht.com
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE B

SEAL SHEET
(2 of 2)

Design Professional Responsibility:

Instrumentation: Division 13 (except 13211).

Electrical: Division 16.

_____

Clois W. Versyp, P.E.
Clois W. Versyp, PLLC
Firm Registration No. F-3792

Enprotec / Hibbs & Todd
402 Cedar, Abilene, Texas 79601
Phone: (325) 698-5560 Fax: (325) 690-3240
Website: e-ht.com
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE B
CONTRACT B – NEW ELEATED STORAGE TANK
TABLE OF CONTENTS

DIVISION 0 – BIDDING REQUIREMENTS, CONTRCT FORMS AND CONDITIONS OF THE CONTRACT

00030 Advertisement for Bids
Notice to Bidders
General Conditions of Bidding
00451 Qualifications Statement
Request for Proposals
Standard Purchasing Terms
00480 Non-Collusion Affidavit of Prime Bidder
Debarment/Suspension Certification
Bid Bond
Contract
Exhibit C: Bonding Requirements
Exhibit D: Heavy & Highway Wage Rates
Exhibit D: Building Wage Rates
Performance Bond
Payment Bond
00700 General Conditions of the Construction Contract
Conflict of Interest Reporting Requirements
Conflict of Interest Questionnaire
Consideration of Location of Bidder's Principal Place of Business

NOTE: Forms and documents not identified by a Section Number are Midland-specific, and have been provided by the City of Midland.

TECHNICAL SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS

01010 Summary of Work
01019 Contract Considerations
01039 Coordination and Meetings
01090 Standard References
01300 Submittals
01400 Quality Control
01500 Construction Facilities and Temporary Controls
01564 Stormwater Pollution Prevention During Construction
01600 Material and Equipment
01650 Starting of Systems
01700 Contract Closeout

DIVISION 2 – SITE WORK

02110 Site Clearing and Grubbing
02210 Grading and Earthwork
02220 Trench and Excavation Safety System
02224 Excavation, Backfilling and Compacting for Structures
02225 Excavation, Backfilling and Compacting for Utilities
02231 Aggregate Base Course

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE B
CONTRACT B – NEW ELEATED STORAGE TANK
TABLE OF CONTENTS
continued

DIVISION 2 – SITE WORK-continued
02520 Concrete Pavement, Curb and Gutter and Approaches
02665 Water Systems
02675 Water System Disinfection
02685 Cleaning of Potable Water Pipes
02723 Precast Concrete Vaults
02725 Access Covers - Hatches
02831 Chain Link Fences and Gates
02911 Topsoiling and Finished Grading
02921 Hydro Mulch Seeding

DIVISION 3 – CONCRETE
03100 Concrete Formwork
03200 Concrete Reinforcement
03300 Cast-in-Place Concrete
03600 Grout

DIVISION 4 THRU DIVISION 8 – NOT USED

DIVISION 9 – FINISHES
09870 Coating Systems for Steel Tanks

DIVISION 10 – NOT USED

DIVISION 11 – EQUIPMENT
11600 Elevated Storage Tank Mixer

DIVISION 12 – NOT USED

DIVISION 13 – SPECIAL CONSTRUCTION
13000 Process Control Systems – General Provisions
13211 Composite Elevated Storage Tank
13320 Instrumentation System
13321 Monitoring and Sensing Devices

DIVISION 14 – NOT USED

DIVISION 15 – MECHANICAL
15000 General Requirements for Mechanical
15050 Basic Mechanical Materials
15062 Ductile Iron Pipe and Fittings
15090 Pipe Support Systems
15100 Valves – Basic Requirements
15101 Gate Valves
15180 Pipe Insulation

DIVISION 16 – ELECTRICAL
16000 General Requirements for Electrical Work
16110 Raceways and Fittings
16115 Underground Electrical Duct and Conduit
16120 Conductors
16140 Wiring Devices
16170 Circuit and Motor Disconnects
16195 Electrical Identification
16400 Electrical Services
16450 Grounding
16470 Panel Boards
16502 Elevated Tank Lighting
16675 Transient Voltage Surge Suppression

APPENDIX 1 – Geotechnical Investigation Report

BID DOCUMENTS

ADVERTISEMENT

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE B
REQUEST FOR PROPOSALS

The City of Midland (Owner) has issued a Request for Proposals (RFP) in order to evaluate pricing and qualifications of a contractor to construct the following Project:

City of Midland, Texas
Northeast Water System Improvements
Bid Package B
New Elevated Storage Tank

Proposers shall deliver sealed proposals to the Owner at the following address:

City of Midland
Office of the City Secretary
300 N. Loraine, 3rd Floor
Midland, Texas 79701

Proposals must be received at the designated location no later than **2:00 PM, Wednesday, November 18, 2020**.

Proposal Documents may be obtained from Civcast at www.civcastusa.com. Neither Owner nor Engineer will be responsible for full or partial sets of Proposal Documents, including addenda, if any, obtained from sources other than the Issuing Office.

A Virtual Pre-Proposal Meeting will be held at **3:00 PM, Thursday November 5, 2020**. A link to access the Virtual Pre-Proposal Meeting will be posted by Addendum prior to the event. Attendance is encouraged but not required.

For all further requirements regarding submittal, qualifications, procedures, and contract award, refer to the RFP.

The City of Midland reserves the right to reject any or all proposals or to waive any informalities in the proposals.

Date Issued: October 21, 2020
By: Amy Turner
Title: City Secretary

NOTICE TO BIDDERS

IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED **CONTRACT AND INSURANCE REQUIREMENTS ARE NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/COMPANY OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/COMPANY MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.

IF THE SELECTED BIDDER/COMPANY CANNOT MEET THE ABOVE REQUIREMENTS, THEN **THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER**.

IMPORTANT NOTICE – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/COMPANY MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE, WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

COMPLIANCE: Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006,

please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

ANY VENDOR WHO FAILS TO COMPLY WITH THE TERMS OF THE AWARD **MAY BE DECLARED AN IRRESPONSIBLE VENDOR**. BIDS SUBMITTED BY SAID VENDOR SHALL NOT BE CONSIDERED AGAIN FOR A MINIMUM PERIOD OF SIX MONTHS AS DETERMINED BY THE CITY MANAGER.

IMPORTANT: READ CAREFULLY BEFORE MAKING BID
GENERAL CONDITIONS OF BIDDING

1. All bids are to be submitted as specified in the procurement document(s).

2. Each Bidder is requested to provide: Descriptive literature clearly marked to show each item on this bid. Any catalog or manufacturer's reference in this proposal is descriptive, but not restrictive, and is used only to indicate type and quality. If, however, the bidder proposes similar but not identical terms, he must furnish all particulars. If no mention is made of any exceptions, it is assumed that he is bidding on the article specified and not on an approved equal and he will be required to deliver exact article specified.

3. Prices should be itemized. (Indicate unit price and extend to show total price.) In case of discrepancy between the unit price and the extension, the unit price shall govern.

4. Unit price for each item offered shall include all discounts; e.g., trade, seasonal, etc. with net 30 days payment terms. Discounts shall not be shown as such but shall be incorporated in the base bid price. Any bid showing discounts will be considered an alternate bid. The City of Midland will not be responsible for any goods delivered without a purchase order number.

5. If the Contract is awarded, it will be awarded to either the lowest responsible bidder, or to the bidder who provides goods or services at the best value for the City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code. The City of Midland reserves the right to award by item or by total bid, or to reject any or all bids or parts of bids. Further, the City of Midland reserves all rights granted by Section 271.027 of the Texas Local Government Code. The City of Midland reserves the right to award the bid to the lowest responsible bidder.

6. Time of proposed delivery shall be stated in number of calendar days.

7. NOTE: The City of Midland, Texas is exempt from all Federal, State and City tax. Please do not include these taxes in your bid price or invoice. Taxable items must be so designated, and the City will supply vendor with a Tax Exemption Certificate, properly executed.

8. All items are to be delivered, unloaded and stacked at the location indicated on the Bid Request and Purchase Order.

9. All items are to be delivered F.O.B. to the City of Midland, Texas with freight prepaid and included in the bid.

10. Detailed specifications rule over General specifications (headings, etc.)

11. The City of Midland reserves the right to remove a company from the bid list for (1) continued failure to respond to request for bids, (2) failure to deliver merchandise within promised time, or (3) delivery of substandard merchandise.

12. No officer or employee of the City shall have a financial interest, direct or indirect, in any contract with the City, or be financially interested, directly or indirectly, in the sale to the City of any lands, materials, supplies or services except as allowed under chapter 176 of the Local Government Code. Form CIQ shall be submitted and placed on file with the City of Midland.

13. The City shall determine the most advantageous bid for the City and accept the proposal of the responsible party submitting the lowest and/or most advantageous bid or reject any and all bids.

14. The City of Midland, Texas may consider as informal any bid not prepared and submitted in accordance with the provisions hereof, and may waive, in its sole discretion, any informalities.

QUALIFICATIONS STATEMENT

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business's organizational structure:

Form of Business:	☐ Sole Proprietorship ☐ Partnership ☐ Corporation		
☐ Limited Liability Company ☐ Joint Venture comprised of the following companies:			
	1.		
	2.		
	3.		
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?	☐ Yes ☐ No ☐ Pending		

1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1.04 Provide information regarding the Business's officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	
Authorized to sign contracts: ☐ Yes ☐ No		Limit of Authority:	$
Name:		Title:	

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

3.01 Provide information regarding Business's Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
☐ Disadvantaged Business Enterprise		
☐ Minority Business Enterprise		
☐ Woman-Owned Business Enterprise		
☐ Small Business Enterprise		
☐ Disabled Business Enterprise		
☐ Veteran-Owned Business Enterprise		
☐ Service-Disabled Veteran-Owned Business		
☐ HUBZone Business (Historically Underutilized) Business		
☐ Other		
☐ None		

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 4—SAFETY

4.01 Provide information regarding Business's safety organization and safety performance.

Name of Business's Safety Officer:		
Safety Certifications		
Certification Name	Issuing Agency	Expiration

4.02 Provide Worker's Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

ARTICLE 5—FINANCIAL

5.01 Provide information regarding the Business's financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:		
Business address:		
Date of Business's most recent financial statement:		☐ Attached
Date of Business's most recent audited financial statement:		☐ Attached
Financial indicators from the most recent financial statement		
Contractor's Current Ratio (Current Assets ÷ Current Liabilities)		
Contractor's Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)		

ARTICLE 6—SURETY INFORMATION

6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	☐ Yes ☐ No		
Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? ☐ Yes ☐ No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 7—INSURANCE

7.01 Provide information regarding Business's insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):			
Insurance Provider		Type of Policy (Coverage Provided)	
Are providers licensed or authorized to issue policies in the Project location?		☐ Yes ☐ No	
Does provider have an A.M. Best Rating of A-VII or better?		☐ Yes ☐ No	
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 8—CONSTRUCTION EXPERIENCE

8.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

8.02 Provide information regarding the Business's previous contracting experience.

Years of experience with projects like the proposed project:				
As a general contractor:		As a joint venturer:		
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:				
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No				
Been barred from contracting by any local, state, or federal agency within the last 5 years? ☐ Yes ☐ No				
Been released from a bid in the past 5 years? ☐ Yes ☐ No				
Defaulted on a project or failed to complete any contract awarded to it? ☐ Yes ☐ No				
Refused to construct or refused to provide materials defined in the contract documents or in a change order? ☐ Yes ☐ No				
Been a party to any currently pending litigation or arbitration? ☐ Yes ☐ No				
Provide full details in a separate attachment if the response to any of these questions is Yes.				

8.03 List all projects currently under contract in Schedule A and provide indicated information.

8.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business's experience with projects similar in type and cost of construction.

8.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business's key leaders as well.

ARTICLE 9—REQUIRED ATTACHMENTS

9.01 Provide the following information with the Statement of Qualifications:

A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.

B. Diverse Business Certifications if required by Paragraph 3.01.

C. Certification of Business's safety performance if required by Paragraph 4.02.

D. Financial statements as required by Paragraph 5.01.

E. Attachments providing additional information as required by Paragraph 8.02.

F. Schedule A (Current Projects) as required by Paragraph 8.03.

G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.

H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.

I. Additional items as pertinent.

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

This Statement of Qualifications is offered by:

Business: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(date signed)

(If Business is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

_____

_____

_____

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

_____

_____

_____

Phone: _____

Email: _____

EJCDC C-451, Qualifications Statement.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Schedule A—Current Projects

Name of Organization					
Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name			
General Description of Project					
Project Cost		Date Project			
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Schedule B—Previous Experience with Similar Projects

Name of Organization				
Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

EJCDC® C-451, Qualifications Statement—Schedule B—Previous Experience with Similar Projects.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Schedule B—Previous Experience with Similar Projects

Name of Organization				
Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner		Project Name		
General Description of Project				
Project Cost		Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager
Name				

Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)

	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

EJCDC® C-451, Qualifications Statement—Schedule B—Previous Experience with Similar Projects.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Schedule C—Key Individuals

Project Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
Project Superintendent			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

EJCDC® C-451, Qualifications Statement—Schedule C—Key Individuals.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Safety Manager			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Quality Control Manager			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

REQUEST FOR PROPOSALS (RFP)

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE B

The City of Midland (Owner) is now accepting proposals in order to evaluate pricing and qualifications of a contractor to construct the work identified as Package B of the Northeast Water System Improvements Project. Sealed proposals will be received until **2:00 PM, WEDNESDAY, NOVEMBER 18, 2020**. Proposers shall deliver sealed proposals to the Owner at the following address:

City of Midland
Office of the City Secretary
300 N. Loraine, 3rd Floor
Midland, Texas 79701

Proposal Documents may be obtained from Civcast at www.civcastusa.com. Neither Owner nor Engineer will be responsible for full or partial sets of Proposal Documents, including addenda, if any, obtained from sources other than the Issuing Office.

A Virtual Pre-Proposal Meeting will be held at **3:00 PM, THURSDAY NOVEMBER 5, 2020**. A link to access the Virtual Pre-Proposal Meeting will be posted by Addendum prior to the event. Attendance is encouraged but not required.

GENERAL INFORMATION AND OVERVIEW

The purpose of this RFP is to contract with a firm to construct the Northeast Water System Improvements, Package B. The work consists of the following primary elements:

- Construction of a new 2 Million Gallon (MG) Elevated Storage Tank (EST) and associated site improvements, including concrete driveway and site paving, fencing, gates, site piping and vaults, concrete splash pad, drain field, electrical and communication improvements and all other work as shown and specified for a complete and operational system.

- Work requires coordination with construction of the Northeast Transfer Pump Station (TPS) and Transmission/Distribution Pipeline Improvements (PIPELINES) being constructed under Package A.

The City of Midland reserves the right to reject any or all proposals or to waive any informalities in the proposals.

PROPOSAL PROCESS:

1. Requests for Information/Clarification (RFI/C's) shall be submitted to the Engineer no later than 72 hours prior to the RFP Submittal Deadline. RFI/C's to be requested in writing to:

   Mr. Joe Mangrem, PE
   Enprotec/Hibbs & Todd
   402 Cedar Street
   Abilene, TX 79601
   Phone: 325-698-5560
   Email: joe.mangrem@e-ht.com

2. Written responses to RFI/C's requiring Addendum will be made available to all Proposal holders on record no later than 24 hours prior to the RFP Submittal Deadline.

3. One (1) bound copy and one (1) digital PDF version of the Proposal shall be due by the date and time indicated. Proposals received after the closing hour of the due date shall not be considered.

4. Proposal packages must be hand delivered, mailed or shipped by means of a delivery tracking system to confirm delivery time, date, and person signing for delivery.

5. Proposals will be publicly opened and read aloud after the closing hour of the due date.

6. The Owner shall exercise sole discretion as to the schedule and process of evaluating the proposals according to the requirements contained herein.

7. Criteria for award of the Project will include a weighted matrix developed by the Owner, for a maximum number of 100 points, based on the following criteria:

a.	Proposal Pricing	50%
b.	Proposer Qualifications	30%
c.	Proposal Time	10%
d.	Proposer Safety Record	10%

PROPOSAL FORMAT & REQUIREMENTS:

1. The RFP shall be the basis for each proposal.

2. Proposals shall be addressed to the Owner, as indicated, in a sealed package that shall be independent of the mailing/shipping packages. The proposal package shall be clearly marked as "City of Midland, Northeast Water System Improvements, Package B" on the package label. The package label shall include the name and address of the Respondent's company.

3. Proposals shall be submitted in bound documents.

4. Proposals sent by facsimile (fax) machine or by email shall be rejected as being non-responsive to the RFP.

5. Proposal pricing shall be for the entirety of the work shown or specified and shall be listed on the Price Proposal Sheet of this RFP.

6. All exclusions shall be listed in specific terms, quantities, and values.

7. No Respondent may withdraw its proposal within 60 days after the actual date of the opening thereof.

8. A Proposal may be withdrawn by an appropriate document duly executed in the same manner that a Proposal must be executed and delivered to the place where Proposals are to be submitted prior to the date and time of the RFP submittal deadline. Upon receipt of such notice, the unopened Proposal will be returned to the Respondent.

    a. If a Respondent wishes to modify its Proposal prior to the RFP submittal deadline, Respondent must withdraw its initial Proposal in the manner specified and submit a new Proposal prior to the date and time of the RFP submittal deadline .

    b. If within 24 hours after Proposals are opened any Respondent files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Proposal, that Respondent may withdraw its Proposal, and the Bid security will be returned. Thereafter, if the Work is rebid, that Proposer will be disqualified from further bidding on the Work.

9. Respondents shall satisfy themselves of the accuracy of the requirements in the RFP by examination of the sites in addition to the review of the Proposal Documents. After proposals have been submitted, the Respondent shall not assert that there was a misunderstanding concerning the quantities of work or the nature of the work to be done. The RFP contains the provisions required for the construction of the Project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Respondent or relieve them from fulfilling any of the conditions of any Contract awarded under this RFP.

10. A certificate of insurance as provided for in the Proposal Documents, naming Owner and Engineer as co-insured, shall be required for any Contract awarded under this RFP. Respondent's insurance company shall be required to give a minimum of 30 days prior notice of policy or coverage cancellation.

11. A PERFORMANCE and PAYMENT BOND, each in the amount of 100 percent (100%) of the Contract Price, issued by a corporate surety authorized to conduct business in the State of Texas under Article 7.19-1, Texas Insurance Code, will be required for the faithful performance of any Contract awarded under this RFP. Attorneys-in-fact who sign PAYMENT BONDS and PERFORMANCE BONDS must file with each bond a certified and effective dated copy of the power of attorney. The party to whom the contract is awarded will be required to execute the Agreement and obtain the PERFORMANCE AND PAYMENT BONDS within ten (10) calendar days from the date when the NOTICE OF AWARD is delivered to the Proposer. The NOTICE OF AWARD shall be accompanied by the necessary Agreement, Bond Forms, and insurance requirements. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period.

12. Respondent must provide documentation with Proposal proving that they possess a Water Operator D license, or better, in the state of Texas, and the successful Respondent will be required to maintain said license throughout duration of the project.

13. Proposals shall include, at a minimum, the following sections and documentation in response to the RFP:

    a. Request for Proposal Document – A complete copy of this RFP, including addenda, if any, shall be submitted as a Proposal Section, in its entirety, to include the Price Proposal Sheet to be completed by the Respondent.

    b. Pricing, as follows:

        i. Pricing shall be submitted by item on the attached Price Proposal Sheet. Failure to price all listed items may be considered non-responsive to the RFP.

        ii. Pricing shall include all proposal development costs, mobilization, labor, material, transportation, equipment, incidentals, appurtenances, demolition, removal, demobilization, overhead, and profit to cover the finished work specified in this RFP document, achieving a fully functional system.

        iii. Pricing shall reflect the Owner's sales tax exempt status.

        iv. Pricing shall include all freight and handling costs, F.O.B., Owner's destination.

        v. Pricing shall include insurance and bonding costs.

    c. Statement of Qualifications Section shall include the following minimum information:

        i. Company Profile with listing of principals by percent ownership and their role in the company.

        ii. Type of company – corporation, sole proprietorship, etc.

        iii. Primary field of business interest (water/wastewater, industry, oil & gas, etc.), listed by percent of revenue.

        iv. Date of Incorporation and/or start-up.

        v. Number of years under the current ownership structure and business name.

        vi. Number and location of offices and technical support centers.

        vii. Percentage of this project, based on cost, that shall be:

            - Self-performed – completed by company personnel = what percent.
            - Sub-contracted – completed by personnel of other companies = what percent.

viii. Listing of all sub-contractors proposed to be used, including a complete Statement of Qualifications as required under this section to be completed by any sub-contractor anticipated to perform over 10% of the work by cost.

ix. Number of employees (not subcontractor employees) dedicated to construction, integration, and technical support.

x. Resume and experience of each person to be assigned to this project, to include:

- The individual's technical background as it relates to this project and related field of interest.
- The individual's duration with the Proposer's company.
- The individual's proximity to the Owner's facilities as a reasonable response expectation for technical and service support.
- The individual's company of employment if different from the Respondent.
- Detailed project-specific and Owner's references for the proposed Project Manager and Field Superintendent.

xi. Areas of specialization including required licenses and certifications.

xii. Area of geographical coverage of related project and service activities.

d. Reference Section shall include:

i. A listing of previous project referenced and experience shall be provided by the Proposer, information to include:

- Name of entity.
- Project name.
- Contact person.
- Phone number.
- City of office.
- Year work completed.

ii. A list of a minimum of three (3) similar projects that include the complexity and magnitude of work to be completed in this project, and that have been completed by the Proposer. The list must include contact names, titles, addresses, email addresses, and telephone numbers for references.

e. Safety Record:

i. Include Business's safety organization and safety performance required in Qualifications Statement.

ii. Experience Modification Rate (EMR) for the last three (3) years.

iii. Total Recordable Incident Rate (TRIR) for last three (3) years.

iv. OSHA 300 Logs for the last three (3) years.

v. List and summary of recordable injuries and fatalities in the last three (3) years.

vi. Names and resumes of full-time, credentialed health and safety employees. To be considered credentialed, the minimum acceptable level of certification is the Certified Health and Safety Technician (CHST).

f. Project Schedule:

i. Include with proposal a detailed project schedule from the Notice to Proceed for the timetable for completing the construction of the Work within the time proposed on the Price Proposal Sheet.

ii. Final Completion shall be sixty (60) calendar days from the date established for Substantial Completion.

TERMS AND CONDITIONS:

1. The Owner hereby notifies all Respondents that:

   a. The purchase contemplated by this RFP shall be procured in strict compliance with the local, state and federal laws.

   b. There is no pre-disposition of award to any particular company at the time of advertisement of this RFP.

   c. An invitation to any Respondent, verbal or otherwise, does not waive any requirement set forth in this RFP.

   d. In regard to any agreement entered into pursuant to this document, minority business enterprises will be afforded equal opportunities to submit proposals in response to this invitation and will not be discriminated against on the grounds of race, color, sex, age, religion, or national origin in consideration for an award.

2. The Owner reserves the right to reject any and/or all proposals, to waive any and all technicalities and to accept any proposal, or part thereof, which in the opinion of the Owner, is most advantageous to the Owner. In case of ambiguity or lack of clarity in stating the prices in the proposal, the Owner reserves the right to consider the most advantageous proposal thereof or to reject the proposal.

3. Respondents may modify their proposal by written addendum at any time prior to the scheduled receipt of proposals, provided such communication is received by the Owner prior to the closing hour of the proposal due date. The addendum should not reveal the proposal pricing, but should provide the addition or subtraction or other modification so that the Owner will not know the final pricing or

terms until the sealed proposal, and its addendum, is opened.

4. Owner will not provide interpretation of the meaning of Proposal Documents to any Respondent orally. Such communication must be in writing in the form of an RFI/C and directed to the Engineer as stated herein. Where this RFP is ambiguous or in conflict with on-site conditions, the Respondent shall bring forth questions for clarification, and shall assume all responsibility for a fully functional system prior to submitting a proposal. The Owner and Engineer shall determine the meaning and requirements of any questionable items.

5. Requests for Information/Clarification (RFI/C's) shall be submitted to the Engineer, as previously indicated.

6. Respondents shall assume all responsibility for verifying Engineer's receipt of Requests for Information/Clarification (RFI/C). Where applicable, an addendum or written clarification shall be provided to all Respondents to clarify the meaning of questionable items.

7. Evaluation of proposals will be based on the criteria stated herein. The best-value proposal submitted by a responsible, responsive, qualified Respondent will be selected for negotiations with the Owner. If proposal amounts exceed the available funds to finance the contract, the Owner may reject all proposals or may award the contract on a negotiated proposal to produce a net amount which is within available funds. The Owner reserves the right to waive any informalities or technical errors that in its judgment will best serve its interests.

8. At the time of the opening of proposals, each Respondent will be presumed to be thoroughly familiar with the technical requirements, including any addenda, as set forth herein. The failure or omission of any Respondent to examine any site condition, form, instrument, or document shall in no way relieve any Respondent from any obligation with respect to the proposal. It is the Respondent's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the Proposal Documents and all Respondents shall be bound by such addenda, whether or not received by the Respondents.

9. The Owner may make such investigations as deemed necessary to determine the ability of the Respondent to perform the work, and the Respondent shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any proposal if the evidence submitted by, or the investigation of, such Respondent fails to satisfy the Owner that such Respondent is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional proposals will not be accepted.

10. Respondents must inform themselves fully of the conditions relating to the construction of the project and the employment of labor therein. Failure to do so will not relieve a successful Respondent of their obligation to furnish all labor and material necessary to carry out the provisions of any Contract awarded under this RFP. The conduct of required work shall not cause any interruptions of, or interfere with, the work of any other contractors.

11. The Respondent's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract as though therein written out in full.

12. The Respondent is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this contract must be identified and shall be acceptable to the Owner.

13. With respect to all work performed under this Contract, the Respondent shall meet the following requirements, where scope of work is applicable:

    a. Comply with the safety standards and provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, and the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596).

    b. Exercise every precaution at all times for the prevention of accidents and the protection of persons, including employees, and property. Proposer shall conduct weekly safety meetings to insure a safe working environment. The Owner shall reserve the right to request documentation of such meetings and safety training practices.

14. **Provision of Texas Ethics Commission Form 1295 ("TEC Form 1295") by Respondents: Effective January 1, 2016, pursuant to Texas Government Code § 2252.908 (the "Interested Party Disclosure Act" or the "Act"), the Owner may not award the contract to a Respondent unless the Respondent has provided to the Owner a completed, signed and notarized TEC Form 1295 which has been assigned a certificate number by the Texas Ethics Commission (the "TEC"). Pursuant to the rules prescribed by the TEC, the TEC Form 1295 must be completed online through the TEC's website, assigned a certificate number, printed, signed and notarized, and provided to the Owner. The TEC Form 1295 may accompany the Proposal or may be submitted separately, but must be provided to the Owner prior to the award of the contract. For purposes of completing the TEC Form 1295, the entity's name is City of Midland; the contract ID number is 7227; and the description of goods and services is Northeast Water System Improvements Package B. Neither the Owner nor its consultants have the ability to verify the information included in a TEC Form 1295, and neither have an obligation nor undertake responsibility for advising any Respondent with respect to the proper completion of the TEC Form 1295.**

SELECTION OF PROPOSER:

Following the review and evaluation of the RFPs, the Owner will notify the most qualified Proposer providing the best-value proposal for the project in writing. Negotiations will be conducted with the selected Proposer to achieve a contract for the Project. If negotiations are unsuccessful, negotiations will be terminated with the Proposer and the Owner will enter into negotiations with the second most qualified, best-value Proposer.

A "Notice of Award" will be issued upon approval of the selected Proposer's contract. A "Notice-to-Proceed" may be issued by the Owner to initiate each work element of the project. The selected Proposer shall be prepared to arrive on site to initiate construction of the proposed improvements upon immediate readiness demanded by the proposed completion date. The selected Proposer shall coordinate its proposed construction schedule with the Owner and Engineer prior to mobilization.

PAYMENT:

Upon notice to proceed, the selected Proposer shall submit a schedule of values to the Engineer for approval as a basis of partial payment requests throughout the project. The selected Proposer may submit monthly invoices for work completed and materials purchased during the previous 30-day period based on the schedule of values. All invoices shall reflect a five percent (5%) retention from the amount of the draw request.

Owner shall remit the net amount of the invoice within 30 days of receipt of the invoice. All retained amounts shall be remitted upon final completion of the project as approved by the Owner and release of a Certificate of Completion.

CONDITIONS OF AWARD:

The Proposals will be considered and evaluated for award based upon the criteria set forth in this RFP.

The Price Proposal Sheet shall be completed with pricing of all items as required by the Proposal Documents of this RFP, and meet the terms thereof. All blank spaces for priced items must be filled in, in ink or typewritten, and the pricing form must be fully completed and executed when submitted. The Owner may waive any informalities or minor defects or reject any or all proposals. The Owner reserves the right to reject any and all proposals, in whole or in part; to waive any informality in any proposal, and to accept the proposal which, in its discretion, is in the best interest of the Owner. In case of ambiguity or lack of completeness in stating the prices in any proposal, the Owner reserves the right to consider the most advantageous thereof.

CITY OF MIDLAND
NORTHEAST WATER SYSTEM IMPROVEMENTS
BID PACKAGE B
PRICE PROPOSAL SHEET

Proposer must completely fill out and provide pricing for all items and sections of the Price Tabulation Sheet below.

PACKAGE B – ELEVATED STORAGE TANK					
GENERAL					
ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
1	LS	-	**Mobilization, Bonds and Insurance** (not to exceed 5 percent of Total) for _____ _____ _____ Dollars and _____Cents per lump sum.	-	$_____
2	LS	-	Prepare and implement **Stormwater Pollution Prevention Plan** in accordance with Section 01564 for _____ _____ Dollars and _____ Cents per lump sum.	-	$_____
3	LS	-	Prepare and implement **Traffic Control Plan** in accordance with Section 02280 for _____ _____ _____ Dollars and _____Cents per lump sum.	-	$_____
4	LF	200	Prepare and implement **Trench and Excavation Safety Plan** in accordance with Section 02220 for _____ _____ Dollars and _____Cents per linear feet.	$_____/LF	$_____
5	LS	-	**Owner's Allowance for SCADA System Integrator Contract**, at lump sum amount of ___ Fifty Thousand Dollars and No Cents per lump sum.	-	$ 50,000.00
6	LS	-	**Owner's Allowance for Work Directed by Owner**, at lump sum amount of _____ Two Hundred Fifty Thousand Dollars and No Cents per lump sum.	-	$ 250,000.00
			GENERAL SUB-TOTAL	$_____	

BASE					
ITEM No.	UNIT	EST QTY	DESCRIPTION AND UNIT PRICE (Price to be written in words)	UNIT PRICE	TOTAL AMOUNT
1	LS	-	Construction of **Elevated Storage Tank**, including, but not limited to: tank; yard piping; valves; vaults; site earthwork, grading and paving; overflow splash pad, drain field, fencing, gates, site electrical, coordination with City's SCADA System Integrator; and all related work shown on the Drawings and Specified in the Project Manual for a complete and operable system for _____ _____ _____ Dollars and _____Cents per lump sum.	-	$_____
				BASE SUB-TOTAL	$_____
				GENERAL SUB-TOTAL	$_____
				BASE SUB-TOTAL	$_____
				GENERAL + BASE TOTAL	$_____

PACKAGE B – PROPOSAL TIME	
DESCRIPTION	**DAYS**
Total number of calendar days to substantially complete the Work*	_____

***Maximum allowable Proposal Time for substantial completion is 480 calendar days.**

Proposer agrees that the Work will be substantially complete, as provided in the General Conditions, within the number of calendar days shown above and completed and ready for final payment in accordance with the General Conditions within **60** calendar days after the date that substantial completion is reached.

Respectfully Submitted (Respondent):_____

SUBMITTED on _____, 20___.

State Contractor License No. _____. (If applicable

1. The undersigned Proposer proposes and agrees, if this Proposal is accepted, to enter into an Agreement with Owner in the form included in the Proposal Documents to perform and furnish all Work as specified or indicated in the Proposal Documents and in accordance with the other terms and conditions of this RFP.

2. Proposer accepts all of the terms and conditions of the RFP, including without limitation those dealing with the disposition of Bid security. The Proposal will remain subject to acceptance for 60 days after the Proposal opening, or for such longer period of time that Proposer may agree to in writing upon request of Owner.

3. In submitting this Proposal, Proposer represents, as set forth in the Agreement, that:

   A. Proposer has examined and carefully studied the Proposal Documents, the other related data identified in the Proposal Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____

   B. Proposer certifies Proposer is qualified to do business in the state where the Project is located as required by laws, rules, and regulations or, if allowed by stature, covenants to obtain such qualification prior to contract award.

   C. Proposer understands and agrees that this Proposal shall form the basis for an agreement with the Owner. Therefore, the undersigned agrees to enter into an agreement to perform and furnish all Work as specified or indicated in these Specifications for the amount indicated in this Proposal and in accordance with the other terms and conditions of these Contract Documents.

   D. Proposer accepts all of the terms and conditions of these Contract Documents including, without limitation, those dealing with the disposition of Bid security, required bonds, and the liquidated damages that may be imposed. This Proposal shall remain subject to acceptance for a period of 60 days after the day of Proposal opening. The Proposer shall sign and submit the Agreement with the bonds and other required documents within 10 days after the receipt of Notice of Award from the Owner.

   E. Proposer has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Proposer has discovered in the Proposal Documents, and the written resolution thereof by Engineer is acceptable to Proposer.

   F. The Proposal Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Proposal is submitted.

5. Proposer further represents that this Proposal is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Proposer has not directly or indirectly induced or solicited any other Proposer to submit a false or sham Proposal; Proposer has not solicited or induced any individual or entity to refrain from proposing; and Proposer has not sought by collusion to obtain for itself any advantage over any other Proposer or over Owner.

6. Proposer will complete the Work in accordance with the Proposal Documents for the prices proposed in the Price Proposal Sheet or as modified during negotiations with the Owner.

7. Proposer accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times specified.

8. The following documents are attached to and made a condition of this Proposal:

   A. Advertisement
   B. Notice to Bidders
   C. General Conditions of Bidding
   D. Qualifications Statement.
   E. Standard Purchase Terms and Conditions
   F. Non-Collusion Affidavit of Prime Proposer
   G. Debarment / Suspension Certification
   H. Bid Bond
   I. Contract
   J. Exhibit C – Bonding Requirements
   K. Exhibit D – Heavy & Highway Wage Rates rev. 01/03/2020
   L. Exhibit D – Building Water Rates rev. 01/03/2020
   M. Performance Bond
   N. Payment Bond
   O. Standard General Conditions of the Construction Contract
   P. Conflict of Interest Reporting Requirements
   Q. Conflict of Interest Questionnaire
   R. Consideration of Location of Bidder's Principal Place of Business

9. The Proposer is required to include their proposed construction schedule.

STANDARD PURCHASE TERMS AND CONDITIONS
PURCHASING DIVISION, CITY OF MIDLAND, TEXAS

"Seller", as used herein, has the same meaning as "Company". "Buyer", as used herein, has the same meaning as "City".

Seller and Buyer agree as follows:

1. SELLER TO PACKAGE GOODS - Seller will package goods in accordance with good commercial practice. Each shipping container shall be clearly and permanently marked as follows; (a) Seller's name and address, (b) Consignee's name, and address, and purchase order number, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing slip. Seller shall bear cost of packaging unless otherwise provided. Goods shall be suitably packed to secure lowest transportation costs and to conform with requirements of common carriers and any applicable specifications. Buyer's count or weight shall be final and conclusive on shipments not accompanied by packing lists.

2. SHIPMENT UNDER RESERVATION PROHIBITED - Seller is not authorized to ship the goods under reservation and no tender of a bill of lading will serve as a tender of goods.

3. TITLE & RISK OF LOSS - The title and risk of loss of the goods shall not pass to Buyer until Buyer actually receives and takes possession of the goods at the point or points of delivery in Midland, Texas.

4. NO REPLACEMENT OF DEFECTIVE TENDER - Every tender or delivery of goods must fully comply with all provisions of this contract as to time of delivery, quality and the like. If a tender is made which does not fully conform, this shall constitute a breach and Seller shall not have the right to substitute a conforming tender, provided, where the time for performance has yet expired, the Seller may reasonably notify Buyer of his intention to cure and may then make a conforming tender within the contract time but not afterward.

5. PLACE OF DELIVERY - The place of delivery shall be that set forth in the block of the purchase order entitled "deliver to".

6. INVOICES - Seller shall submit separate ORIGINAL invoices, on each purchase order. Invoices shall indicate the purchase order number. All invoices must be mailed to City of Midland, Accounts Payable, P.O. Box 1152, Midland, TX 79702-1152. Payment will be made within 30 days from the date the invoice and properly executed receiving documents are received by City of Midland, Accounts Payable at the above address. Invoices sent to any other address will delay payment.

7. GRATUITIES - The buyer may, by written notice to the seller, cancel this contract without liability to Seller, if it is determined by Buyer that gratuities, in the form of entertainment, gifts, or otherwise, were offered or given by the seller, or any agent or representative of the Seller, to any officer or employee of the City of Midland with a view toward securing a contract or securing favorable treatment with respect to performing of such a contract. In the event this contract is cancelled by Buyer pursuant to this provision, Buyer shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by Seller in providing such gratuities.

8. WARRANTY - PRICE -

a. The price to be paid by the Buyer shall be that contained in Seller's bid which Seller warrants to be no higher than Seller's current prices on order by others for products of the kind and specifications covered by this agreement for similar quantities under similar or like conditions and methods of purchase. In the event Seller breaches this warranty, the prices of the items shall be reduced to the Seller's current prices on order by others, or in the alternative, Buyer may cancel this contract without liability to Seller for breach or Seller's actual expense.

b. The Seller warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for commission, percentage, brokerage, or contingent fee excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Seller for the purpose of securing business. For breach or violation of this warranty the Buyer shall have the right or rights to cancel this contract without liability and to deduct from the contract price, or otherwise recover the full amount of such commission, percentage, brokerage or contingent fee.

9. WARRANTY - PRODUCT - Seller shall not limit or exclude any implied warranties and any attempt to do so shall render this contract voidable at the option of the Buyer. Seller warrants that the goods furnished will conform to the specification, drawings, and description listed in the bid invitation, and to the sample(s) furnished by Seller, if any. In the event of a conflict between the specifications, drawings and descriptions, the specifications shall govern.

10. SAFETY WARRANTY - Seller warrants that the product sold to Buyer shall conform to the standards promulgated by the U.S. Department of Labor under the Occupational Safety and Health Act of 1970. In the event the product does not conform to OSHA standards, Buyer may return the product for correction or replacement at the Seller's expense. In the event Seller fails to make the appropriate correction within a reasonable time, correction made by buyer will be at Seller's expense.

11. RIGHT OF INSPECTION - Buyer shall have the right to inspect the goods at delivery before accepting them.

12. CANCELLATION - Buyer shall have the right to cancel for default all or any part of the undelivered portion of this order if Seller breached any of the terms hereof including warranties of Seller if the Seller becomes insolvent or commits acts of bankruptcy. Such right of cancellation is in addition to and not in lieu of any other remedies which Buyer may have in law or equity.

13. TERMINATION - The performance of work under this order may be terminated in whole, or in part by the Buyer in accordance with this provision. Termination of work hereunder shall be effected by the delivery to Seller of a "Notice of Termination" specifying the extent to which performance of work under the order is terminated and the date upon which such termination becomes effective. Such right of termination is in addition to and not in lieu of the rights of Buyer set forth in Clause 13, herein.

14. FORCE MAJEURE - Neither party shall be held responsible for losses, resulting if the fulfillment of any terms or provisions of this contract is delayed or prevented by any cause not within the control of the party whose performance is interfered with, and which by the exercise of reasonable diligence said party is unable to prevent.

15. ASSIGNMENT - DELEGATION - No right or interest in this contract shall be assigned or delegation of any obligation made by Seller without the written permission of the Buyer. Any attempted assignment or delegation by the Seller shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph.

16. MODIFICATIONS - This contract can be modified or rescinded only by a writing signed by both of the parties or their duly authorized agents.

17. INTERPRETATION - PAROL EVIDENCE - This writing, plus any specifications for bids and performance provided by Buyer in its advertisement for bids, is intended by the parties as a final expression of this agreement. No course of prior dealings between the parties and no usage of the trade shall be relevant to supplement or explain any term used in this agreement. Acceptance or acquiescence in a course of performance rendered under this agreement shall not be relevant to determine the meaning of this agreement even though the accepting or acquiescing party has knowledge of the performance and opportunity for objection. Whenever a term defined by the Uniform Commercial Code is used in this agreement, the definition contained in the Code is to control.

18. ADVERTISING - Seller shall not advertise or publish without Buyer's prior consent the fact that Buyer has entered into the contract, except to the extent necessary to comply with proper requests for information from an authorized representative of the federal, state or local government.

19. RIGHT TO ASSURANCE - Whenever one party to the contract in good faith has reason to question the other party's intent to perform he may demand that the other party give written assurance of this intent to perform. In the event that a demand is made and no assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the contract.

20. PROTECTION AGAINST ROYALTIES OR PATENT INFRINGEMENT - The Seller shall pay all royalties and license fees, and shall provide for the use of any design, device, material or process covered by letters patent or copyright by suitable legal agreement with Patentee or Owner thereof. The Seller shall defend all suits or claims for infringement of any patent or copyrights and shall indemnify and save the Buyer harmless from any loss on account thereof, except that Buyer shall defend all such suits and claims and shall be responsible for all such loss when a particular design, device, material or process is allowed to the Seller, the Seller shall indemnify and save Buyer harmless from any loss on account thereof. If the material or process specified or required by Buyer is an infringement, the Seller shall be responsible for such loss unless he promptly gives written notice to the buyer of such infringement.

21. TIME - It is hereby expressly agreed and understood that time is of the essence for the performance of this contract, and any failure by contract to meet the time specifications of this agreement will cause Seller to be in default of this agreement.

22. TAX - The City of Midland is exempt from all Federal, State and City tax. Please do not include these taxes in your bid price or invoice. Taxable items must be so designated, and the City will supply vendor with a Tax Exemption Certificate, properly executed.

23. **INSURANCE –**

The following provisions apply unless the agreement is for the supply of goods only:

Seller shall at all times during the term of this agreement maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Worker's Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project or policy aggregate, including completed operations, and shall be on an occurrence basis.

The Workers' Compensation coverage provided by Seller shall inure to the benefit of employees injured during the course and scope of their employment by Seller pursuant to this agreement.

The Business Automobile Liability insurance provided by Seller shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-owner vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this agreement.

All insurance required pursuant to this agreement, except for Worker's Compensation Insurance, shall name the Buyer as an additional insured on a claims occurred basis. All insurance required pursuant to this agreement, including Worker's Compensation Insurance, shall provide for a waiver of subrogation as to the Buyer.

The parties agree that, prior to the execution of the agreement, Seller shall provide one or more certificates of insurance showing that the requirements of this article have been met, and specifically containing, without limitations, the following endorsement:

"The City of Midland is included as an additional insured, on a claims occurred basis, on all policies except for Worker's Compensation. The Seller and Insurer hereby waive all rights of subrogation with respect to claims against the City of Midland, its agents, employees and officers, on all policies of insurance."
Buyer shall be provided the notice by Seller's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage. Buyer shall not be required to provide any insurance whatsoever pursuant to this agreement.

Seller shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this agreement to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers compensation).

24. ASSIGNMENT - Seller shall not, either directly or indirectly, assign all or any part of this agreement or any interest, right or privilege herein, without the prior written consent of the Buyer. The issue on whether or not to grant consent to an assignment is in the sole discretion of the Buyer.

25. RELEASE - NOTWITHSTANDING ANY OTHER PROVISIONS, SELLER HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES BUYER, BUYER'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH SELLER HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR BUYER'S NEGLIGENCE.

26. GOVERNING LAW AND VENUE - This agreement shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this agreement or the performance of this agreement shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this agreement shall be deemed to have occurred in Midland County, Texas.

27. INDEPENDENT CONTRACTOR - It is expressly understood and agreed that Seller shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the Buyer; that Seller shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between Buyer and Seller, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between Buyer and Seller. No person performing any of the work and services described hereunder by Seller shall be considered an officer, agent, servant or employee of the Buyer. Further, it is specifically understood and agreed that nothing in this agreement is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Seller shall be an independent contractor under this agreement and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The Buyer does not have the power to direct the order in which the work is done. The Buyer shall not have the right to control the means, methods or details of the Seller's work. Seller shall assume exclusive responsibility for the work. Seller is entirely free to do the work in its own way.

28. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES - As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this agreement, Seller or his legal representative, shall give the City Manager, or any other reasonable official of the Buyer, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one-hundred-twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Seller will settle, the physical and mailing addresses of Seller at the time and date the claim was presented and the physical and mailing addresses of Seller for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Seller relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the Buyer from any liability whatsoever. The Buyer is under no obligation to provide notice to Seller that Seller's notice is insufficient. Buyer reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Seller's failure to comply with the requirements herein shall perpetually bar Seller's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if Buyer has actual or constructive notice or knowledge of said claim or alleged damages. Seller agrees that the requirements of this entire agreement are reasonable.

29. INDEMNITY (NOT APPLICABLE TO PURCHASE AGREEMENTS) - SELLER WILL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING REASONABLE ATTORNEY'S FEES,

BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF SELLER, its agents or employees, or any subcontractor, arising out of, or resulting from, Seller's use of, or activities on, the agreement premises, and Seller will be required to pay any judgment with costs which may be obtained against Buyer or any of its officers, agents or employees, including reasonable attorney's fees.

SELLER SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND BUYER AND ALL OF BUYER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, ACCIDENTAL DEATH, PERSONAL INJURIES, PROPERTY DAMAGE, LOSSES, AND EXPENSE OF ANY CHARACTER WHATSOEVER INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF BUYER, BUYER'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH SELLER OR SELLER'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS AGREEMENT AND SELLER WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST BUYER OR ANY OF BUYER'S OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

30. SOVEREIGN IMMUNITY - By executing this agreement the Buyer is not waiving its right of sovereign immunity. The Buyer is retaining its immunity from suit. The Buyer is not granting consent to be sued by legislative resolution or action. **THERE IS NO WAIVER OF SOVEREIGN IMMUNITY**.

31. THIRD PARTY BENEFICIARY - The Buyer's approval of this agreement does not create a third party beneficiary. There is no third party beneficiary to this agreement. No person or entity who is not a party to this agreement shall have any third party beneficiary or other rights hereunder.

32. <u>ATTORNEY FEES</u> - BY EXECUTING THIS AGREEMENT, SELLER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE BUYER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT. THE SELLER SPECIFICALLY AGREES THAT IF THE SELLER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE SELLER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH SELLER MIGHT OTHERWISE BE ENTITLED.

SELLER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. SELLER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. THE SELLER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BUYER AND THE SELLER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE SELLER AND BUYER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

33. CONSIDERATION - The terms of this agreement are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

34. CERTIFICATION - In accordance with the Texas Local Government Code, the City of Midland Department of Facilities and Fleet Management does hereby certify that the City of Midland is in compliance with Sections 252, 271 and all applicable sections of the Texas Local Government Code and other state law as it applies to procurement and contracting issues.

35. FEDERAL WAGE REQUIREMENTS - If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this agreement and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this agreement, to which the parties to this agreement have agreed to be bound.

36. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS - Seller shall at all times during the term of this agreement comply with applicable federal, state, and local laws regarding Seller's activities pursuant to this agreement, including but not limited to all applicable sections of the Municipal Code of Midland, Texas, as may be amended, said sections being hereby incorporated by reference and made a part of this agreement for all legal purposes. Failure to abide by any such law mentioned herein constitutes grounds for the immediate termination of this agreement.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____ §

County of _____ §

_____ , being first duly sworn, deposes and says that:

(1) He is _____ of _____ the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other bidder, or to fix an overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any advantage against the City of Midland or any person interested in the proposed contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees or parties in interest, including this affiant.

(signed) _____

_____
Title

Subscribed and sworn to before me

this _____ day of _____ ,20___.

_____
My commission expires _____, 20___.

Debarment / Suspension Certification

I, _____, hereby certify that I have checked on the federal
(Authorized Representative of Recipient)
System for Award Management (www.sam.gov) website and determined that
_____ is not shown as an "excluded party" that is debarred,
(Name of entity)
suspended or otherwise excluded from or ineligible for participation in federal assistance programs under Executive Order 12549. (See 2 CFR Part 180 and 2 CFR Part 1532 for additional information on the federal governmentwide debarment and suspension system for nonprocurement programs and activities.)

I understand that a false statement herein may subject me to penalties under federal and state laws relating to filing false statements and other relevant statutes.

_____ _____
Signature Date

_____
Title

_____
Name of Recipient

Verifying prime contractors and subcontractors for construction, equipment, supplies and services: Using the www.sam.gov website, the recipient must verify prior to awarding the contract that the prime contractor is not listed as an "excluded party" that is debarred, suspended or otherwise excluded from or ineligible. Once any subcontractors are known, they also must be verified as not listed as an "excluded party" prior to award of a subcontract. The recipient must print a dated record of the verification from the www.sam.gov website and retain a copy that is available for review by TWDB. The prime contractors and subcontractors must be verified prior to the contract award or the costs may be disallowed.

BID BOND

THE STATE OF TEXAS §

SURETY NO. _____

COUNTY OF MIDLAND §

KNOW ALL MEN BY THESE PRESENTS, THAT _____

_____

_____

(hereinafter called the Principal), as Principal, and _____

_____

_____

(hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____

_____ DOLLARS

($_____), for the payment whereof the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid or Proposal to enter into a certain written Contract with the obligee to_____

_____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully enter into such written Contract, then this obligation shall be void; otherwise to remain in full force and effect.

IT IS EXPRESSLY UNDERSTOOD AND AGREED that if said Principal should withdraw its Bid anytime after such Bid is opened and before official rejection to such Bid or, if successful in securing the award thereof, said Principal should fail to enter into the Contract and furnish satisfactory Performance Bond and Payment Bond, the Obligee, in either such events, shall be entitled and is hereby given the right to collect the full amount of this Bid Bond as liquidated damages.

PROVIDED, further that if any legal action be filed upon this Bond venue shall lie in Midland County, Texas

IN WITNESS THEREOF, THE SAID PRINCIPAL AND SURETY do sign and seal this instrument, this _____ day of _____, 20____.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: ATTACH POWER OF ATTORNEY

CONTRACT DOCUMENTS

THE CITY OF MIDLAND

CONTRACT

Contract No. 210000527

THIS CONTRACT, effective the 16th day of December, 2020, by and between the City of Midland, hereinafter referred to as "City", and CB&I Storage Tank Solutions, LLC, hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 4,999,000.00 Four Million Nine Hundred Ninety-Nine Thousand DOLLARS

2. **Scope of Work:** Company shall perform all work described for Northeast Water System Improvements, Bid Package B – Elevated Storage Tank in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Carl Craigo or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than 480 calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise available in any fiscal period for continued payments due under the contract, then this contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment; Retainage:** After all work is completed by Company, including all Change Orders altering the original scope and amount of the contract are completed, and the City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, the City may thereafter issue payment to Company in the amount of the contract and all Change Orders. The City shall be the final judge of when the work is completed by Company. The City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to the City's requirements.

16.1. The City may make periodic payments to Company; provided, however, such periodic payments may only be made pursuant to this section, and only after all work and all Change Orders are completed by Company and approved by the City. The approval shall be in the City's sole discretion. Requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the City or the City's representative, the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **Late Completion; Liquidated Damages:** It is hereby understood and mutually agreed, by and between Company and the City, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "Notice to Proceed." Company agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof

within the time specified. It is expressly understood and agreed, by and between Company and the City, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

17.1. In the event Company shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the City, then Company and Company's surety, if any, shall be liable for and does hereby agree, as a part consideration for the awarding of this contract, to pay to the City $500.00, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every day that Company shall be in default after the time stipulated in the contract for completing the work. Further, the City shall have the right to cancel this contract for such delay. In the event the City cancels this contract pursuant to the terms of this section, the City shall pay to Company only those monies deemed appropriate by the City, in its sole discretion, to compensate Company for any work actually performed, less any liquidated damages Company owes the City.

17.2. The said amount is fixed and agreed upon by and between Company and the City because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would in such event sustain, and said amount is agreed to be the amount of damages which the City would sustain and said amount shall be retained from time to time by the City from current periodical estimates.

17.3. It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that Company shall not be charged with liquidated damages or any excess cost when the City determines, in its sole discretion, that Company is without fault and Company's reasons for the time extension are acceptable to the City. Provided, further, that Company shall not be charged with liquidated damages of any excess cost when the delay in completion of the work is due:

a. To any preference, priority or allocation order duly issued by the Government;

b. To unforeseeable cause beyond the control and without the fault or negligence of Company, including, but not restricted to, acts of God, or of the public enemy, acts of the City, acts of another contractor in the performance of a contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

c. To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article.

17.4. Provided, further, that Company shall, within ten (10) days from the beginning of such

delay, unless the City shall, in its sole discretion grant a further period of time prior to the date of final settlement of the contract, notify the City, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify Company within a reasonable time of its decision in the matter.

17.5. **COMPANY AGREES THAT THE PAYMENT OF SUCH LIQUIDATED DAMAGES MAY BE RECOVERED BY THE CITY FROM RETAINAGE HELD BY THE CITY. NOTWITHSTANDING ANY OTHER PROVISION HEREOF, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER ARISING FROM THE CITY WITHHOLDING PAYMENT FROM COMPANY AS LIQUIDATED DAMAGES FOR COMPANY'S FAILURE TO COMPLETE THE WORK WITHIN THE TIME SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE.**

17.6. **COMPANY SHALL RECEIVE NO FINANCIAL COMPENSATION FOR DELAY OR HINDRANCE TO THE WORK. IN NO EVENT SHALL THE CITY BE LIABLE TO COMPANY OR ANY SUBCONTRACTOR OR SUPPLIER, ANY OTHER PERSON OR ANY SURETY FOR OR ANY EMPLOYEE OR AGENT OF ANY OF THEM, FOR ANY DAMAGES ARISING OUT OF OR ASSOCIATED WITH ANY DELAY OR HINDRANCE TO THE WORK, REGARDLESS OF THE SOURCE OF THE DELAY OR HINDRANCE, INCLUDING EVENTS OF FORCE MAJEURE, AND EVEN IF SUCH DELAY OR HINDRANCE RESULTS FROM, ARISES OUT OF OR IS DUE, IN WHOLE OR IN PART, TO THE NEGLIGENCE OF THE CITY. COMPANY'S SOLE REMEDY IN ANY SUCH CASE SHALL BE AN EXTENSION OF TIME.**

18. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

19. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

20. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

21. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

22. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

23. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

24. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

25. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

26. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

27. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

28. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

29. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

30. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

31. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

32. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

33. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____

Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____

John Ohnemiller, City Attorney

COMPANY: CB&I STORAGE TANK SOLUTIONS, LLC

By:

_____

Name:_____

Title: _____

STATE OF _____ §
COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, _____, an officer of CB&I Storage Tank Solutions, LLC, known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ___day of _____, 20____.

_____
Notary Public, State of Texas

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

General Decision Number: TX20200002 01/03/2020

Superseded General Decision Number: TX20190002

State: Texas

Construction Types: Heavy and Highway

Counties: Armstrong, Carson, Crosby, Ector, Irion, Lubbock, Midland, Potter, Randall, Taylor and Tom Green Counties in Texas.

HEAVY & HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020

* SUTX2011-002 08/02/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving & Structures)	$ 13.55	
ELECTRICIAN	$ 20.96	
FORM BUILDER/FORM SETTER		

Paving & Curb	$ 12.36
Structures	$ 13.52

LABORER

Asphalt Raker	$ 12.28
Flagger	$ 9.30
Laborer, Common	$ 10.30
Laborer, Utility	$ 11.80
Work Zone Barricade Servicer	$ 10.30

POWER EQUIPMENT OPERATOR:

Asphalt Distributer	$ 14.87
Asphalt Paving Machine	$ 13.40
Broom and Sweeper	$ 11.21
Crane, Lattice Boom 80 Tons or Less	$ 16.82
Crawler Tractor Operator	$ 13.96
Excavator, 50,000 lbs or less	$ 13.46
Front End Loader Operator, Over 3 CY	$ 12.77
Front End Loader, 3CY or less	$ 12.28
Loader/Backhoe	$ 14.18
Mechanic	$ 20.14
Milling Machine	$ 15.54
Motor Grader, Rough	$ 16.15
Motor Grader, Fine	$ 17.49
Pavement Marking Machine	$ 16.42
Reclaimer/Pulverizer	$ 12.85
Roller, Asphalt	$ 10.95
Roller, Other	$ 10.36
Scraper	$ 10.61
Spreader Box	$ 12.60

Servicer	$ 13.98
Steel Worker (Reinforcing)	$ 13.50

TRUCK DRIVER

Lowboy-Float	$ 14.46
Single Axle	$ 12.74
Single or Tandem Axle Dump…	$ 11.33

Exhibit D - Heavy & Highway Wage Rates rev. 01/03/2020

Tandem Axle Tractor with Semi	$ 12.49

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).
Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were

prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number

where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

EXHIBIT D - BUILDING WAGE RATES rev. 09/11/2020

"General Decision Number: TX20200261 09/11/2020

Superseded General Decision Number: TX20190261

State: Texas

Construction Type: Building

County: Midland County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020
1	08/28/2020
2	09/11/2020

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

ENGI0178-005 06/01/2020

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane	$ 32.85	13.10
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above	$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under	$ 32.35	13.10

* IRON0084-011 06/01/2020

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 25.26	7.13

* PLUM0404-001 09/01/2020

	Rates	Fringes
PLUMBER	$ 26.05	8.81

SUTX2014-037 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER	$ 13.82	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.76	0.00
ELECTRICIAN	$ 23.18	6.31
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 19.77	7.13
IRONWORKER, REINFORCING	$ 12.27	0.00
IRONWORKER, STRUCTURAL	$ 22.16	5.26
LABORER: Common or General	$ 11.80	0.00
LABORER: Mason Tender - Brick	$ 11.38	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.58	0.00
LABORER: Pipelayer	$ 12.49	2.13
LABORER: Roof Tearoff	$ 11.28	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.25	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 18.29	1.31
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 14.83	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00
OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00

OPERATOR: Roller	$ 12.70	0.00
PAINTER (Brush, Roller, and Spray)	$ 15.00	0.73
PIPEFITTER	$ 25.80	8.55
ROOFER	$ 14.75	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 22.73	7.52
SHEET METAL WORKER, Excludes HVAC Duct Installation	$ 19.50	0.00
TILE FINISHER	$ 11.22	0.00
TILE SETTER	$ 14.74	0.00
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage

determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION"

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of _____ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for _____, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

Page

Article 1—Definitions and Terminology 1
1.01 Defined Terms 1
1.02 Terminology 6
Article 2—Preliminary Matters 7
2.01 Delivery of Performance and Payment Bonds; Evidence of Insurance 7
2.02 Copies of Documents 7
2.03 Before Starting Construction 7
2.04 Preconstruction Conference; Designation of Authorized Representatives 8
2.05 Acceptance of Schedules 8
2.06 Electronic Transmittals 8
Article 3—Contract Documents: Intent, Requirements, Reuse 9
3.01 Intent 9
3.02 Reference Standards 9
3.03 Reporting and Resolving Discrepancies 10
3.04 Requirements of the Contract Documents 10
3.05 Reuse of Documents 11
Article 4—Commencement and Progress of the Work 11
4.01 Commencement of Contract Times; Notice to Proceed 11
4.02 Starting the Work 11
4.03 Reference Points 11
4.04 Progress Schedule 12
4.05 Delays in Contractor's Progress 12
Article 5—Site; Subsurface and Physical Conditions; Hazardous Environmental Conditions 14
5.01 Availability of Lands 14
5.02 Use of Site and Other Areas 14
5.03 Subsurface and Physical Conditions 15
5.04 Differing Subsurface or Physical Conditions 17
5.05 Underground Facilities 18

EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5.06 Hazardous Environmental Conditions at Site 20
Article 6—Bonds and Insurance 23
6.01 Performance, Payment, and Other Bonds 23
6.02 Insurance—General Provisions 23
6.03 Contractor's Insurance 25
6.04 Builder's Risk and Other Property Insurance 26
6.05 Property Losses; Subrogation 27
6.06 Receipt and Application of Property Insurance Proceeds 28
Article 7—Contractor's Responsibilities 29
7.01 Contractor's Means and Methods of Construction 29
7.02 Supervision and Superintendence 29
7.03 Labor; Working Hours 29
7.04 Services, Materials, and Equipment 29
7.05 "Or Equals" 30
7.06 Substitutes 31
7.07 Concerning Subcontractors and Suppliers 32
7.08 Patent Fees and Royalties 34
7.09 Permits 34
7.10 Taxes 34
7.11 Laws and Regulations 35
7.12 Record Documents 35
7.13 Safety and Protection 35
7.14 Hazard Communication Programs 37
7.15 Emergencies 37
7.16 Submittals 37
7.17 Contractor's General Warranty and Guarantee 40
7.18 Indemnification 41
7.19 Delegation of Professional Design Services 41
Article 8—Other Work at the Site 42
8.01 Other Work 42
8.02 Coordination 43
8.03 Legal Relationships 43
Article 9—Owner's Responsibilities 44

EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

9.01 Communications to Contractor 44
9.02 Replacement of Engineer 44
9.03 Furnish Data 44
9.04 Pay When Due 44
9.05 Lands and Easements; Reports, Tests, and Drawings 44
9.06 Insurance 45
9.07 Change Orders 45
9.08 Inspections, Tests, and Approvals 45
9.09 Limitations on Owner's Responsibilities 45
9.10 Undisclosed Hazardous Environmental Condition 45
9.11 Evidence of Financial Arrangements 45
9.12 Safety Programs 45
Article 10—Engineer's Status During Construction 45
10.01 Owner's Representative 45
10.02 Visits to Site 46
10.03 Resident Project Representative 46
10.04 Engineer's Authority 48
10.05 Determinations for Unit Price Work 48
10.06 Decisions on Requirements of Contract Documents and Acceptability of Work 48
10.07 Limitations on Engineer's Authority and Responsibilities 48
10.08 Compliance with Safety Program 49
Article 11—Changes to the Contract 49
11.01 Amending and Supplementing the Contract 49
11.02 Change Orders 49
11.03 Work Change Directives 50
11.04 Field Orders 50
11.05 Owner-Authorized Changes in the Work 50
11.06 Unauthorized Changes in the Work 50
11.07 Change of Contract Price 51
11.08 Change of Contract Times 52
11.09 Change Proposals 52
11.10 Notification to Surety 53
Article 12—Claims 53

EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

PACKET 10.1910 December 15, 2020

12.01 Claims 53
Article 13—Cost of the Work; Allowances; Unit Price Work 55
13.01 Cost of the Work 55
13.02 Allowances 58
13.03 Unit Price Work 59
Article 14—Tests and Inspections; Correction, Removal, or Acceptance of Defective Work 60
14.01 Access to Work 60
14.02 Tests, Inspections, and Approvals 60
14.03 Defective Work 61
14.04 Acceptance of Defective Work 61
14.05 Uncovering Work 62
14.06 Owner May Stop the Work 62
14.07 Owner May Correct Defective Work 62
Article 15—Payments to Contractor; Set-Offs; Completion; Correction Period 63
15.01 Progress Payments 63
15.02 Contractor's Warranty of Title 66
15.03 Substantial Completion 66
15.04 Partial Use or Occupancy 67
15.05 Final Inspection 68
15.06 Final Payment 68
15.07 Waiver of Claims 69
15.08 Correction Period 69
Article 16—Suspension of Work and Termination 70
16.01 Owner May Suspend Work 70
16.02 Owner May Terminate for Cause 71
16.03 Owner May Terminate for Convenience 72
16.04 Contractor May Stop Work or Terminate 72
Article 17—Final Resolution of Disputes 73
17.01 Methods and Procedures 73
Article 18—Miscellaneous 73
18.01 Giving Notice 73
18.02 Computation of Times 73
18.03 Cumulative Remedies 73

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

18.04 Limitation of Damages 74
18.05 No Waiver 74
18.06 Survival of Obligations 74
18.07 Controlling Law 74
18.08 Assignment of Contract 74
18.09 Successors and Assigns 74
18.10 Headings 74

Exhibit A – Foreseeable Bad Weather Days

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

PACKET 10.1912 December 15, 2020

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

PACKET 10.1913 December 15, 2020

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

    b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

    c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.

44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions. Supplementary Conditions are established by redline edits to these Standard General Conditions of the Construction Contract.

45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

46. *Technical Data*

    a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

    b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

    c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*: The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*: The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

F. *Contract Price or Contract Times*: References to a change in "Contract Price or Contract Times" or "Contract Times or Contract Price" or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term "or both" is not expressed.

G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. *Evidence of Contractor's Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. *Evidence of Owner's Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

G. Nothing in the Contract Documents creates:

1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or

2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. Abnormal weather conditions;

3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5. Weather-Related Delays

   a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

   b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:

      1) Every workday on which one or more of the following conditions exist will be considered a "bad weather day":

         i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds 2 inches of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.

         ii) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: 20 degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: 110 degrees Fahrenheit.

      2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by National Weather Service weather monitoring station at Midland International Air and Space Port.

      3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the table in Exhibit A—Foreseeable Bad Weather Days.

      4) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the table in Exhibit A—Foreseeable Bad Weather Days will be considered as "abnormal weather conditions." The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor's then-current Progress Schedule's critical path for the Project.

D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

   1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

   2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

B. *Underground Facilities*: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

C. *Reliance by Contractor on Technical Data*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

D. *Limitations of Other Data and Documents*: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
Appendix 1 – Geotechnical Investigation Report	April 24, 2019	Geotechnical Investigation for Northeast Elevated Tank Site

F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

PACKET 10.1928 December 15, 2020

Drawings Title	Date of Drawings	Technical Data
None		

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;

2. is of such a nature as to require a change in the Drawings or Specifications;

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;

b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. *Engineer's Review*: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
None		

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Drawings Title	Date of Drawings	Technical Data
None		

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

1. Contractor may obtain worker's compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker's compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker's compensation insurance for similar projects by the state within the last 12 months.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

A. *Required Insurance*: Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. *General Provisions*: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;

3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;

4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and

5. include all necessary endorsements to support the stated requirements.

C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;

2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;

3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and

5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

D. Reference Item 23 of the City of Midland Standard Purchasing Terms and Conditions.

6.04 *Builder's Risk and Other Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.

B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.

2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria*: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria*: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

   a. will certify that the proposed substitute item will:

      1) perform adequately the functions and achieve the results called for by the general design;

      2) be similar in substance to the item specified; and

      3) be suited to the same use as the item specified.

   b. will state:

      1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

      2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

      3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

c. will identify:

1) all variations of the proposed substitute item from the item specified; and

2) available engineering, sales, maintenance, repair, and replacement services.

d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

7.08 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

B. Owner is exempt from payment of sales and compensating use taxes of the State of Texas and of cities and counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

    a. Contractor shall submit the number of copies required in the Specifications.

    b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

    a. Contractor shall submit the number of Samples required in the Specifications.

    b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

   a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

   b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

   c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

   d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

2. Recommendation by Engineer or payment by Owner of any progress or final payment;

3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. Use or occupancy of the Work or any part thereof by Owner;

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:

1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and

3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:

1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.

2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.

3. *Liaison*

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

PACKET 10.1958 December 15, 2020

a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.

4. *Review of Work; Defective Work*

a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.

b. Observe whether any Work in place appears to be defective.

c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.

5. *Inspections and Tests*

a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.

b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.

6. *Payment Requests:* Review Applications for Payment with Contractor.

7. *Completion*

a. Participate in Engineer's visits regarding Substantial Completion.

b. Assist in the preparation of a punch list of items to be completed or corrected.

c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.

d. Observe whether items on the final punch list have been completed or corrected.

D. The RPR will not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.

5 Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Authorize Owner to occupy the Project in whole or in part.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:

1. A mutually acceptable fixed fee; or

2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;

b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;

c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.

a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12—CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.

5. Other costs consisting of the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

        1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

    c. *Construction Equipment Rental*

        1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

        ~~2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.~~

        2) The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of the Rental Rate Blue Book for Construction Equipment.

        3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

    d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

   a. For purposes of this paragraph, "small tools and hand tools" means any tool or equipment whose current price if it were purchased new at retail would be less than $500.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

   a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

   b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:

      1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

      2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

~~E. *Adjustments in Unit Price*~~

~~1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:~~

~~a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and~~

~~b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.~~

~~2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.~~

~~3. Adjusted unit prices will apply to all units of that item.~~

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:

a. the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and

b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees,

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work;

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

   d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

   e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

    b. the Contract Price has been reduced by Change Orders;

    c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

    e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

    a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

    b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

    c. Contractor has failed to provide and maintain required bonds or insurance;

    d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

    e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

    f. The Work is defective, requiring correction or replacement;

    g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    h. The Contract Price has been reduced by Change Orders;

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

   d. a list of all duly pending Change Proposals and Claims; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment*: If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;
2. correct such defective Work;
3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:

1. in person, by a commercial courier service or otherwise, to the recipient's place of business;

2. by registered or certified mail, postage prepaid, to the recipient's place of business; or

3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

EXHIBIT A— FORESEEABLE BAD WEATHER DAYS

Month	Number of Foreseeable Bad Weather Days in Month Based on Precipitation as Rain Equivalent (inches) (1)	Ambient Outdoor Air Temperature (degrees F)	
		Number of Foreseeable Bad Weather Days in Month Based on Low Temperature (at 11:00 a.m.)	Number of Foreseeable Bad Weather Days in Month Based on High Temperature (at 3:00 p.m.)
January	0	4	0
February	0	2	0
March	1	1	0
April	1	0	0
May	1	0	0
June	1	0	0
July	0	0	0
August	0	0	0
September	1	0	0
October	1	0	0
November	0	1	0
December	0	3	0

Notes:
1. Two inches of sleet equal one inch of rain. Five inches of wet, heavy snow equal one inch of rain. Fifteen inches of “dry” powder snow equals one inch of rain.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

IMPORTANT NOTICE

Conflict Of Interest Reporting Requirements

Compliance with LOCAL GOVERNMENT CODE TITLE 5. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES SUBTITLE C. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES OF MORE THAN ONE TYPE OF LOCAL GOVERNMENT CHAPTER 176. DISCLOSURE OF CERTAIN RELATIONSHIPS WITH LOCAL GOVERNMENT OFFICERS; PROVIDING PUBLIC ACCESS TO CERTAIN INFORMATION.

Form CIQ: This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. This questionnaire shall be filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code. A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

Bidders are responsible for filing Conflict of Interest form "CIQ" in accordance with the above referenced statute. Failure to do so is a class C Misdemeanor. Contracts or Purchase Orders awarded to a vendor that has violated this law is subject to termination at such time that the violation is discovered with no recourse to the City of Midland. The bidder will be subsequently removed from the bidders list for a minimum of one year.

When there is no known conflict of interest as defined by the statute, it is not necessary to file/submit the Form CIQ. The form must be submitted if a conflict is subsequently discovered.

By submitting a response to this request, vendor represents that it complies with the requirements of Chapter 176 of the Texas Local Government Code.

For a current list of the local government officers go to: http://www.midlandtexas.gov/

Upon completion of the form, sign and submit with bid or mail to:

City of Midland
Attn: City Secretary
PO Box 1152
Midland, Texas 79702

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

_____

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

PACKET 10 1989 December 15, 2020

Signature of vendor doing business with the governmental entity Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

Consideration of Location of Bidder's Principal Place of Business
For Bids of $50,000 up to $100,000 for Services and $500,000 for Commodities
Affidavit of Eligibility

Pursuant to Texas Local Government Code 271.9051, in purchasing real property, personal property that is not affixed to real property, or services, if the City receives one or more bids from a bidder whose principal place of business is in the City of Midland and whose bid is within five percent (5%) of the lowest bid price received by the City from a bidder who is not a resident of the City of Midland, the City may enter into a contract with:

(1) the lowest bidder; or

(2) the bidder whose principal place of business is in the City of Midland if the City Council determines, in writing, that the local bidder offers the City the best combination of contract price and additional economic development opportunities for the City of Midland created by the contract award, including the employment of residents of the City of Midland and increased tax revenues to the City of Midland.

In order to receive consideration, bidders must submit this affidavit to:

Regina Stephenson
Purchasing Manager
City of Midland
300 N. Loraine St.,
PO BOX 1152
Midland, TX 79702-1152

Complete all areas below. Incomplete affidavits may be rejected.

Local Business Name: _____

Local Address (must be within the City limits): _____

1. Is the above address the principal place of business for the business named above? ☐ Yes ☐ No
2. How many residents of the City of Midland are employed at the above business location? _____
3. Year your business was established in the City of Midland: _____
4. If you collect sales tax for ANY class of customer, provide the following Reseller information:

   Reseller Permit Number: _____

   Company Name and Address (as it appears on permit):

   _____

   _____

   _____

5. Does your business have more than one office in the State of Texas? ☐ Yes ☐ No
   If Yes, identify the office location considered as the point-of sale for the purpose of sales tax calculation:

   _____

   _____

6. Was the local business required to pay business and/or real property tax for the most recent tax year?

   ☐ Yes ☐ No

   If Yes, did the local business pay any of this tax to the City of Midland? ☐ Yes ☐ No

Under penalty of perjury, the undersigned states that the foregoing statements are true and correct. It is further acknowledged that any person, firm, corporation or entity intentionally submitting false information to the City in an attempt to qualify for eligibility shall be prohibited from bidding on City of Midland products and services for a period of one (1) year.

Authorized Signature: _____ Date: _____

Printed Name and Title: _____

TECHNICAL SPECIFICATIONS

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Contract Description:

1. Construction of a new 2-million gallon composite elevated water storage tank and related work.

2. Coordination with contractor(s) constructing the associated Transfer Pump Station and Transmission/Distribution Mains for completion and startup of interdependent components of the work.

3. Scope includes:

a. New 2MG composite elevated storage tank, including foundation, structure, mixer and associated appurtenances.

b. 24" Ductile Iron site piping, including Mag Meter, vaults and valve assemblies.

c. 24" & 18" Stainless Steel Riser Piping.

d. Analyzer equipment and waste water drain-field.

e. New TxDOT Commercial Concrete Driveway and site paving.

f. SWP3.

g. Site fencing, including Cantilever access gate.

h. New electric service drop and all electrical, control and communication improvements shown. Contractor's control system integrator shall be responsible for supplying, installing, and configuring all instrumentation, control equipment, panels and associated conduit/wiring. Per Contract A SCADA allowance, the City of Midland's SCADA integrator (Signature Automation) shall be responsible for all RTU, PLC, HMI/OIT software installation, programming and related testing.

1.2 CONTRACTOR USE OF SITE:

A. Site is available for Contractor's use; ample space is available.

B. Contractor shall keep all construction activities on Owner's property or within Owner's easements and/or rights of ways.

END OF SECTION

SECTION 01019

CONTRACT CONSIDERATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Materials Testing.

B. Schedule of Values.

C. Order of Construction and Construction Schedule

D. Application for Payment.

E. Change Procedures.

F. Measurement and Payment.

1.2 MATERIALS TESTING:

A. Engineer will engage a recognized construction materials testing firm.

B. Contractor shall be responsible for:

1. Costs of incidental labor and facilities required to assist testing firm.

2. Costs of testing laboratory services used by Contractor separate from Contract Document or Owner requirements.

3. Costs of retesting upon failure of previous tests as determined by Engineer.

1.3 SCHEDULE OF VALUES:

A. Submit a printed schedule on EJCDC 1910-8-E. Contractor's standard form or electronic media printout will be considered.

B. Where a Contract is awarded on a lump sum basis, the Contractor shall file with the Engineer a balanced price segregation of his lump sum bid into items similar to the various subdivisions of the general and detailed specifications, the sum of which shall equal the lump sum bid. Provide in accordance with Article 2, Paragraph 2.05 of the General Conditions.

1. The cost of various materials shall be furnished upon request of the Engineer, and such data will then be used as a basis for making progress estimates.

2. Breakdown cost itemized Specification Section by trade, and distribute cost to individual applicable units and structures.

3. Where structures, units, equipment or other components are identified by a specific series or, identification number, utilize said designation throughout cost breakdown.

4. Provide detailed breakdown for individual yard piping or conduit runs and identify approximate quantities involved to satisfaction of the Engineer.

5. Provide separate breakdown for change order items requested.

6. The detail and format of cost breakdown and stored materials tabulation sheet shall be fully approved by Engineer.

7. Use EJCDC 1910-8-E, or equivalent.

C. A reasonable allocation of the Contract Price to the component parts of the Work will be approved if component parts of the Work have values assigned to them that are well-balanced with respect to relative values for similar work established by published estimating guides.

1. Unless otherwise agreed to at the Preconstruction Conference, Means Estimator Guide or other similar nationally recognized estimating guide shall be used for resolving differences between Engineer's and Contractor's opinions of allocation of values.

2. Consent of Surety: If Contractor and Engineer cannot mutually agree on a Schedule of Values, Engineer will approve a Schedule of Values approved by the Surety providing the Performance Bond.

D. Contractor's costs shall not govern the allocation of values when application of Contractor's costs to a component part of the Work results in any other component part or combination of component parts being under-valued in relation to conventional estimating guides.

E. Schedule of Values shall be agreed upon prior to first Application for Payment.

1.4 ORDER OF CONSTRUCTION AND CONSTRUCTION SCHEDULE:

A. In accordance with Article 2, Paragraph 2.05 of the General Conditions, submit for approval a critical path type baseline schedule.

1. Account for schedule of Subcontracts.

2. Include proper sequence of construction, various crafts, purchasing time, Shop Drawing approval, material delivery, equipment fabrication, start-up, demonstration, and similar time consuming factors.

3. Show on schedule as a minimum, earliest starting, earliest completion, latest starting, latest finish, and free and total float for each task or item.

4. Critical Path Method Network Analysis:

a. Application software: Microsoft Project or Primavera.

b. Do not utilize or incorporate date or time constraints or other constraints that corrupt the CPM mathematical model.

i The following CPM schedule outputs will be rejected without further review:

- Schedules indicating the start of the critical path at a date point beyond the "Start Date."
- Schedules with multiple critical paths.
- Schedules indicating a completion date beyond the contractual completion date.

c. Show the order and interdependence of activities.

i The start of an activity shall be dependent on the completion of a preceding activity(ies), with Notice to Proceed being the initial activity.

ii Limit activities to a maximum of 20 days.

iii Network analysis diagram shall flow left to right.

d. Critical (path) activities are defined to have zero (0) total float.

e. Do not use leads and lags in lieu of an activity description such as "concrete cure time."

i When lags are necessary, they shall not have a negative value.

5. Provide the electronic native file on compact disc along with two (2) paper copies printed in color.

B. Evaluate schedule no less than monthly.

1. Update, correct, and rerun schedule and submit to Engineer with pay application to show rescheduling necessary to reflect true job conditions.

2. When shortening of various time intervals is necessary to correct for behind schedule conditions, indicate actions to implement to accomplish work in shorter duration.

3. Information shall be submitted to Engineer in writing with revised schedule.

4. Default progress data disallowed:

a. Actual start and finish dates shall not be automatically updated by default mechanisms that may be included in the CPM scheduling software system.

i Actual start and actual finish dates on the CPM schedule shall be reported.

b. Work activities will be updated by actual work progression rather than being cash flow driven.

i The updating of the percent complete and the remaining duration of any activity shall be independent functions:

- Program features that calculate one of these parameters from the other shall be disabled.

- Out-of-sequence progress (if applicable) shall be handled through retained logic, not the default option of progress override.

5. Submit electronic native files on compact disc along with two (2) paper copies printed in color.

C. If Contractor does not take necessary action to accomplish work according to schedule, Contractor may be ordered by Owner in writing to take necessary and timely action to improve work progress.

1. Owner may require increased work forces, extra equipment, extra shifts or other action as necessary.

2. Should Contractor refuse or neglect to take such action authorized, under provisions of this contract, Owner may take necessary actions including, but not necessarily limited to, withholding of payment and termination of Contract.

D. Upon receipt of approved "Work Schedule," within 10 days, submit to Engineer a cost-loaded schedule (electronically) and an estimated payment schedule by each month of project duration.

1. Include a composite curve to show estimated value of work complete and stored materials less specified retainage.

2. Establish key months when work will be 50, 80, 90, and 100 percent complete.

3. During the course of work, update with new composite curves at key months or whenever variation is expected to be more than plus or minus 10 percent.

4. Retain original or previous composite curves as dashed curves on all updates.

5. Include a heavy plotted curve to show ACTUAL payment curve on all updates.

E. Provide four-week look-ahead schedules every four (4) weeks.

1.5 APPLICATIONS FOR PAYMENT:

A. Contractor's electronic media driven form or EJCDC 1910-8-E.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Payment Period: Submit by end of each month.

D. Include executed Contractor Affidavit for Partial Payment with each Application for Payment.

E. Submit certification by Contractor of Labor Standards compliance with each Application for Payment.

1.6 CHANGE PROCEDURES:

A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions in writing.

B. The Engineer may issue a Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in contract time for executing the change and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 10 days.

C. The Contractor may propose changes by submitting a request for change to the Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation. Document any requested substitutions in accordance with Section 01600.

D. Stipulated Sum/Price Change Order: Based on Notice of Change and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Engineer.

E. Work Directive Change: Engineer may issue a directive, on EJCDC 1910-8-F Work Directive Change signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.

F. Change Order Forms: EJCDC 1910-8-B or Engineer’s standard electronic media driven form.

G. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract, including a TWDB representative.

1.7 MEASUREMENT AND PAYMENT:

A. Authority: Work under this Contractor shall be measured by the Item Unit or Lump Sum Price as indicated on the Bid Schedule. Where the Item Lump Sum Price applies, the work will be considered as a complete installation as shown and specified.

Unit Quantities: Quantities and measurements indicated in the Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment. The bid price for any Unit Price method item shall be in effect for any actual quantity encountered within plus or minus 25 percent of the estimated quantity. Payment or adjustment for quantities greater than plus or minus 25 percent will be subject to negotiation.

B. Payment Includes: Full compensation for required labor, Products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

C. Defect Assessment: Replace the Work, or portions of the Work, not conforming to specified requirements. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01039

COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Coordination.

B. Field Engineering.

C. Preconstruction Meeting.

D. Progress Meetings.

1.2 COORDINATION:

A. Coordinate scheduling, submittal, and Work of the various sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion.

C. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD ENGINEERING:

A. Engineer will locate survey control and reference points.

B. Control datum for survey is that shown on Drawings.

C. Contractor to verify set-backs and easements, confirm drawing dimensions and elevations.

D. Contractor to provide field engineering services as required to support his work. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

1.4 PRECONSTRUCTION MEETING:

A. Engineer will schedule a meeting after Notice of Award.

B. Attendance Required: Owner, Engineer, and Contractor.

C. Agenda:

1. Distribution of Owner-Contractor Agreement / Contract Document.

2. Submission of executed bonds and insurance certificates.

3. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.

4. Designation of personnel representing the parties in Contract, and the Engineer.

5. Procedures and processing of field decisions, submittal, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.

6. Scheduling.

7. Coordination with other agencies/organizations.

8. Scheduling activities of a Geotechnical Engineer.

D. Engineer to record minutes and distribute copies after meeting to participants.

1.5 PROGRESS MEETINGS:

A. The Engineer will arrange and conduct monthly Progress Meetings (Construction Status Meetings). The Engineer will prepare an agenda for these meetings and will conduct the meetings.

B. The purpose of these meetings will be to facilitate the work of the Contractor and any subcontractors, resolve conflicts, identify and resolve any potential delays or necessary changes in the work, and in general coordinate and facilitate the execution of the work.

C. The Construction schedule is required to be updated and presented at these meetings.

D. The Contractor shall bring up-to-date record drawings to each meeting.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01090

STANDARD REFERENCES

Whenever used in the Project Manual, the following abbreviations will have the meanings listed:

When documents are referenced, they are a part of the Specification as specified and modified. In case of conflict between the requirements of these Specifications and those on the referenced documents, these Specifications shall prevail.

AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, Ste. 249 Washington, DC 20001
ACI	American Concrete Institute 38800 Country Club Drive Farmington Hills, MI 48331
AISC	American Institute of Steel Construction One East Wacker Drive, Ste. 700 Chicago, IL 60601-1802
AISI	American Iron and Steel Institute 1140 Connecticut Ave., Ste. 705 Washington, DC 20036
AITC	American Institute of Timber Construction 7012 S. Revere Parkway, Ste. 140 Centennial, CO 80112
ANSI	American National Standards Institute, Inc. 1899 L Street, NW, 11th Floor Washington, DC 20036
APA	American Plywood Association 7011 S. 19th Street Tacoma, WA 98466-5333
API	American Petroleum Institute 1220 L Street, NW Washington, DC 20005-4070
APSP	Association of Pool and Spa Professionals 2111 Eisenhower Ave., Ste. 500 Alexandria, VA 22314
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191

ASCII	American Standard Code for Information Interchange United States of American Standards Institute 25 West 43rd Street, 4th Floor New York, NY 10036
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers United Engineering Center 1791 Tullie Circle, NE Atlanta, GA 30329
ASME	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016
ASTM	American Society for Testing and Materials 100 Bar Harbor Drive West Conshohocken, PA 19428 (http://www.astm.org)
AWPA	American Wood Preservers Association 100 Chase Park South, Ste. 116 Birmingham, AL 35244
AWS	American Welding Society 550 LeJeane Road Miami, FL 33126
AWWA	American Water Works Association 6666 W. Quincy Avenue Denver, CO 80235
CRSI	Concrete Reinforcing Steel Institute 933 North Plum Grove Road Schaumburg, IL 60173
EEI	Edison Electric Institute 701 Pennsylvania Ave., NW Washington, DC 20004
ENGINEER	Enprotec / Hibbs & Todd, Inc. 402 Cedar Street Abilene, Texas 79601
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch 1275 First Street, NE Washington, DC 20417

FEDSTDS	Federal Standards (see FEDSPECS)
HI	Hydraulic Institute 6 Campus Drive, First Floor North Parsippany, NJ 07054
IBC	International Building Code (Published by ICC)
ICC	International Code Council 500 New Jersey Ave., NW, 6th Floor Washington, DC 20001
ICEA	Insulated Cable Engineers Association P.O. Box 1568 Carrolton, GA 30112
IEEE	Institute of Electrical and Electronic Engineers, Inc. 3 Park Avenue, 17th Floor New York, NY 10016
IES	Illuminating Engineering Society c/o United Engineering Center 120 Wall Street, Floor 17 New York, NY 10005
IMC	International Mechanical Code (Published by ICC)
IPC	International Plumbing Code (Published by ICC)
ISA	Instrument Society of America 67 Alexander Drive Research Triangle Park, NC 27709
MILSPEC	Military Specifications Navy Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Rd., Bldg. C, Ste 312 Glen Ellyn, IL 60137
NACE	National Association of Corrosion Engineers 1440 South Creek Drive Houston, Texas 77084

NEC	National Electrical Code National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169
NEMA	National Electrical Manufacturer's Association 1300 North 17th Street, Ste. 1752 Rosslyn, VA 22209
NFPA	National Forest Products Association 1111 19th Street, NW, Ste. 800 Washington, DC 20036
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169
NSF	National Sanitation Foundation 789 N. Dixboro Road Ann Arbor, MI 48113
OSHA	Occupational Safety and Health Act Occupational/Safety and Health Administration Lubbock Area Office 1205 Texas Avenue Lubbock, TX 79401
OWNER	City of Midland 300 North Loraine Midland, Texas 79701
SBCC	Southern Building Code Congress 900 Montclair Road Birmingham, AL 35213
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association 4201 Lafayette Center Drive Chantilly, VA 20151-1209
SSPC	Steel Structures Painting Council 4516 Henry Street, Suite 301 Pittsburgh, PA 15123-3728
SSPWC-NCT	Standard Specifications for Public Works Construction-- North Central Texas North Central Texas Council of Governments P O Box 5888 Arlington, Texas 76005-5888
TCA	Tile Council of America, Inc. 100 Clemson Research Blvd. Anderson, SC 29625

TCEQ	Texas Commission on Environmental Quality P O Box 13087 Austin, TX 78711-3087
TDSHS	Texas Department of State Health Services 1100 West 49th Street Austin, Texas 78756-3199
TWDB	Texas Water Development Board 1700 North Congress Avenue Austin, Texas 78711
TXDOT	Texas Department of Transportation 125 E. 11th Street Austin, TX 78701
UBC	Uniform Building Code Published by ICB
UL	Underwriters Laboratories, Inc. 2600 NW Lake Road Camas, WA 98607
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WWPA	Western Wood Products Association 522 SW Fifth Ave, Ste. 500 Portland, OR 97204

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Submittal Procedures.

B. Construction Progress Schedules.

C. Shop Drawings.

D. Product Data.

E. Manufacturer's Installation Instructions.

F. Manufacturers' Certificates.

1.2 SUBMITTAL PROCEDURES:

A. Transmit each submittal with Engineer accepted form.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

C. Each submittal shall be limited to a single specification section or material topic. Where equipment packages, assemblies, and the like are interrelated, the submittals should be provided together facilitating review of the Contractor’s purposed offering. When related portions of an equipment package or system are not provided, the submittals may be returned without review.

D. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing and detail number, and Specification section number, as appropriate.

E. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

F. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.

G. For each submittal for review, allow 20 days excluding delivery time to and from the Contractor.

H. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

I. Provide space for Contractor and Engineer review stamps.

J. Revise and resubmit, identify all changes made since previous submission.

K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.

L. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES:

A. Submit initial schedule in duplicate within 20 days after date established in Notice to Proceed.

B. Revise and resubmit as required.

C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

D. Submit a horizontal bar chart with separate line for each major section of Work or operation, identifying first work day of each week.

E. Indicate estimated percentage of completion for each item of Work on each Application for Payment submission.

1.4 SHOP DRAWINGS:

A. Submit the number of reproductions which Contractor requires, plus three copies which will be retained by Engineer.

B. Shop Drawings: Submit for review. After review, produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700--CONTRACT CLOSEOUT.

1.5 PRODUCT DATA:

A. Submit the number of copies which the Contractor requires, plus three copies which will be retained by the Engineer.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

C. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 - CONTRACT CLOSEOUT.

1.6 MANUFACTURER INSTALLATION INSTRUCTIONS:

A. When specified in individual Specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and operating, to Engineer in quantities specified for Product Data.

1.7 MANUFACTURER OPERATION AND MAINTENANCE INSTRUCTIONS:

A. When specified in individual specification sections, submit printed instructions for operations and maintenance (O&M), to Engineer, in quantities specified for Product Data.

B. O&M information shall include but not necessarily be limited to parts lists, disassembly drawings, electrical schematics, and other information required for proper operation and maintenance.

1.8 MANUFACTURER CERTIFICATES:

A. When specified in individual Specification sections, submit certification by manufacturer to Engineer, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Quality Assurance--Control of Installation.

B. Tolerances.

C. References.

D. Testing Laboratory Services.

E. Manufacturers' Field Services and Reports.

1.2 QUALITY ASSURANCE--CONTROL OF INSTALLATION:

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES:

A. Monitor tolerance control of installed Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.4 REFERENCES:

A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product Specification sections.

D. The contractual relationship, duties, and responsibilities of the parties in Contract and of the Engineer, shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 TESTING LABORATORY SERVICES:

A. Engineer will appoint and employ services of a material testing firm to perform testing.

B. The testing firm will perform tests, and other services specified in individual Specification sections and as required by the Engineer or the Owner.

C. Inspecting, testing, and source quality control may occur on or off the project site. Perform off-site inspecting or testing as required by the Engineer or the Owner.

D. Reports will be submitted by the testing firm to the Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

E. Cooperate with testing firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.

1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.

2. Make arrangements with testing firm and pay for additional samples and tests required for Contractor's use.

F. Testing or inspecting does not relieve the Contractor of his responsibility to perform Work to contract requirements.

G. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer. Payment for retesting shall be the Contractor's responsibility.

H. Contractor shall provide all testing services in connection with the following:

1. Concrete materials and design mixtures.

2. Masonry units, masonry grout and mortar materials and design mixtures.

1.6 MANUFACTURERS' FIELD SERVICES AND REPORTS:

A. When specified, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions that are supplemental or contrary to manufacturers' written instructions.

C. Submit report in duplicate within 30 days of observation to Engineer for information.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Contractor's Field Office

B. Temporary Utilities: Electricity, water, and sanitary facilities.

C. Temporary Controls: Barriers, protection of the work, and water control.

D. Construction Facilities: Access roads, parking, progress cleaning, and material storage areas.

1.2 CONTRACTOR'S FIELD OFFICE:

A. Field Office at WPP provided with Contract A, Part 1 that will be available for use with this project for Progress Meetings.

1.3 TEMPORARY ELECTRICITY:

A. Contractor to arrange for temporary construction power. Owner is responsible for paying for temporary electrical service during construction.

A. Complement existing power service capacity and characteristics as required.

B. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.

1.4 TEMPORARY WATER SERVICE:

A. Connect to existing water source for construction operations using Owner provided fire hydrant meter.

B. No water service is available at the site.

C. Contractor will be responsible for all costs for transportation of construction water. Exercise measures to conserve water.

1.5 TEMPORARY SANITARY FACILITIES:

A. Provide and maintain required facilities and enclosures.

1.6 BARRIERS:

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.7 WATER CONTROL:

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddles or running water. Provide water barriers as required to protect site from soil erosion.

1.8 PROTECTION OF INSTALLED WORK:

A. Protect installed work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

1.9 ACCESS ROADS:

A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.

B. Extend and relocate as work progress requires. Provide detours necessary for unimpeded traffic flow.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide means of removing mud from vehicle wheels before entering streets.

1.10 PARKING:

A. Arrange for temporary surface parking areas to accommodate construction personnel.

B. When site space is not adequate, provide additional off-site parking.

1.11 PROGRESS CLEANING AND WASTE REMOVAL:

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

1.12 REMOVAL OF UTILITES, FACILITIES, AND CONTROLS:

A. Remove temporary utilities, equipment, facilities, and materials prior to final inspection.

B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 01564

STORM WATER POLLUTION PREVENTION DURING CONSTRUCTION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Shared Storm Water Pollution Prevention Plan (SWP3)

1.2 REFERENCES:

A. Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR150000, administered by the Texas Commission of Environmental Quality (TCEQ).

1.3 DEFINITIONS:

A. All definitions per Part I, Section B, Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXR150000 (TPDES General Permit).

B. CONTRACTOR: Primary Operator, as defined in the TPDES General Permit.

C. OWNER: Primary Operator, as defined in the TPDES General Permit.

D. Shared SWP3: as described in TPDES General Permit, Part III, Section A.

1.4 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Submit Shared SWP3 for signature by CONTRACTOR and OWNER at Pre-Construction Meeting.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 SHARED STORM WATER POLLUTION PREVENTION PLAN (SWP3):

A. A Shared SWP3 is required for this project. The CONTRACTOR and OWNER shall share one SWP3.

B. CONTRACTOR shall prepare and implement a single, comprehensive SWP3 for the entire construction site in accordance with TPDES General Permit at CONTRACTOR's expense.

1. CONTRACTOR shall clearly list all Operators in the Shared SWP3, including themselves and the OWNER as Primary Operators, and any other Operators participating in the shared SWP3.

2. In the Shared SWP3, the CONTRACTOR must clearly state the following:

   a. The CONTRACTOR has day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with the shared SWP3;

   b. The OWNER has the ability to make modifications to the construction plans and specifications; and

   c. The OWNER has no responsibilities regarding implementation of the SWP3 unless CONTRACTOR fails to perform and complete contractual obligations.

3. The CONTRACTOR shall provide a signature page, in accordance with TPDES General Permit Part III, Section A.1, for the Shared SWP3 to the OWNER at the Pre-Construction Meeting.

4. CONTRACTOR shall prepare, certify, and post the Construction Site Notice in accordance with the applicable section of the TPDES General Permit.

5. If applicable, the CONTRATOR shall submit the Construction Site Notice to operator(s) of any municipal separate sewer system (MS4), in accordance with TPDES General Permit, Part II, Section E.2(c). CONTRACTOR shall determine applicability of this Section.

3.2 NOTICES OF INTENT (NOIs):

A. CONTRACTOR's Notice of Intent (NOI) is not required.

3.3 NOTICES OF TERMINATION (NOTs):

A. CONTRACTOR's NOT is not required.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Transportation and Handling.

B. Storage and Protection.

C. Product Options.

D. Substitutions.

E. Storage Facilities.

F. Field Quality Control.

1.2 TRANSPORTATION AND HANDLING:

A. Schedule delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

D. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

E. Pipe to be transported with exposed ends tarped to prevent accumulation of airborne contaminates during transport.

1.3 STORAGE AND PROTECTION:

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible.

B. Store sensitive products in weather tight, climate controlled enclosures.

C. For exterior storage of fabricated products, place on sloped supports, above ground.

D. Provide off-site storage and protection when site does not permit on-site storage or protection.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.

F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.4 PRODUCT OPTIONS:

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by naming one or more Manufacturers: Products of manufacturers named and meeting Specifications, no options or substitutions allowed.

C. Products Specified by naming one or more Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article. Where terms such as "or equal," "or equivalent" are used in this Contract, they shall be taken to mean "or approved equivalent." Proposed equivalents shall be offered as substitutions.

1.5 SUBSTITUTIONS:

A. Engineer will consider requests for Substitutions only within 45 days after date established in Notice to proceed.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Will provide the same warranty for the Substitution as for the specified product.

3. Will coordinate installation and make changes to other work which may be required for the work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension which may subsequently become apparent as a result of the Substitution.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit copies of request for Substitution for consideration. Number of copies as specified in Sub-Section 01300-1.5. Limit each request to one proposed Substitution.

2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.

3. The Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 STORAGE FACILITIES:

A. Material staging area is located at the site.

1. Provide weatherproof temporary storage containers as necessary, specifically for the purpose of providing for protection of products and equipment.

a. Size containers to accommodate anticipated storage items.
b. Equip containers with lockable doors.

2. Provide methods of storage of products and equipment off the ground.
3. Return area to natural condition prior to final inspection.

3.2 FIELD QUALITY CONTROL:

A. Inspect Deliveries:

1. Inspect all products or equipment delivered to the site prior to unloading.

a. Reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.

B. Monitor Storage Area: Monitor storage area to ensure suitable conditions are maintained as required by manufacturer or as appropriate for particular items.

END OF SECTION

SECTION 01650

STARTING OF SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Starting Equipment Systems.

B. Demonstration and Instructions.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 STARTING EQUIPMENT SYSTEMS:

A. Coordinate schedule for start-up of various equipment with other portions of the work that are interdependent to the start-up of this contract.

B. Notify Engineer seven days prior to start-up of each item.

C. Verify that each piece of equipment has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions which may cause damage.

D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment in operation.

H. Submit a written report in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

3.2 DEMONSTRATION AND INSTRUCTIONS:

A. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment during equipment start-up services.

C. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

D. As a minimum, the amount of time required for instruction on each item of equipment and system is that specified in individual sections.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Closeout procedures.

B. Adjusting.

C. Final Cleaning.

D. Project record documents.

E. Warranty.

F. Spare Parts and Maintenance Materials.

1.2 CLOSEOUT PROCEDURES:

A. Submit written certification that contract documents have been reviewed, work has been inspected, and that work is complete in accordance with contract documents and ready for Engineer's review.

B. Provide submittals to Engineer that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted Contract sum, previous payments, and sum remaining due.

D. Submit executed Affidavit of Bills paid with final Application for payment. Affidavit shall state all bills for labor, materials, and incidentals incurred in the construction of the project have been paid in full, and that there are no claims pending of which the Contractor has been notified.

1.3 ADJUSTING:

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

1.4 FINAL CLEANING:

A. Execute final cleaning prior to final project assessment.

B. Clean debris from roofs, and drainage systems.

C. Clean site; sweep paved areas, rake clean landscaped surfaces.

D. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 PROJECT RECORD DOCUMENTS:

A. Maintain on site, one set of the following record documents; record actual revisions to the work:

1. Drawings.

2. Specifications.

3. Addenda.

4. Change Orders and other modifications to the Contract.

5. Reviewed Shop Drawings, Product Data, and Samples.

6. Manufacturer's instruction for assembly, installation, and start-up of products and equipment.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.

2. Product substitutions or alternates utilized.

3. Changes made by Addenda and modifications.

F. Record Documents and shop drawings: Legibly mark each item to record actual construction including:

1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.

3. Field changes of dimension and detail.

4. Details not on original contract drawings.

G. Remove Engineer title block and seal from all documents.

H. Submit documents to Engineer with claim for final Application for Payment.

1.6 WARRANTY:

A. The Contractor shall guarantee the work performed under this contract against defective materials and workmanship for a period of one year from the date of Substantial Completion or acceptance of individual work elements. The Contractor shall arrange to have his performance bond remain in effect for a period of one year after this date to cover his guarantee as stipulated under this item and in the General Conditions.

B. If defective materials and/or workmanship are discovered which require repairs made under this guarantee, all such repairs shall be done by the Contractor at his own expense within ten days after written notice of such defect. Should the Contractor fail to repair of correct such deficiency within ten days after notification, the Owner may make the necessary repairs and charge the Contractor with the applicable costs of all labor and materials required to correct the deficiency.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS:

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.

B. Deliver to project site and place in location as directed; obtain receipt prior to final payment.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 02110

SITE CLEARING AND GRUBBING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Preparation for Work.

B. Protection of Existing Features.

C. Clearing and Grubbing.

D. Debris Removal.

E. Erosion Control.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL:

A. Site clearing and grubbing shall consist of the removal and disposal of trees, stumps, brush, roots, vegetation, logs, rubbish and other objectionable matter from the construction area.

B. Contractor shall take care to preserve and protect all existing trees on the project site. At no time shall Contractor park vehicles or equipment or store materials within 10' of the drip-line of any existing trees.

3.2 PREPARATION FOR WORK:

A. Verify that existing plant life designated to remain, if any, is tagged or identified and protected.

B. Verify and protect survey control.

3.3 PROTECTION OF EXISTING FEATURES:

A. Locate, identify and protect the utilities to remain from damage.

B. Protect trees, plant growth and features designated to remain.

C. Protect benchmarks and survey control from damage or displacement.

3.4 CLEARING AND GRUBBING:

A. The designated construction area shall be cleared of all trees, brush, shrubbery and plants, not indicated to be preserved. Trees and brush designated to be left in place shall be carefully trimmed as directed and shall be protected from scarring, barking, or other injuries during construction operations. Pruned limbs over two inches in diameter shall be treated by painting the exposed ends with an approved asphaltic material. Stumps, roots and other objectionable materials sources are to be removed to the complete extent necessary to prevent objectionable matter from becoming mixed with the material to be used in construction.

B. Unless otherwise provided, all merchantable timber removed as previously specified shall become the property of the Contractor. It is the intent of this Specification to provide for the removal and disposal of all obstructions and objectionable materials not designated to remain.

C. Remove existing concrete and asphalt paving, curb, gutter, walks and other items shown, or described to be removed.

D. Remove trees, shrubs and other plant life within the site shown, or described to be removed. Remove trees and shrub stumps and root system to a depth of 24 inches below existing grades. Remove grass and ground cover root system to a depth of 6 inches.

3.5 DEBRIS REMOVAL:

A. Removed material shall become the property of the Contractor. Contractor shall remove debris, rock and extracted plant life from site and legally dispose.

3.6 EROSION CONTROL:

A. Provide erosion control measures necessary to maintain site. Protect against both wind and rainfall erosion.

B. Provide erosion control as specified in Section 01564.

END OF SECTION

SECTION 02210

GRADING AND EARTHWORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Grading and earthwork which occur in areas other than under structures, under paving, or trenching for utilities.

B. Earthwork consists of operations required for the excavation of materials on-site; excavation of borrow material from designated areas; compaction of natural or improved sub-grades; finish grading; disposal of excess or unsuitable materials; and other required operations. Earthwork shall conform with dimensions and typical sections shown, and with lines and grades established.

1.2 REFERENCES:

A. ASTM D698 — Test for Moisture-Density Relations of Soils (Standard).

B. ASTM D1557 — Test for Moisture-Density Relations of Soils (Modified).

C. ASTM D2487 — Classification of Soils for Engineering Purposes.

D. ASTM D2922 — Density of Soil and Soil Aggregate In-Place by Nuclear Methods.

E. ASTM D3017 — Moisture Content of Soil and Soil Aggregate In-Place by Nuclear Methods.

1.3 DEFINITIONS:

A. Classification: Earthwork materials are classified in accordance with definitions in this Article.

B. Topsoil: Top 6 inches of natural surface soil possessing the characteristics of representative soils on the site that produce growths of grass or other vegetation. Topsoil includes roots and other vegetation.

C. General Site Fill: Suitable, clean material excavated on-site or imported borrow material meeting specified characteristics.

D. Select Fill: Imported borrow material as required for construction, and as defined.

E. Subgrade: Natural soil at the established lines and grades.

F. Borrow: Material taken from designated areas to make up any deficit of excavated material and used for general site or select fill. Obtain from area that is normally dry and well drained. Borrow does not include top soil.

G. Finish Grading: Operations required for smoothing disturbed areas that are not overlaid with pavement.

H. Excavation: Excavation of every description and of whatever substances encountered within the limits of the project to the lines and grades indicated.

I. Compaction: Compaction of soil materials shall be measured as a percent of Standard Proctor density as determined by ASTM D698.

1.4 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Samples: Adequate samples of material as required by the testing laboratory.

C. Quality Control Submittals: For information only.

1. Test Reports: Laboratory analysis of each soil material, including on-site and borrow materials proposed for use on project.

a. General Site Fill: Soil type, liquid limit and plasticity index. Moisture-density relations; identify maximum density optimum moisture.

b. Select Fill: Soil type, liquid limit, plasticity index and gradation. Moisture-density relations; identify maximum density/optimum moisture.

c. Topsoil: Soil type, liquid limit, and plasticity index.

1.5 EXISTING UTILITIES:

A. Where pipes, ducts, and structures are encountered in the excavation but are not shown, immediately notify the Engineer.

PART 2 PRODUCTS

2.1 SELECT FILL:

A. Source: Select fill shall be imported borrow material from borrow areas approved by the Engineer. Material from source shall be tested for compliance with project requirements and approved by the Engineer.

B. Suitability: Use the best material available, suitability of select fill is subject to the Engineer's approval.

C. Quality: Select fill material must be free of clay lumps larger than 1 inch, rocks larger than ½-inch, and/or excessive silts. Do not use soil containing brush, roots, sod, or similar organic materials.

D. Characteristics: Materials shall conform to ASTM D2487 Class II or Class III and shall have a liquid limit less than 35 with a plasticity index less than 15 but greater than 4.

2.2 GENERAL SITE FILL:

A. Source: Obtain general site fill from required excavation or, if excavated material is not sufficient, from borrow areas approved by the Engineer.

B. Suitability: Use the best material available from excavation or borrow. Suitability of general site fill material is subject to the Engineer's approval.

C. Quality: Fill material shall be free of lumps larger than 3 inches, rock larger than 2 inches, and excessive silts. Do not use soil containing brush, roots, sod, or similar organic materials.

D. Characteristics: General site fill material shall conform to ASTM D2487 Class II or Class III Soils.

2.3 TOP SOIL:

A. Source: Obtain top soil from the required excavation, or if sufficient material is not available, from borrow areas approved by the Engineer.

B. Suitability: Use the best material available. Suitability of material is subject to the Engineer's approval.

C. Quality: Material shall be free of large roots or branches, stumps, brush, rubbish, or other objectionable matter.

D. Characteristics: Soils possessing the characteristics that produce growth of grasses or other vegetation.

2.4 SOURCE QUALITY CONTROL:

A. Provide materials of each type from same source throughout the project.

B. A change in source requires sampling, testing, and approval by Engineer.

PART 3 EXECUTION

3.1 STRIP AND STOCKPILE:

A. Remove topsoil at all non-paved areas where excavation of topsoil is required or where fill material will be added for site grading.

B. Remove top 6 inches of topsoil where necessary and stockpile on the Owner's property. Protect stockpiled topsoil from other excavated materials, dumping of unwanted material, dumping by the public, and erosion. Upon completion of rough grading, replace topsoil in 4-inch minimum layer to finish grade elevations as shown on the Grading Plan.

C. Removal of topsoil in building areas and paving areas is further described in Sections 02224.

3.2 EXCAVATION:

A. Objective: Excavate to lines, grades, and elevations as shown or required for subsequent construction. All excavation shall be made in such manner as to permit all surfaces to be brought to final line and grade within ±0.1 foot. Over-excavation shall be restored by the Contractor at his own expense. Finish grades consistently high or low will not be acceptable and shall be corrected by the Contractor at his expense and no additional cost to the Owner.

B. Drainage: During excavation, maintain grades as required to maintain drainage; or, as directed by the Owner or Engineer, install temporary drains or drainage ditches to intercept or divert surface water and prevent interference or delay of the work.

C. Stockpiling: If at time of excavation it is not possible to place material in the proper section of permanent construction, stockpile the material in Owner or Engineer approved areas for later use.

D. Stone or Rock: Stones or rock fragments larger than 2 inches in their greatest dimension will not be permitted in top 6 inches of subgrade.

E. Dressing: Uniformly dress-cut and fill slopes to slope, cross section, and alignment, as shown.

F. Rock: Break with hydraulic ram to obtain near neat line excavation. Blasting will not be allowed.

G. Classification: Excavation is unclassified.

3.3 TREATMENT OF SUBGRADES:

A. Topsoil and vegetation in excavation, or fill areas, shall be stripped from the ground surface and stockpiled, exposing sound undisturbed subgrade soils.

B. Fill Areas: Scarify subgrade to a depth of 6 inches and recompact to a density of 95% of maximum density per ASTM D698 at a moisture content of ±2% of optimum.

C. Cut Areas: Scarify exposed subgrade to a depth of 6 inches and recompact to a density of 95% of the maximum density per ASTM D698 at a Moisture content of ±2% of optimum.

D. Undercut any soft or compressible areas detected during the recompaction process to sound subgrade soils and recompact. General or select fill shall be used to bring the soft or compressive areas to grade. Work shall precede placement of topsoil, walks, drives, or structure foundations. Allow for placement of minimum 4-inch layer of topsoil in areas not covered by structures or pavement.

3.4 PLACING FILL:

A. Examination of Subgrade: Do not place fill until the subgrade preparation has been accepted by the Engineer.

B. Removing Debris: Remove all roots, stone, and debris that are uncovered in the fill material.

C. Spreading Fill and Backfill: Spread the material in horizontal layers over the entire fill area. The thickness of each layer before compaction shall not exceed 8 inches unless otherwise directed by the Engineer.

D. Attaining Proper Bond: If the compacted surface of a layer is too smooth to bond with succeeding layers, loosen the surface before continuing the work.

E. Place materials to lines and grades shown allowing for depth of topsoil.

F. Maintain aggregate drainage throughout construction.

G. The material shall be blended sufficiently to secure the best degree of compaction.

3.5 DISTRIBUTION OF TOPSOIL:

A. Perform rough grading and topsoil/finish grading work.

B. Preparation:

1. Prior to placing topsoil, scarify the subgrade to a depth of 2 inches to provide effective bonding.

2. Shape areas designated, including cut and fill areas, to receive a minimum of 4 inches of topsoil.

C. Placement:

1. Do not haul or place wet topsoil. Also prohibited is placement of topsoil on a subgrade that is excessively wet, extremely dry, or in a condition otherwise detrimental to proper grading or planting.

2. Distribute topsoil uniformly and spread evenly. Correct irregularities in the surface to prevent formation of depressions where water could stand.

3. Perform the spreading operation so that planting can proceed with little additional tillage or soil preparation. Leave the area smooth and suitable for planting.

4. Lightly compact topsoil to obtain proper bond with previously placed or prepared material.

D. Maintenance: Where any portion of the surface becomes eroded or otherwise damaged, repair the affected area to establish the condition and grade prior to topsoil placement; then replace topsoil.

3.6 MATERIAL DISPOSAL:

A. Remove waste and excess excavated material from the construction site before Pre-final Inspection. Legally dispose of material at a licensed site or with written and notarized permission from the property owner for a private disposal site. All costs associated with waste material removal and disposal shall be paid for by the Contractor.

END OF SECTION

SECTION 02220

TRENCH AND EXCAVATION SAFETY SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Requirements for a Trench and Excavation Safety System to be designed and furnished by the Contractor for the safety and health of personnel.

B. Submission of a written Plan describing the System in detail.

1.2 PAYMENT:

A. Payment will be as stipulated on the Bid Form.

1. If no individual line item is identified, include in appropriate Lump Sum bid item(s). Provide as a Schedule of Values project element in accordance with Section 01019.

2. If individual line item is identified on the Bid Form and is presented as unit cost per linear foot, the Trench Safety Plan shall include appropriate trench safety for excavation that may be required for any relevant lines, structures, etc. Include associated costs in unit cost presented on bid.

1.3 REFERENCES:

A. 29CFR1926 - Occupational Safety and Health Standards - Excavations, United States Department of Labor, latest edition.

B. Others - Other applicable Federal, State, and local rules for Trench Construction or Excavations.

1.4 REQUIREMENTS:

A. The Contractor shall develop, design, and implement a System. The Contractor shall bear the sole responsibility for the adequacy of the System.

B. The requirements of 29CFR1926 shall be the minimum requirements for this specification and is adopted as a part of this specification. Other regulations relating to trench and excavation safety shall also be considered a part of this specification as if referenced directly.

C. Should the System require wider trenches than shown, the Contractor shall be responsible for the costs associated with determining adequacy of pipe bedding and class, as well as, purchase and installation of alternate materials.

1.5 SUBMITTALS:

A. Submit copies of the System Plan for information only. The Engineer will not review the System Plan for sufficiency, adequacy, or other engineering aspects. Submission is only to record the presence or absence of the System Plan.

1.6 QUALITY ASSURANCE:

A. The Trench Safety System shall be designed by an Engineer registered as a Professional Engineer in the State of Texas. The System Plan shall be sampled with the Engineer's seal, signed, and dated.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL:

A. Implement the system in accordance with the written System Plan and conduct affected work in accordance with the same.

END OF SECTION

SECTION 02224

EXCAVATION, BACKFILLING and COMPACTING FOR STRUCTURES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Excavating, Backfilling and Compacting for Structures.

1.2 REFERENCES:

A. ASTM C136 — Sieve Analysis of fine and course aggregates.

B. ASTM D698 — Standard Methods of Test for Moisture-Density Relations of Soil (Standard).

C. ASTM D1557 — Test for Moisture-Density Relations of Soil (Modified).

D. ASTM D2992 — Density of Soil and Soil Aggregate In-Place by Nuclear Methods.

E. ASTM D3017 — Moisture Content of Soil and Soil Aggregate In-Place by Nuclear Methods.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Samples: Aggregate samples of material as required by the testing laboratory.

C. Quality Control Submittals: For information only.

1.4 PROJECT CONDITIONS:

A. Protection:

1. Erect sheeting, shoring and bracing as necessary for protection of person, improvements and excavations.

2. Provide dewatering and drainage necessary to keep excavations free of water.

B. Coordination: Coordinate backfill operations with installation of utilities.

PART 2 PRODUCTS

2.1 EXCAVATED MATERIAL:

A. Source: Select fill shall be imported borrow material from borrow areas and/or on-site materials approved by the Engineer. Material from source shall

be tested for compliance with project requirements and approved by the Engineer.

B. Suitability: Use the best material available, suitability of select fill is subject to the Engineer's approval.

C. Quality: Select fill material must be free of clay lumps larger than 1 inch, rocks larger than 2-inches and/or excessive silts. Do not use soil containing brush, roots, sod, or similar organic materials.

D. Characteristics: Materials shall conform to ASTM D2487 Class II or Class III and shall have a liquid limit less than 35 with a plasticity index less than 15 but greater than 4.

2.2 GENERAL SITE FILL:

A. Source: Obtain general site fill from required excavation or, if excavated material is not sufficient, from borrow areas approved by the Engineer.

B. Suitability: Use the best material available from excavation or borrow. Suitability of general site fill material is subject to the Engineer's approval.

C. Quality: Fill material shall be free of lumps larger than 3 inches, rock larger than 2 inches and excessive silts. Do not use soil containing brush, roots, sod, or similar organic materials.

D. Characteristics: General site fill material shall conform to ASTM D2487 Class II or Class III Soils.

2.3 AGGREGATE:

A. Free-draining, well-grade crushed rock, gravel, or sand per ASTM 136, Coarse Aggregate Section.

2.4 TOP SOIL:

A. Source: Obtain top soil from the required excavation, or if sufficient material is not available, from borrow areas approved by the Engineer.

B. Suitability: Use the best material available. Suitability of material is subject to the Engineer's approval.

C. Quality: Material shall be free of large roots or branches, stumps, brush, rubbish, or other objectionable matter.

D. Characteristics: Soils possessing the characteristics that produce growth of grasses or other vegetation.

2.5 SOURCE QUALITY CONTROL:

A. Provide materials of each type from same source throughout the project.

B. A change in source requires sampling, testing and approval by Engineer.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION:

A. Examine project site and investigate existing subsurface conditions to determine nature, kind and character of materials and conditions to be encountered.

B. Prior to commencing excavation operations, disconnect and cap or protect existing utility services, if any, in accordance with the requirements of the owning companies and applicable ordinances and regulations.

C. Provide for surface drainage.

D. Keep excavations free of water during entire progress of the work.

E. Prior to backfilling against grade beams and below grade walls, verify that beams, walls and footings have properly cured.

F. Verify that forms, trash, debris and applicable temporary shoring have been removed.

G. Verify that walls are supported at top and bottom.

3.2 EXCAVATION:

A. Excavate beneath structures to lines, grades and elevations as shown. Over-excavation shall be restored by the Contractor at his own expense.

B. Scarify exposed surfaces to a depth of 8 inches and recompact to a density of 95% of the maximum dry density when tested by the Standard Proctor Compaction Test (ASTM D698), at or above optimum moisture content.

C. Remove weak or highly organic soils noted by probing and replace with general site fill. Place fill in 8-inch lifts and compact to 95% of maximum dry density (ASTM D698) at or above optimum moisture content.

D. Do not extend structure fill beyond structure lines or as shown.

E. Excavation is unclassified. Break rock with hydraulic ram to obtain near neat line excavation. Blasting is not allowed.

3.3 BACKFILL:

A. Schedule backfilling to expedite construction progress.

B. Backfill in manner to prevent excessive pressure against previously completed work and to prevent damage or displacement to utility systems.

C. Place backfill materials for grade beams as follows:

1. Exterior Face of Grade Beams: Where required, backfill with select fill. Place backfill in layers of approximately 8 inches loose lifts and compact to minimum 95% of maximum dry density percent at or above optimum moisture content. Standard Proctor Density (ASTM D698).

2. Place backfill at grade beams as soon as forms are removed. Keep grade beam excavations dry at all times. If rain occurs before backfill is placed, remove water for excavations immediately.

D. Backfill structure walls with free-draining coarse aggregate backfill. Consolidate by tamping to uniform density to prevent settling. Do not over compact.

E. Exercise care to prevent over compaction of backfills.

F. Where top of below grade structure backfill is not covered with paving or other impervious barrier, the final two feet of backfill shall be general site fill. Place fill in 8-inch thick lifts and compact to minimum 95% of maximum dry density at or above optimum moisture content. Allow for 4 inches of top soil placement.

G. Undercut any soft or compressible areas detected during the recompacting process to sound subgrade soils and recompact. General or select fill shall be used to bring the soft or compressive areas to grade. Work shall precede placement of topsoil, walks, drives, or structure foundations. Allow for placement of minimum 4-inch layer of topsoil in areas not covered by structures or pavement.

3.4 MATERIAL DISPOSAL:

A. Remove waste and excess excavated material from the construction site before final inspection. Legally dispose of material at a licensed site or with written and notarized permission from the property Owner for a private disposal site. All costs associated with waste material removal and disposal shall be paid for by the Contractor.

3.5 TESTING:

A. Laboratory Testing and Inspection Services: As specified in Section 01400-1.5, Testing Laboratory Services.

B. Soil Moisture and Density: Perform a minimum of 3 tests per lift.

END OF SECTION

SECTION 02225

EXCAVATION, BACKFILLING AND COMPACTING FOR UTILITIES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Unclassified excavation, trenching, bedding, backfilling and compacting for potable water mains, gravity-flow sanitary sewers, manholes, valves, and other utility systems and appurtenances, and the disposal of excess excavated material.

1.2 REFERENCES:

A. ASTM C33 – Coarse Aggregates.

B. ASTM D698 – Moisture-Density Relations of Soil (Standard).

C. ASTM D1557 – Test for Moisture-Density Relations of Soil (Modified).

D. ASTM D2321 – Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity – Flow Applications.

E. ASTM D2487 – Classification of Soils for Engineering Purposes.

F. ASTM D4254 – Minimum Index Density and Unit Weight of Soils and Calculations of Relative Density.

G. ASTM D4318 – Test for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

H. OSHA – Occupational Safety and Health Administration and Related Regulations.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Submit sample(s) of material(s) proposed to be used for bedding in the pipe zone and backfill of fiberglass structures.

1. One (1) set to materials testing lab for classification.
2. One (1) set to Engineer for approval.

1.4 PROTECTION OR REMOVAL OF EXISTING UTILITIES:

A. The Contractor shall anticipate all underground obstructions, such as but not limited to, water mains, gas lines, storm and sanitary sewers, telephone or electric light or power ducts, concrete and debris. Any such lines or obstructions indicated on the Drawings show only the approximate locations and shall be verified in the field by the Contractor. The Owner and Engineer

will endeavor to familiarize the Contractor with all known utilities and obstructions, but this shall not relieve the Contractor from full responsibility in anticipating all underground obstructions whether or not shown on the Drawings.

B. The Contractor shall, at his own expense, maintain in proper working order and without interruption of service all existing utilities and services which may be encountered in the work. With the consent of the Engineer and utility owner such service connections may be temporarily interrupted to permit the Contractor to remove designated lines or to make temporary changes in the locations of services. The cost of making any temporary changes shall be the responsibility of the Contractor.

C. Notify all utility companies involved to have their utilities located and marked in the field. All underground utilities in a particular segment of the project shall then be uncovered to verify location and elevation before construction begins in that segment of the project.

D. The Contractor shall obtain necessary permits, except County right-of-way permits, required for completion of the project.

1.5 DEFINITIONS:

A. All excavation associated with the project is unclassified.

B. Bedding: Includes the area from the trench bottom to the bottom of the pipe where material is placed to bring the trench bottom up to grade. A compacted depth of approximately 4 to 6 inches is generally sufficient bedding thickness.

C. Haunching: Includes the area from the bottom of the pipe to the spring line of the pipe. Material in this area must be placed and consolidated to provide adequate side support while avoiding both vertical and lateral displacement of the pipe. **The type and density of the material in this area are the most important factors affecting the performance and deflection of the pipe.**

D. Initial Backfill: Includes the area from the spring line of the pipe to a point at least 6 inches over the top of the pipe.

E. Final Backfill: Includes the area above the initial backfill, up to final grade or the bottom of the flexible base material in the pavement section.

F. Pipe Zone: Includes areas of bedding, haunching and initial backfill as defined above.

PART 2 PRODUCTS

2.1 PIPE ZONE:

A. Materials for use within the pipe zone and within 24 inches of fiberglass structures shall be in accordance with following Table 2.1:

TABLE 2.1
DESCRIPTION OF MATERIAL CLASSIFICATION
(as defined in ASTM D2321)

Class	Type	Soil Group Symbol	Description ASTM D2487	% Passing Sieve Sizes			Atterberg Limits		Coefficients	
				1½ in (40 mm)	#4 (4.75 mm)	#200 (0.075 mm)	LL[b]	PI[c]	Uniformity C_u	Curvature C_c
I	Manufactured, Processed Aggregate; dense-graded, clean	None	Angular, granular, crushed stone or rock, crushed gravel, and stone/sand mixtures with gradations selected to minimize migration of adjacent soils; contain little or no fines	100%	≤50%	<5%	Non Plastic			
II	Coarse-Grained Soils, clean	GW	Well-graded gravels and gravel-sand mixtures; little or no fines	100%	<50% of Coarse Fraction	<5%	Non-Plastic		>4	1 to 3
		GP	Poorly-graded gravels and gravel-sand mixtures; little or no fines						<4	<1 or >3
		SW	Well-graded sands and gravelly sands; little or no fines		>50% of Coarse Fraction				>6	1 to 3
		SP	Poorly-graded sands and gravelly sands; little or no fines						<6	<1 or >3
	Coarse-Grained Soils, borderline clean to w/fines	e.g. GW-GC, SP-SM.	Sands and gravels which are borderline between clean and with fines	100%	Varies	5% to 12%			Same as for GW, GP, SW and SP	
III	Coarse-Grained Soils with Fines	GM	Silty gravels, gravel-sand-silt mixtures	100%	<50% of Coarse Fraction	>12% to <50%		<4 or <"A" Line		
		GC	Clayey gravels, gravel-sand-clay mixtures					<7 and >"A" Line		
		SM	Silty sands, sand-silt mixtures	>50% of Coarse Fraction				>4 or <"A" Line		
		SC	Clayey sands, sand-clay mixtures					>7 and >"A" Line		
IV[a]	Fine-Grained Soils (inorganic)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity	100%	100%	>50%	<50	<4 or <"A" Line		
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					>7 and >"A" Line		

[a] Includes Test Method ASTM D2487 borderline classifications and dual symbols depending on plasticity and liquid limits.

[b] LL = Liquid Limit.

[c] PI = Plasticity Index.

B. Class I or II materials as described in Table 2.1 above are approved for the pipe zone or within 24 inches of fiberglass structures. In addition to these materials the following materials are approved for the pipe zone or within 24 inches of fiberglass structures:

1. Lean Concrete: Free-flowing grout, mixed one (1) sack of cement per cubic yard of sand.

2. Structural Concrete: Concrete for encasement shall be 3000 psi compressive strength as specified in Division 3.

2.2 FINAL BACKFILL MATERIALS:

A. Earth Backfill: Earth backfill may be excavated and reused from trench or obtained from an approved borrow area. Material shall be processed to ensure that only select material is used for backfilling operations. Material shall be free of lumps, clods, large rocks, debris, trash, organic, spongy or otherwise objectionable material. The presence of such material in the backfill may preclude uniform compaction and result in excessive localized point loads on or deflections in the piping system or fiberglass structure.

B. Open Areas:

1. All materials included in Table 2.1 above are approved for final backfill in open areas, including earth backfill from excavated material.

C. Pavement Section or within limits of service roads regardless of surface condition:

1. Class I or II materials as described in Table 2.1 above are approved for final backfill above the pipe zone to below the road base material, or

2. Flexible base material as specified in SECTION 02231.

PART 3 EXECUTION:

3.1 EXAMINATION AND PREPARTATION:

A. Examine utility routes and coordinate excavation work to eliminate installation conflicts.

B. Allow room for stockpiling excavated material and utility construction material during utility construction.

C. Contractor shall provide erosion controls as necessary to prevent stockpiled material from washing into adjacent water courses or streets in the event of rain. Maintain controls in place until applicable area has been restored to original or final grade. Refer to the Site SWPPP.

3.2 TRENCH EXCAVATION:

A. Procedure: Excavated to indicated or specified depths.

1. Excavate by open cut method.

2. During excavation, stockpile material suitable for backfilling in an orderly manner far enough from the bank of the trench to avoid overloading, slides, or cave-ins.

3. Grade as necessary to prevent surface water from flowing into trenches or other excavations.

4. Cut walls of trench as close to vertical as the stability of the material and trench safety will allow. Remove stones as necessary to avoid point-bearing. Over-excavate wet or unstable soil from the trench bottom to permit construction of a more stable bed for pipe. Over excavation shall be filled and tamped with clean dry sand, pea gravel, or other approved material to the required grade.

5. Excavate the trench the proper width as shown, or as required by the Contractor's Trench Safety Program. If the trench width below the top of pipe is wider than specified in this section or shown, install additional backfill. No additional payment will be made for additional material or work required for installation.

6. Accurately grade the trench bottom to provide proper bedding as required for pipe installation.

7. If any excavation is carried beyond the lines and grades required or authorized, the Contractor shall, at his own expense, fill such space with suitable material and properly compact the material as directed by the Engineer. No additional payment will be made.

B. Sheeting and Bracing: If trench safety methods do not include sloping of trench walls, install sheeting and bracing; or use appropriate trench box necessary to support the sides of trenches and other excavations with vertical sides, as required by current OSHA regulations.

C. Water in Excavation: Keep work free from ground or surface water at all times. Provide pumps of adequate capacity or other approved method to remove water from the excavation in such a manner that it will not interfere with the progress of the work or the proper placing of other work.

D. Existing Lawns and Shrubbery: The Contractor shall take particular care to preserve existing lawns and shrubbery. Make minor pipe alignment as may be necessary.

E. Existing Pavement: Existing pavement over trenches shall be removed to a width of 6 inches outside of the trench on each side. Remove to a neat line by sawing method. Take appropriate measures to prevent damage to existing pavement adjacent to the trench by wheels, tracks and/or stabilizers of excavating equipment. Remove brick pavement by hand, deliver and stack as directed by the Owner.

3.3 PIPE BEDDING:

A. Concrete Encasement:

1. Where shown, the Contractor shall install the pipe in concrete encasement.

2. Concrete for encasement shall be 3000 psi compressive strength as specified in Section 03300.

3. Precautions shall be used to prevent pipe floating, movement or deflection during construction.

4. Concrete for encasement, shall be included in the unit price bid per linear foot in place.

B. Within the Pipe Zone:

1. Accurately grade the bottom of the trench 4 inches below the bottom of the pipe and to the limits of the clear space on either side of the pipe.

2. Install Class I or II materials which comply with Table 2.1 above accordance with "Pipe Bedding Detail" shown on the Drawings.

3. The initial layer of embedment material placed to receive the pipe shall be brought up to a grade slightly higher than that required for the bottom of the pipe and the pipe shall be placed thereon and brought to grade by tamping, or by removal of the slight excess amount of embedment under the pipe.

4. Adjustment to grade line shall be made by scraping away or filling with embedment materials. Wedging or blocking up of pipe will not be permitted.

5. Each pipe section shall have a uniform bearing on the embedment for the full length of the pipe, except immediately at the joint.

6. After each pipe has been graded, aligned, placed in final position on the bedding material and joint made, sufficient embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to hold the pipe in proper position and alignment during subsequent pipe jointing and embedment operations.

7. Sheeting and shoring will not be allowed in the pipe zone during or after installation of the pipe or embedment material, unless special provisions are made to ensure the specified compaction of bedding and pipe alignment is maintained after removal of sheeting and shoring.

8. Minimum compaction effort within the pipe zone and adjacent to fiberglass structures shall be in accordance with the following Table 3.3 based on the classification of bedding material used:

TABLE 3.3
MINIMUM REQUIRED COMPACTION
FOR MATERIAL USED WITHIN PIPE ZONE

Classification of Bedding Material	Standard Proctor Density[a] (Relative Density[b] shown in parentheses)
Class I	Dumped
Class II	≥85% standard (≥40% relative)
Class III	Not approved
Class IV	Not approved
Class V	Not approved

[a] Standard Proctor Density per ASTM D698, moisture content shall be ± 2% of optimum.
[b] Relative Density per ASTM D4254.

3.4 UTILITY INSTALLATION:

A. Water Mains: Provide a minimum of 36 inches of cover over the top of the pipe. Avoid interference of water lines with other utilities. Provide class of bedding as shown. Install piping and appurtenances as specified.

B. Sanitary Sewers: Install piping to the lines and grades as shown on the Drawings. Limit clear space on either side of the pipe to 12 inches. Above the pipe, cut as wide as necessary to sheet and brace and properly perform the work. Provide class of bedding as shown. Install piping and appurtenances as specified.

C. Excavation for Appurtenances: Excavate sufficiently for valves, fittings, manholes, valve vaults, utility pull boxes and similar structures to leave at least 18 inches clear between the outer surfaces and the embankment or shoring that may be used to hold and protect the embankment wall. Install valves, fittings, manholes or valve vault structure, piping and appurtenances as specified. Any other-depth excavation will be refilled with lean concrete or other suitable compacted material approved by the Engineer, at no additional cost to the Owner.

3.5 FINAL BACKFILL:

A. Criteria: Backfill trenches to ground surface with material as specified. Reopen trenches improperly backfilled to depth required for proper compaction. Refill and compact as specified, or otherwise correct the condition in an approved manner.

B. Take care to avoid contacting pipe or structure to be backfilled with compaction equipment. Do not use compaction equipment directly over the pipe until sufficient initial backfill has been placed to assure such equipment will not be damage or disturb the pipe.

C. All forms, lumber, trash and debris shall be removed from trenches, manholes and other utility structures prior to backfilling.

D. Dispose of unacceptable backfill material and provide suitable material for backfill at no additional cost to the Owner.

E. Open Areas:

1. Above the pipe zone, deposit backfill material in 6 to 8 inch lifts, compact to minimum of 85 percent of maximum density per ASTM D698, while maintaining moisture within ± 2 percent of optimum. Excavated material placed shall be free of rock greater than two (2) inches in any direction.

2. Backfill for valves, fittings, manholes, utility pull boxes and other utility structures shall be placed in accordance with applicable Specification Sections.

F. Pavement Section or within limits of service roads regardless of surface condition:

1. Above the pipe zone to below the flexible base material, deposit backfill material in 6-inch lifts, compact to minimum of 95 percent of maximum density per ASTM D698, while maintaining moisture within ± 2 percent of optimum; or deposit ASTM D2487 Class I or II material in 6-inch lifts, compact to 40 percent relative density according to ASTM D4254.

2. For valves, fittings, manholes, valve vaults or boxes in pavement sections, backfill with Class I or II material to bottom of proposed pavement. Backfill material shall be deposited in 6-inch lifts. Class I or II material must be compacted to 40 percent relative density according to ASTM D4254.

3.6 TESTING:

A. Testing Laboratory Services: In-place moisture-density testing may be ordered by Engineer to insure that all trench backfill complies with the requirements of the Specification. Tests will be performed by a recognized independent laboratory, and all costs of tests showing proper compaction will be paid for by the Owner. Testing showing improper compaction shall be paid for by the Contractor. Copies of all test results will be furnished to the Contractor. If improper compaction is identified, Contractor shall repair the area to meet the specification. All costs associated with repair and re-testing to prove the repaired installation meets the specification will be the responsibility of the Contractor.

B. See Section 01400.

3.7 DISPOSAL OF EXCESS MATERIAL:

A. Remove waste and excess excavated material from the construction site before final inspection. Legally dispose of material:

1. At a licensed and approved site.

2. On adjacent private property with written and notarized permission from the property owner.

3. On Owner property with written and notarized permission from the Owner.

B. All cost associated with waste material removal and disposal shall be the responsibility of the Contractor.

END OF SECTION

SECTION 02231

AGGREGATE BASE COURSE

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Aggregate base material, consisting of crushed or uncrushed coarse and fine aggregate material, as necessary to meet the requirements herein and in conformity with lines, grades, compacted thickness and typical sections shown.

1.2 REFERENCES:

A. TxDOT Item 247--Flexible Base.

B. ASTM D698--Test Methods for Moisture-Density Relations of Soils (Standard).

1.3 SUBMITTALS:

A. Refer to Section 01300 for submittal requirements.

B. Samples: Aggregate samples of material as required by the testing laboratory.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Aggregate Base Course shall be hauled in tight trucks previously cleaned of all dirt and foreign material.

B. Place aggregate base course the same day as delivered to the jobsite unless otherwise approved by the Engineer.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Aggregate Base Course shall meet the requirements TxDOT Item 247--Flexible Base, Type A Grade 2, with material larger than 3 inches removed.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Place material only after the subgrade has been properly constructed and inspected.

3.2 PREPARATION:

A. Do not place fill or base on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT:

A. Place aggregate in maximum 8 inch layers and compact to 98% standard density± 2% of optimum moisture. For thicknesses over 8 inches, construct in multiple courses of equal thickness.

B. Upon completion, the material shall be smooth and in conformity with the typical sections as shown.

C. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES:

A. Correct any deviation in by loosening, adding or removing material, reshaping and recompacting at the Contractor's expense.

3.5 FIELD QUALITY CONTROL:

A. If the aggregate base material should lose the required density or finish before foundation is complete, it shall be reworked, recompacted, refinished and retested at the Contractor's expense.

END OF SECTION

SECTION 02520

CONCRETE PAVEMENT, SIDEWALKS, CURB AND GUTTER AND APPROACHES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Portland cement concrete pavements with monolithic curb, sidewalks, curb and gutter and approaches on a prepared subgrade or subbase course in conformity with lines, grades and typical cross sections shown.

1.2 REFERENCES:

A. ACI 301—Specifications for Structural concrete.

B. ASTM A615—Deformed and Plain Billet-Steel Bars.

C. ASTM A616—Rail-Steel Deformed and Plain Bars.

D. ASTM C260—Air-Entraining Admixtures for concrete.

E. ASTM C494—Chemical Admixtures for concrete.

F. TxDOT Item 360—Concrete Pavement.

G. TxDOT Item 421—Hydraulic Cement Concrete.

H. TxDOT DMS 6310—Joint Sealants and Fillers.

I. TxDOT DMS 4650—Hydraulic Cement Concrete Curing Materials and Evaporation Retardants.

1.3 SUBMITTALS FOR REVIEW:

A. Refer to Section 01300 for submittal requirements.

B. Submit data on all joint materials and curing compounds to be incorporated into the project 30 days prior to use.

C. Submit design mixtures, including additive modifiers, for review and approval at least 30 days before any concrete pavement is placed. The design mixes shall be prepared by a certified independent testing laboratory employed and paid by the Contractor.

1.4 SITE CONDITIONS:

A. Do not place concrete when surface temperature is less than 40 degrees F or surface is wet or frozen.

PART 2 PRODUCTS

2.1 FORM MATERIALS:

A. Forms for concrete Pavement shall comply with the requirements of TxDOT Item 360—Concrete Pavement.

B. Forms for sidewalks, curb and gutter and concrete approaches shall be as approved by the Engineer.

2.2 REINFORCEMENT:

A. Reinforcing Steel shall meet the requirements of ASTM A616, Grade 60 new Billet-steel bars.

B. Dowels for expansion joints shall meet the requirements of ASTM A615, Grade 60.

2.3 CONCRETE MATERIALS:

A. Use Class "P" concrete as specified in TxDOT Item 421—Hydraulic Cement Concrete.

B. Mixing water shall be potable and not detrimental to the concrete.

C. The concrete shall contain 3 to 5 percent entrained air and shall meet the requirements of ASTM C260.

D. Do not use chemical mixtures such as water reducing, retarding and accelerating agents unless approved by the Engineer. The admixtures shall meet the requirements of ASTM C494.

2.4 ACCESSORIES:

A. Curing material shall meet the requirements of DMS 4650—Hydraulic Cement Concrete Curing Materials and Evaporation Retardants.

B. Joint fillers and backer rods shall meet the requirements of DMS 6310—Joint Sealants and Fillers.

2.5 CONCRETE MIX:

A. The concrete mix shall meet the requirements of Class "P" Portland cement concrete as specified in TxDOT Item 421—Hydraulic Cement Concrete.

B. The minimum concrete flexural strength shall be 680 psi at 28 days using third-point loading.

C. Use accelerating admixtures in cold weather only when approved by the Engineer. Use of admixtures will not relax cold weather placement requirements.

D. Use calcium chloride only when approved by Engineer.

E. Use set retarding admixtures during hot weather only when approved by Engineer.

2.6 SOURCE QUALITY CONTROL AND TESTS:

A. One set of three (3) test cylinders for each daily pour or for every 50 CY placed, whichever is greater.

B. Tests on cement and aggregate will be performed to ensure conformance with specified requirements.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Place concrete only on approved underlying material.

B. Any underlying material determined to be unsatisfactory for any reason, shall be corrected at the Contractor's expense.

3.2 PREPARATION:

A. Moisten underlying pavement layer to minimize absorption of water from fresh concrete.

B. Coat surfaces of manholes, drop inlets, etc. with oil to prevent bond with concrete.

C. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

3.3 FORMING:

A. Place and secure forms to correct location, dimension, profile and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.4 REINFORCEMENT:

A. The size and location of reinforcement shall be as shown on the plans.

3.5 CONCRETE PAVEMENT:

A. Place concrete in accordance with TxDOT Item 360—Concrete Pavement unless noted within this specification.

B. Place concrete using the slip form technique. Other methods may be used if approved by the Engineer.

C. Ensure reinforcement, inserts, embedded parts, formed joints, etc. are not disturbed during concrete placement.

D. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

E. Concrete pavement panels shall have a maximum size of 25 feet by 25 feet. Typical joint layout shall be as shown.

3.6 SIDEWALKS:

A. Sidewalks shall be constructed in sections of approximately 32 feet in length. One-half inch expansion joints with filler board shall be constructed at the beginning and end of each sidewalk section. Filler board shall be approved by the Engineer. Expansion joints shall not contain dowels unless shown. A three inch cushion of granular material shall be placed on the subgrade, unless otherwise shown.

B. After the surface has been worked to a true plane, one inch deep control joints shall be made every five feet unless otherwise shown on the plans. Sidewalk thickness shall be as shown on the plans.

3.7 CURB AND GUTTER:

A. Curb and gutter adjacent to asphalt pavement shall be constructed in sections of approximately thirty feet in length and five feet in width, unless otherwise shown on the plans. Expansion joints shall be placed at every thirty feet section and at the beginning and end of every curb return. Where walks or other concrete improvements join the curb, a one-half inch wide expansion joint shall be placed at the back of the curb. The expansion joint will consist of a one-half inch filler board without dowels. Filler board shall be approved by the Engineer.

B. Control joints will be placed ten feet apart along the length of each section. Joints shall be cut through the curb and one and one-half inches below the surface of the curb and gutter.

C. Concrete pavement with monolithic curb shall be constructed as shown.

3.8 CONCRETE APPROACHES:

A. Concrete approaches shall be constructed as shown.

3.9 JOINTS:

A. Place joints as specified or shown.

B. For concrete pavement with monolithic curb, curb joints shall be of the same type and location as the adjacent concrete pavement.

C. Joint sealant for concrete pavement shall meet the requirements of TxDOT Class 5 joint sealant as described in DMS 6310—Joint Sealants and Fillers.

3.10 FINISHING:

A. Concrete surfaces shall receive a light broom finish.

B. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.11 JOINT SEALING:

A. Place sealant in accordance with manufacturer's recommendations.

B. Joint reservoir dimensions shall be as shown.

3.12 TOLERANCES:

A. Refer to Section 01400 for tolerance requirements.

B. The maximum variation of surface flatness shall be 1/4 inch in 10 ft for straight-line grades.

C. Horizontal tolerances shall be ± 1/4 inch in forms.

3.13 FIELD QUALITY CONTROL:

A. Field inspection and testing will be performed under the provisions of Section 01400.

B. Testing firm will take beams and perform slump and air entrainment tests in accordance with ACI 301.

C. One additional test beam will be taken during cold weather and cured on site under same conditions as concrete it represents.

D. One slump test will be taken for each set of test beams taken.

E. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature and test samples taken.

3.14 PROTECTION:

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures and mechanical injury.

B. Do not permit vehicular traffic over pavement for at least 4 days minimum after finishing unless directed by the Engineer. This period may be extended if required by the Engineer.

END OF SECTION

SECTION 02665

WATER SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Water mains including valves, valve boxes, blocking, fittings, and other appurtenances for potable water distribution systems.

1.2 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. ASTM A53 - Pipe, Steel, Black and Hot Dipped, Zinc-Coated Welded and Seamless.

2. ASTM A126 - Gray Iron Castings for Valves, Flanges and Pipe Fittings.

3. ASTM A307 - Specification for Carbon Steel Bolts and Studs 60,000 psi Tensile.

4. ASTM A536 - Ductile Iron Castings.

5. ASTM D1784 - Rigid Polyvinyl Chloride (PVC) Compounds and Chlorinated Polyvinyl Chloride (CPVC) Compounds.

6. ASTM D1785 - Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.

7. ASTM D2241 - Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR).

8. ASTM D2466 - Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.

9. ASTM D2737 - Polyethylene (PE) Plastic Tubing.

10. ASTM D2855 - Making Solvent-Cemented Joints with Polyvinyl Chloride (PVC) Pipe and Fittings.

11. ASTM D3139 - Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals.

12. ASTM F477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

B. American Water Works Association (AWWA):

1. AWWA C104 - Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water.

2. AWWA C105 - Polyethylene Encasement for Ductile Iron Piping for Water and other Liquids.

3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 3 inches through 48 inches, for Water and other Liquids.

4. AWWA C150 - Thickness Design of Ductile Iron Pipe.

5. AWWA C151 - Ductile Iron Pipe.

6. AWWA C153 - Ductile Iron Compact Fittings, 3 inches through 12 inches, for Water and other Liquids.

7. AWWA C500 - Metal-Seated Gate Valves, for Water Systems.

8. AWWA C509 - Resilient-Seated Gate Valves for Water Systems.

9. AWWA C515 - Reduced-Wall, Resilient-Seated Gate Valves

10. AWWA C550 - Protective Interior Coatings for Valves and Hydrants.

11. AWWA C600 - Installation of Ductile-Iron Water Mains and Appurtenances.

12. AWWA C700 - Cold Water Meters Displacement-Type, Bronze Main Case.

13. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 inches through 12 inches, for water.

14. AWWA C901 - Polyethylene (PE) Pressure Pipe, Tubing, and Fittings, 1/2 inch through 3 inches for Water.

15. AWWA C905 - Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14 inches through 36 inches.

C. ANSI 16.1 - Cast Iron Pipe Flanges and Flanged Fittings.

D. 30 TAC 290, Texas Administrative Code, Volume 30, Chapter 290, Water Hygiene.

1.3 SUBMITTALS:

A. Procedures for submittals: Section 01300.

B. Product Data: Manufacturer's product data sheets on all materials incorporated into work.

C. Quality Control Submittals: For information only.

1. Certificates: Manufacturer's certificates attesting compliance with applicable specifications for grades, types, classes, and other properties.

2. Test Reports: Results of field quality control tests including hydrostatic tests and bacteriological tests.

D. Contract Closeout Submittals: Refer to Section 01700.

1. Protect Record Documents: Submit documents in accordance with Section 01700. Accurately record installed location of valves, hydrants, piping and service connections, and accessories.

1.4 QUALITY ASSURANCE:

A. Pipeline installation shall be in accordance with manufacturer's recommendations and as supplemented by these Specifications.

B. Pipe shall be kept clean of all foreign matter.

1. At temporary termination of pipe laying, provide suitable cover to close open end until burying operations are resumed.

C. Jointing shall be by trained employees.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Deliver, store, and handle products under provisions of Section 01600.

B. Each load of pipe delivered to the job site shall be inspected by the Engineer.

1. Pipe transported without adequate protection shall be rejected and removed immediately from the job site.

2. Inadequate wall thickness or tolerances greater than specified: Randomly selected samples of the pipe shall be forwarded immediately to an approved testing laboratory with instructions to check the pipe for compliance with applicable product standards, ASTM Specifications, and other applicable Specifications.

3. When the testing laboratory reports concur that the pipe does not meet Specifications, the defective pipe shall be removed immediately from the job site by the Contractor.

4. If defective, all costs for shipping of samples, laboratory testing, removal of defective pipe, and replacement pipe shall be the sole responsibility of the Contractor.

PART 2 PRODUCTS

2.1 PIPE:

A. PVC Water Pipe - (less than 2 inches): ASTM D1784:

1. Schedule 40 or 80.
2. Solvent weld joints, ASTM D2855.
3. All pipe shall bear NSF 61 seal of approval.

B. Ductile Iron Water Pipe: AWWA C151, Pressure Class 200:

1. Cement lined interior, AWWA C104.
2. Exterior shall be bituminous coated, AWWA C151.
3. Wrap buried pipe with 8 mil polyethylene encasement, AWWA C105.

C. Galvanized and Steel Pipe: ASTM A53:

1. Galvanized, standard wall; threaded.

2.2 FITTINGS:

A. Buried Fittings (size 3 inches through 48 inches):

1. Ductile Iron, AWWA C110 (non-compact) or AWWA C153 (compact).
2. Cement lined interior, AWWA C104.
3. Exterior shall be bituminous coated.
4. Fittings shall be push-on, mechanical joint or flanged pipe as shown.
5. Wrap buried fittings with 8-inch polyethylene encasement, AWWA C105.
6. Working pressure rated to 350 psi.

B. Above-grade Fittings (size 3 inch through 48 inch):

1. Ductile Iron Flanged Fittings, AWWA C110.
2. Cement lined interior AWWA C104.
3. Exterior shall be bituminous coated.
4. Working pressure rated at 350 psi.
5. Face and drill in accordance with ANSI B16.1 for Class 125 flanges.

C. Above-grade Fittings (smaller than 3 inch):

1. Galvanized steel, ASTM A53.
2. Standard wall; threaded.

2.3 COUPLINGS:

A. Flanged Coupling Adapters:

1. Conform with ASTM A126, Class B, Cast Iron.

2. Products: Dresser Style 127, Uni-flange Series 400, or approved equivalent.

B. Flexible Couplings:

1. Type: Gasketed, sleeve type, straight cast.

2. Products: Dresser Style 38 or style 162 (transition coupling), or approved equivalent.

3. Service: Supply couplings with working pressures which meet or exceed the joining pipe rating.

C. Retainer Glands:

1. Mechanical joint fittings to PVC: Ductile Iron, ASTM A536, Grade 65-45-12.

a. Product: Uni-flange Series 1300, or approved equivalent.

2. Mechanical joint fittings to Ductile Iron: Ductile Iron ASTM A536, Grade 60-10-10.

a. Product: EBAA Iron Series 100, or approve equivalent.

2.4 BOLTS AND GASKETS:

A. Gaskets shall be 1/16-inch cloth insert, red rubber, full face.

B. Bolts shall be in accordance with the following:

1. Non-pressure Applications: ASTM A307A.
2. Pressure Applications: ASTM A307B.
3. Submerged/Splashed: 316 stainless steel.

2.5 TAPPING SLEEVES:

A. Material:

1. Shell: 304 Stainless Steel.
2. Lugs: 304 Stainless Steel.
3. Bolts, Washers & Nuts: NC Rolled Thread, 304 Stainless Steel.
4. Gaskets: Virgin SBR compounded for water service.
5. Outlet Flange:

a. 304 Stainless Steel or Ductile Iron, ASTM 536.
b. Meet or exceed all applicable requirements of ANSI B16.1, Class 125.

B. Certified to ANSI/NSF 61.

2.6 VALVES:

A. Gate Valves (4-inch through 48-inch):

1. Type: Solid Wedge, resilient-seat type.

2. Standard: AWWA C515.

3. Working Pressure: Rated to 200 psi minimum.

4. Stem: Non-rising stem with O-ring valve packing and 2-inch square nut, except as shown otherwise.

5. Joints: Mechanical (buried); Flanged (above grade).

6. Opening: Counter-clockwise.

7. Finish: Ferrous surfaces of valve interior epoxy-coated, AWWA C550.

8. Wrapping: Wrap valve body with 8 mil polyethylene encasement in a manner which will not interfere with valve operations, buried service.

B. Gate Valves (smaller than 4-inch):

1. Type: Iron body, bronze-mounted, double disc, parallel seat.

2. Standard: AWWA C500.

3. Working Pressure: Rated to 200 psi minimum.

4. Stem: Non-rising stem with O-ring valve packing and 2-inch square nut, except as shown otherwise.

5. Joints: Mechanical (buried), Flanged (above ground).

6. Opening: Counter-clockwise.

7. Finish: Ferrous surfaces of valve interior epoxy-coated, AWWA C550.

8. Wrapping: Wrap valve body with 8 mil polyethylene encasement in a manner which will not interfere with valve operations, buried service.

2.7 ACCESSORIES:

A. Valve Boxes/Covers:

1. Product: Tyler Pipe 6850 Series telescoping cast iron valve box or a 6" PVC Class 160 riser or approved equivalent.
2. Cover: Cast Iron, marked, "Water" with a tight fit to valve box.

PART 3 EXECUTION

3.1 PREPARATION:

A. Stake locations of fittings, valves, and accessories prior to installation for review by Engineer.

B. Prior to installing valves, remove foreign matter from within the valves. Inspect the valves in open and closed position to verify that parts are in satisfactory working condition.

3.2 SETTING VALVES AND VALVE BOXES:

A. Install valves and valve boxes where shown. Set valves plumb and as detailed. Center valve boxes on valves. Locate valves away from roads or streets. Carefully tamp earth around each valve box for a minimum radius of 4 feet, or to undisturbed trench face if less than 4 feet.

B. Provide Class B concrete thrust blocking as shown.

3.3 PIPE INSTALLATION:

A. Preparation:

1. Do not lay pipe in water, or when trench or weather are unsuitable for work. Keep water out of trench until jointing is complete and bedding is placed to top of pipe. When work is not in progress, close ends of pipe and fittings securely so that no trench water, earth or other substances will enter pipes or fittings.

2. Keep inside of pipe free from foreign matter during operations by plugging or other approved method.

3. Place pipe so that full length of each section rests solidly upon pipe bed, with recesses excavated to accommodate bells and joints. Take up and re-lay pipe when grade or joint is disturbed after laying.

4. Handle pipe and accessories so that pipe placed in trench is sound and undamaged. Take particular care not to injure pipe coating when applicable.

5. Cut neatly, using approved type mechanical cutter without damaging pipe. Use wheel cutters when practicable.

6. Wrap ductile iron pipe fittings, and valves with 8 mil polyethylene film, AWWA C105, with edges overlapped and securely taped with duct tape to prevent contact between pipe and surrounding bedding. Repair punctures with duct tape to restore the protective continuous wrap before backfilling.

B. Pipe Bedding and Backfilling: In accordance with Section 02225, Excavating, Backfilling, and Compacting for Utilities.

C. Placing and Laying:

1. Bury water lines as shown.

2. Do not exceed 75 percent of pipe manufacturer's recommendations for deflections from straight line or grade as required by vertical curves, horizontal curves, or offsets. If alignment requires deflections in excess of these limitations, use fittings.

3. Intersecting lines shall be joined by an appropriate fitting.

4. Maintain separation of water line from sewer lines in accordance with 30 TAC 290.

5. Perform no work in fill areas until embankment or fill has been properly completed to at least 2 feet above top of pipe elevation.

D. Joints:

1. Install mechanical joints in accordance with manufacturer's recommendations.

2. Make push-on joints in accordance with manufacturer's recommendations.

E. Anchorage of Fittings - Thrust Block: Anchor trees, bends and plugged, valved or capped ends of lines of water mains with Class B concrete thrust blocks as necessary and as shown. Place blocks so that the joints will be accessible for inspection and repair.

3.4 DISINFECTION:

A. Disinfect completed water lines with chlorine in accordance with Section 02675.

B. Open and close valves in lines being sterilized several times during contact period.

3.5 FIELD QUALITY CONTROL TESTING:

A. Hydrostatic Tests: Pressure test completed water lines hydrostatically. Provide pumps, gauges, meters, and other equipment necessary for performance of tests.

1. Pressure at the lowest point in the test section shall be at least 100 percent, but not more than 120 percent of pressure rating of the pipe.

2. Minimum pressure at the highest point in the test section shall not be less than 85 percent of the pipe's pressure rating.

3. Leakage shall not exceed 10 gallons per inch or pipe diameter per mile of pipe per 24 hours.

4. Minimum test duration shall be 4 hours.

5. Maintain records of:

   a. Date tests were performed.
   b. Names of people in attendance.
   c. Location of test section.
   d. Brand name of pipe and pressure rating.

6. Failed test sections shall be repaired and retested at the Contractor's expense.

B. Bacteriological Tests: After disinfecting and flushing mains, obtain representative samples and conduct bacteriological tests. Test in accordance with Section 02675.

END OF SECTION

SECTION 02675

WATER SYSTEM DISINFECTION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Disinfection of water treatment structures and reservoirs.

B. Testing and reporting results.

1.2 REFERENCES:

A. AWWA B300 - Standard for Hypochlorite's.

B. AWWA B301 - Standard for Liquid Chlorine.

C. AWWA C652 - Disinfection of Water Storage Facilities.

D. 30 TAC 290.38 through 290.49 - Rules and Regulations for Public Water Systems, *Texas Administrative Code*.

1.3 SUBMITTALS FOR INFORMATION:

A. Section 01300 - Submittals: Procedures for Submittals.

B. Test Reports: Indicate results comparative to specified requirements.

C. Certificate: Certify that cleanliness of water storage tank meets or exceeds specified requirements.

1.4 PROJECT RECORD DOCUMENTS:

A. Submit under provisions of Section 01700.

B. Disinfection Report:

1. Type and form of disinfectant used.

2. Date and time of disinfectant injection start and time of completion.

3. Test locations.

4. Initial and 24-hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.

5. Date and time of flushing start and completion.

6. Disinfectant residual after flushing in ppm for each outlet tested.

C. Bacteriological Report:

1. Date issued, project name and testing laboratory name, address and telephone number.

2. Time and date of water sample collection.

3. Name of person collecting samples.

4. Test locations.

5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.

6. Coliform bacteria test results for each outlet tested.

7. Certification that water conforms, or fails to conform, to bacterial standards of AWWA C652 and 30 TAC 290.38 through 290.46.

1.5 QUALITY ASSURANCE:

A. Perform work in accordance with AWWA C652.

B. Testing Firm: Approved laboratory by the Texas Department of Health, Bureau of Laboratories.

C. The Contractor may use the:

City of Midland Water Lab
3303 W. Illinois
Space 22
Midland, TX 79703

Phone: 432-681-7618

Water is analyzed in this laboratory at the following times:
Monday – Thursday
8:00 AM – 12:00 PM and 1:00 PM – 3:00 PM

D. Submit bacteriologist's signature and authority associated with testing.

E. Bacteriologist tests shall indicate negative. If other than negative disinfection, shall be repeated at contractor's expense.

1.6 REGULATORY REQUIREMENTS:

A. Conform to AWWA C652 and 30 TAC 290.38 through 290.46 for performing the work of this section.

PART 2 PRODUCTS

2.1 DISINFECTION:

A. Chemicals: AWWA B300, Hypochlorite and AWWA B301, Liquid Chlorine.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Verify that piping system and structures have been cleaned, inspected and pressure tested.

B. Perform scheduling and disinfecting activity with start-up, testing, adjusting and balancing, demonstration procedures, including coordination with related systems.

3.2 EXECUTION:

A. Provide and attach equipment required to perform the work of this section.

B. Inject disinfectant into piping system, tank, or structure while filling. Disinfection agent may be introduced with permanent chlorination equipment when possible, or other means of application. Application of chlorine gas under pressure directly to the water is not permitted.

C. Maintain disinfectant in system for 24 hours.

D. Flush, circulate and clean until required cleanliness is achieved; use municipal domestic water.

E. Replace permanent system devices removed for disinfection.

3.3 FIELD QUALITY CONTROL:

A. Section 01400 - Quality Assurance: Field Inspection and Testing.

B. Analyze samples in accordance with AWWA C652 and 30 TAC 290.44.

C. New water tower shall be thoroughly disinfected, then sampled in accordance with AWWA C652.

D. Two (2) samples shall be collected for microbiological analysis to check the effectiveness of the disinfection procedure, which shall be repeated if contamination persists. A minimum of two (2) samples are required.

END OF SECTION

SECTION 02685

CLEANING OF POTABLE WATER PIPES

PART 1 GENERAL

1.1 SUMMARY:

A. General:

1. Before any newly constructed potable water mains will be permitted to be placed into service in the Water Distribution System, it shall be cleaned in advance of testing an disinfection of the new water main.

B. Related Specification Sections include, but are not necessarily limited to:

1. Section 02665 – Water Systems.
2. Section 02675 – Water System Disinfection.

1.2 PRICE AND PAYMENT PROCEDURES:

A. Measurement and Payment:

1. Measurement:

a. This Item is considered subsidiary to the water main being Cleaned and Tested.

2. Payment:

a. The work performed and the materials furnished in accordance with this Item are subsidiary to cleaning and shall be subsidiary to the unit price bid per linear foot of water pipe complete in place, and no other compensation will be allowed.

1.3 REFERENCES:

A. Reference Standards:

1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date.

2. American Water Works Association/American (AWWA):

a. C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type.

b. C303, Concrete Pressure Pipe, Bar-Wrapped, Steel-Cylinder Type.

c. C651, Disinfecting Water Mains.

d. C655, Field De-Chlorination.

1.4 SUBMITTALS:

A. Submittals:

For 24-inch and larger water mains, provide the following:

1. Cleaning Plan – Prior to the start of construction, submit a water main cleaning plan detailing the methods and schedule, including:

   a. A detailed description of cleaning procedures.
   b. Pigging entry and exit ports.
   c. Flushing procedures.
   d. Plans and hydraulic calculations to demonstrate adequate flushing velocities.
   e. Control of water.
   f. Disposal.

2. Disinfection Plan – prior to the start of construction submit a disinfection plan including:

   a. The method mixing and introducing chlorine.
   b. Flushing.
   c. De-chlorination.
   d. Sampling.

PART 2 PRODUCTS

2.1 PRODUCT TYPES:

A. Pigs:

1. Open cell polyurethane foam body.

2. Densities between 2 pounds per cubic foot up to 8 pounds per cubic foot.

3. May be wrapped with polyurethane spiral bands.

4. Abrasives are not permitted, unless expressly approved by the Owner in writing for the particular application.

5. Must pass through a reduction up to 65 percent of the cross sectional area of the nominal pipe diameter.

6. Pigs shall be able to traverse standard piping arrangements such as 90 degree bends, tees, crosses, wyes, and gate valves.

PART 3 EXECUTION

3.1 CLEANING:

A. General:

1. All water mains shall be cleaned prior to bacteriological testing.

a. Pig all 36-inch and smaller water mains.
b. Pig or manually sweep 42-inch and larger mains.
c. Flushing is only permitted when specially designated in the Drawings, or if pigging is not practical and approved by the Owner.

B. Pigging Method:

1. If the method of pigging is to be used, prepare the main for the installation and removal of a pig, including:

a. Furnish all equipment, material and labor to satisfactorily expose cleaning wye, remove cleaning wye covers, etc.

b. Where expulsion of the pig is required through a dead-ended conduit:

i Prevent backflow of purged water into the main after passage of the pig.

ii Install a mechanical joint to provide a riser out of the trench on 12-inch and smaller mains to prevent backwater re-entry into the main.

iii Additional excavation of the trench may be performed on mains over 12 inches, to prevent backwater re-entry into the main.

iv Flush any backflow water that inadvertently enters the main.

c. Flush short dead-end pipe sections not swabbed by a pig.

d. Once pigging is complete:

i Pigging wyes shall remain in place unless otherwise specified in the Contract Documents.

ii Install cleaning wye, blind flanges or mechanical joint plugs.

iii Plug and place blocking at other openings.

iv Backfill.

v Complete all appurtenant work necessary to secure the system and proceed with disinfection.

C. Flushing Method:

1. Prepare the main by installing blow-offs at appropriate locations, of sufficient sizes and numbers, and with adequate flushing to achieve a minimum velocity in the main of 2.5 feet per second.

a. Minimum blow-off sizes for various main sizes are as follows:

i 4-inch through 8-inch main – ¾-inch blow-off.
ii 10-inch through 12-inch main – 1-inch blow-off.
iii 16-inch and greater main – 2-inch blow-off.

b. Flushing shall be subject to the following limitations:

i Limit the volume of water for flushing to 3 times the volume of the water main.
ii Do not unlawfully discharge chlorinated water.
iii Do not damage private property.
iv Do not create a traffic hazard.

c. Once Flushing is complete:

i Corporations stops used for flushing shall be plugged.

D. Daily main cleaning:

1. Wipe joints and then inspect for proper installation.

2. Sweep each joint and keep clean during construction.

3. Install a temporary plug on all exposed mains at the end of each working day or an extended period of work stoppage.

END OF SECTION

SECTION 02723

PRECAST CONCRETE VAULTS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Design and install precast concrete vaults with access cover hatches as shown on the drawings and specified herein.

1.2 REFERENCES:

A. ASTM C33 - Concrete Aggregates.

B. ASTM C330 - Concrete Aggregates.

C. ASTM C150 - Portland Cement Concrete.

D. ASTM A36 - Structural Steel.

E. ASTM A615 - Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

1.3 SUBMITTALS FOR REVIEW:

A. Section 01300 - Submittals: Procedures for submittals.

B. Submit shop drawings of structures with dimensions and sufficient information to verify conformance with specifications.

PART 2 PRODUCTS

2.1 VAULT MATERIALS:

A. All precast concrete vault sections shall be manufactured by a plant specifically designed for that purpose, such as New Basis Company - Precast Concrete Products, or approved equal.

B. All units shall be square, plumb, true, and conform to the design and dimensions shown on the rectangular, drawings. All work shall be done under strict plant controlled supervision.

C. Concrete:

1. Aggregate: All aggregates fine and coarse other than lightweight aggregate shall conform to ASTM C33. Lightweight aggregates fine and coarse shall conform to ASTM C330. Aggregates shall be free of deleterious substances causing reactivity with oxidized hydrogen sulfide. Both types of aggregate shall be graded in a manner so as to produce a homogeneous concrete mix. All materials shall be accurately weighed at a central batching facility for mixing.

2. Cement: All cement shall be Portland Cement conforming to ASTM C150. Type I, Type III or Type V if specified. Cement content shall be sufficient to produce minimum compressive strength of 4,500 p.s.i., or other design strength if specified.

D. All reinforcing steel, including welded wire mesh, shall be of the size and in the location as shown on the plans. All reinforcing shall be sufficiently tied to withstand and displacement during the pouring operation. All bars shall be intermediate or hard grade billet steel conforming to ASTM A615 or A706 Grade 60. Welded wire mesh shall conform to ASTM A497 Grade 70. Bars other than ¼ inch round or smaller, shall be deformed in accordance with ASTM A305.

E. Other incidental hardware needed shall be as shown and as approved by the Engineer.

2.2 DESIGN LOADS:

A. Design loads shall consist of dead load, live load, impact, loads due to water table if present, and any other loads which may be imposed on the structure.

B. Live loads shall be for H-20 per AASHTO Standard Specifications for Highway Bridges with revisions. Design wheel load shall be 16 kips. The load case shall be that which produces the maximum shears and bending moments in the structure.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Verify items provided by other sections of Work are properly sized and located.

B. Verify that built-in items are in proper location, and ready for roughing into Work.

3.2 PREPARATION:

A. Coordinate placement of inlet and outlet pipe required by other sections.

B. Using approved drawings to obtain dimensions, Contractor shall prepare the excavation for the correct elevation after the base material has been properly installed. The depth of the base and the material used shall meet the specified requirements for the type of soil at the setting location. The base material shall be properly compacted and level.

3.3 PLACING PRECAST CONCRETE VAULTS:

A. Install valve/flow meter vault level and plumb. Ensure vault is parallel to the transmission line piping.

B. If joint sealant is necessary, utilize sealant provided by vault manufacturer. Install in accordance with manufacturer's instructions.

C. Install vault drain line as depicted on the Drawings. Ensure floor of vault drains to the drain opening such that no water stands in the valve/flow meter vault.

D. Backfill material shall be free flowing, granular material, placed in lifts of approximately two (2) feet around the vault so as not to shift the structure.

E. Excavation and backfilling shall meet the requirements of Section 02225.

F. Access covers / hatches shall be per Section 02725.

END OF SECTION

SECTION 02725

ACCESS COVERS/HATCHES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Standard access hatches for wet wells and vaults.

1.2 SUBMITTALS:

A. Provide the following information in accordance with Section 01300:

1. Manufacturer's catalog information.

2. Installation dimensional drawings indicating compliance with minimum open area dimensions and suitability for specific submersible pumps used in wetwells.

3. Installation dimensional drawings indicating compliance with minimum open area dimensions and suitability for use on each valve vault.

1.3 DELIVERY, STORAGE, AND HANDLING:

A. Storage: Store access hatches and appurtenances in accordance with the manufacturer's written instructions. Protect from damage until final acceptance by Owner.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Hatches shall comply with minimum opening sizes depicted on Drawings.

B. Approved Hatch Manufacturers:

1. Halliday Products, Orlando, FL.
2. Engineer approved equal.

2.2 SIZE:

A. Hatches shall have minimum opening size shown on Drawings.

2.3 FEATURES:

A. Unit shall have lockable cover(s).

B. Unit shall have a door support ledge on a minimum of two (2) sides.

C. Door shall incorporate enclosed stainless steel compression spring assist allowing the door to close flush with the frame.

D. Door shall open to 90 degrees and automatically lock with a stainless steel hold-open arm with corrosion-resistant release handle.

E. Where indicated on Drawings, hatches shall be water-tight, with a channel frame that prevents water infiltration into the hatch (Halliday W series).

F. Where indicated on Drawings, cover shall be H-20 rated for off-street locations that may occasionally receive vehicle wheel loads.

2.4 MATERIALS:

A. Frame - Minimum ¼--inch thick, one piece, mill finish, extruded aluminum, incorporating a continuous concrete anchor.

B. Door Panel - Minimum ¼-inch thick aluminum diamond plate.

C. Hinges and fastening hardware - stainless steel.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install access hatches as per manufacturer's instructions and as indicated on Drawings.

B. Ensure that the hatch and frame are adequately anchored to the wetwell top or the valve vault, as applicable, and that both the frame and door ledge are adequately supported.

C. Location of access hatch hinges and orientation of installation shall be such that hatch does not interfere with hoisting equipment operation or pump removal, when hatch is in the open position.

END OF SECTION

SECTION 02831

CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Chain Link Fencing.

B. Chain Link Fence Gates.

1.2 REFERENCES:

A. ASTM A36--Structural Steel.

B. ASTM B117--Test Method of Salt Spray (Fog) Testing.

C. ASTM A121-Zinc-Coating (Galvanized) Steel Barbed Wire.

D. ASTM A153--Zinc Coating (Hot Dip) on Iron and Steel Hardware.

E. ASTM A392--Zinc-Coated Steel Chain-Link Fence Fabric.

F. ASTM A501--Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

G. ASTM A525--General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

H. ASTM A585--Aluminum-Coated Steel Barbed Wire.

I. ASTM F567--Practice for Installation of Chain-Link Fence.

J. ASTM F669--Strength Requirements of Metal Posts and Rails for Industrial Chain Link Fences.

K. ASTM F1083--Pipe, Steel, Hot-Dipped, Zinc-Coated (Galvanized), Welded, for Fence Structures.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Product Data: Manufacturer's product data sheets for barbed wire.

C. Shop Drawings: Indicate construction, materials, sizes, and layout of fencing and gates.

D. Quality Control Submittals: For information only.

1. Manufacturer's certificates attesting compliance with specification grades for materials and galvanized finishes thickness.

1.4 QUALITY ASSURANCE:

A. Manufacturer: Provide chain link fencing and gates as complete units controlled by a single source including necessary erection accessories, fittings, and fastenings.

B. Gate Operator Manufacturer: a company specializing in the manufacture of security gate operators of the type specified, with a minimum of ten years' experience.

C. Gate Manufacturer: A company specializing in the manufacture of cantilever sliding gates of the type specified with a minimum of five-year experience.

D. Erector Qualifications: Minimum of two years experience installing similar fencing.

1.5 COORDINATION:

A. Details of fence material and construction in this specification take precedence over those shown. General arrangement of fence shall be as shown.

PART 2 PRODUCTS

2.1 FENCING CONFIGURATIONS:

A. As shown.

2.2 BASIC MATERIALS:

A. General:

1. Pipe and tubing sizes specified are commercial standard sizes.
2. Open seam material is prohibited.
3. Hot-dip galvanized iron and steel components on all surfaces.

B. Steel Pipe:

1. Schedule 40 Pipe: ASTM F1083.

a. Yield Strength: 25,000 psi, minimum.
b. Galvanized Coating Weight: 1.8 oz. per sq. foot, minimum.

C. Steel Tubing: ASTM A501, having a minimum zinc coating of 1.8 oz per sq ft.

D. Structural Steel Shapes: ASTM A36, having a minimum zinc coating of 1.8 oz per sq ft.

E. Hardware and Accessories: ASTM A153, with 1.8 oz per sq ft. zinc weight, minimum.

F. Roll Form Shapes: ASTM-A570, Grade 45 with minimum zinc coating of 2.0 oz. per sq. ft.

2.3 FENCING COMPONENTS:

A. Chain Link Fabric: ASTM A392, Class 2, zinc-coated steel having minimum weight of zinc coating of 1.2 oz per sq ft, one-piece fabric, full height, 2-inch mesh, No. 9 gage wire unless detailed otherwise.

1. Steel Wire: 70,000 psi, minimum tensile strength after coating.
2. Twisted and barbed at top selvages.

B. Line Posts: Galvanized steel pipe 2-3/8 inch O.D.

C. Top, Middle, and Bottom Rails: Galvanized steel pipe, 1.66 in O.D.

1. Provide rails with outside sleeve-type expansion couplings which provide rigid attachment and allow for anticipated movement.
2. Interrupt rails only at posts.

D. Terminal and Corner Posts (Including End and Pull Posts and tie-ins to existing fence): 2-7/8 inch O.D. galvanized steel pipe.

E. Support Members:

1. Standard structural steel shapes.
2. Custom fabricated fittings and attachments.
3. Anchor bolts and fasteners.

F. Bracing: Compression and tension members.

1. Compression: Galvanized steel pipe, 1-5/8 in O.D., 2.27 lb. per linear ft., Schedule 40.

2. Tension: 3/8 in. diameter galvanized steel truss rod with turnbuckles or threaded ends.

G. Tension Bars: Minimum 3/16 in x 3/4 in, galvanized steel, one-piece for full height of fabric.

H. Metal Bands: Minimum 0.115 in x 7/8 in wide galvanized steel.

I. Barbed Wire:

1. Strands: Three per arm.
2. Wire: Double 12-1/2 gauge.
3. Barbs: 14 gauge, 4 points, 5 in apart, ASTM A121.
4. Finish: Galvanized; Class 3; minimum 0.80 oz zinc per sq ft.
5. Alternate: Aluminum coated double strand, 12-1/2 gage twisted wire with 14 gauge, 4 point round aluminum barbs at approximately 5-inch centers conforming to ASTM-A585.

J. Barbed Wire Arms:

1. Material: Pressed steel or malleable iron.
2. Shape: 45 degrees angle; 12 in high.
3. Design: Integral with post top weather cap.
4. Strength: Resist 250 pound load on end of arms.
5. Finish: Hot-dipped galvanized; ASTM A153, Class B3; minimum 1.3 oz zinc per sq ft.

K. Tension Wire: 6 gauge galvanized steel spring coil wire.

L. Post Caps: Steel, wrought iron, or malleable iron, designed as weather-tight closure cap, one cap per post where barbed wire arm is not used.

2.4 GATES:

A. Swinging Gates: Swinging gates complete with steel pipe frame, adjustable tension rods, chain link fabric and gate hardware. Fabricate with mitered, welded, weather-tight joints. Hot-dipped galvanized construction.

1. Gates: Steel pipe frame, with adjustable tension rods and chain link fabric.

a. Pipe Frame: Minimum 1-7/8 in. O.D., 2.72 lbs. per lin. ft. Schedule 40.

b. Tension Rods: Steel truss rod tension bracing.

c. Chain Link Fabric: Gauge of chain link fabric to match fence. Where not indicated provide same gauge as fabric at fence in which gate is installed.

i. Fasten fabric with adjustable hook bolts on all sides.

2. Hardware:

a. Hinges:

i. Pressed of forged steel or malleable iron, non-lift off heavy duty type, offset to permit 180 deg. gate opening.

ii. Provide 2 pair of each leaf over 6 ft. height.

b. Latches:

i. Heavy duty automatically engaging, lockable latch.

ii. For double gates: Automatic engaging, lockable latch on one leaf and drop rod type latch on other leaf. Drop rod to be non-removable and non-retractable in closed position.

iii. Furnish suitable casting set in concrete to hold gate leaf in place when drop rod is engaged.

c. Keepers: Automatically engage and hold open gate until manually released.

3. Fabricate gates with padlock hasp for Owner-furnished padlock.

B. Automatic Sliding Gates: Cantilever horizontal sliding gate complete with pre-wired, self-contained operator, including all selected attachments and accessory equipment.

1. Gate shall be fabricated and assembled such that the gate is square and true, without warping, bowing, or sagging. The gate shall run true in the rollers assemblies over the entire length of the gate travel without binding or scraping.

2. Gate frame and support members shall be fabricated from hot dipped galvanized SS40 steel pipe, sized as indicated on the drawings.

3. The gate frame shall be sized as indicated on the drawings. Gate diagonal and vertical brace sizes may be increased and brace spacing reduced by the manufacturer, if deemed necessary by the manufacturer. However, no member shall be reduced in size and brace spacing shall not be increased. If a member size is increased in size, the manufacturer shall make all modifications necessary to accommodate the increased sizes.

4. The gate frame shall be fabricated as a single welded unit. Field assembly of the gate is not acceptable.

5. All welds shall be full penetration welded to minimize field/stress cracks. All open pipe ends shall be provided with plugs or shall have 1/4" plates welded over the end. As directed by the Engineer, the Contractor is to weld four braces and a 4" x 8' x 1/4" thick steel slat along the latch area to prevent animals from getting caught between the end of the gate and the gate post. These welded steel parts are then to be grinded smooth and coated twice with an engineer-approved aluminum coating per Section 09800.

6. All welds shall be thoroughly cleaned prior to painting. Each weld shall have all weld slag completely removed and shall be buffed with a wire brush to a luster. After cleaning, the entire gate shall be cleaned and painted with the Engineer-approved aluminum coating, prior to installing any fabric. Paint shall be applied in accordance with the manufacturer's instructions.

7. The gate frame shall be supported and shall run in rollers in the quantity as indicated on the drawings. The rollers shall be provided with permanently sealed and lubricated bearings, load rated to 3500 pounds, and shall be DAC Industries "Stealth Series" cantilever rollers, catalog number 5658, or Engineer approved equal. All rollers shall be provided

with covers. Roller covers shall be hot dip galvanized 12-gage sheet metal. Plastic or other similar material will not be acceptable for roller covers.

8. The drive rail shall be aluminum and shall be provided by the gate operator manufacturer. The drive rail shall be attached as indicated on the drawings.

9. Gate bottom guides, stops, and receivers shall be iron or steel, hot-dipped galvanized post-fabrication.

10. Gate fabric shall be woven with a 9-gauge zinc-coated galvanized steel wire, minimum coating weight of 1.2 ounces per square foot of coated surface, in a 2 inch mesh and shall meet the requirements of ASTM A 392, Class 2. Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage. The wire fabric shall be firmly attached to the gate pipe frame, top and bottom, and diagonal supports. All wire shall be stretched taut.

11. Miscellaneous steel fittings and hardware for used shall be of commercial grade steel or better quality, wrought or cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric posts, and wires of the quality specified herein. All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A 153.

12. Tension wire shall be 7-gauge marcelled steel wire with the same coating as the fabric type and shall conform to ASTM A824.

C. Automatic Sliding Gate Operator:

1. The following manufacturers are acceptable subject to compliance with the Contract Documents:

   a. Hy-Security "Slide Driver" Gate Operator Model 30F, Part No. 222 E ST, as manufactured by Hy Security Gate Operators, Inc.

   b. Engineer approved equivalent.

2. Gate operation shall be by means of a metal rail passing between a pair of solid aluminum wheels with polyurethane treads. Operator motors shall be hydraulic, geroller type. System shall not include belts, gears, pulleys, roller chains or sprockets.

3. The operator shall generate a minimum horizontal pull of 300 pounds without the drive wheels slipping and without distortion of supporting arms.

4. Operator shall be capable of handling a gate weighing up to 3,000 pounds.

5. Gate panel velocity shall not be less than 1.7 foot per second and shall be started and stopped gradually to prevent shock loads to the gate and operator assembly. The "soft stop" feature of the gate operator shall be controlled by two adjustable hydraulic brake valves (one for each direction). The "soft start" feature shall allow the pump to start at zero pressure, then progressively increase the pressure, over a period not less than two seconds, to 1,000 PSI.

6. Standard mechanical components shall include as a minimum:

   a. Supporting arms: Cast aluminum channel. Arms shall incorporate a fully bushed, 1-1/2" bronze bearing surface, acting on arm pivot pins.

   b. Arm pivot pins: 3/4" diameter, stainless steel, with integral tabs for ease of removal.

   c. Tension spring: 2-1/2" heavy duty, 800-pound capacity.

   d. Tension adjustment: Finger tightened nut, not requiring the use of tools.

   e. Drive release: Shall instantly release tension on both drive wheels, and disengage them from contact with drive rail in a single motion, for manual operation.

   f. Push-button control: 3-button station mounted permanently on exterior of electrical panel.

   g. Limit switches: Fully adjustable, toggle type, with plug connection to control panel.

   h. Electrical enclosure: Oversized, metal, with hinged lid gasketed for protection from intrusion of foreign objects, and providing ample space for the addition of accessories, i.e., detectors.

   i. Chassis: 1/4" steel base plate, and 10 GA. sides and back-welded and ground smooth.

   j. Cover: 16-gage. galvanized sheet metal with a powder paint finish. All joints welded, filled and ground smooth. Finished corners square and true with no visible joints.

   k. Finish: fully zinc plated then finish coat of high gloss powder paint withstanding 1,000 hour salt spray test.

   l. Drive wheels: 8" diameter aluminum hub with polyurethane treads.

   m. Drive rail: Extruded 6061-T6, provided by Hy-Security Gate Operators, Inc., or engineer-approved equivalent. Drive rail shall incorporate alignment pins for ease of replacement, splicing and

for breakaway design. Pins shall enable a perfect butt splice. Attach to drive rail support as indicated on the drawings. Steel is not acceptable.

n. Hydraulic hose: 1/4" synthetic, rated to 2,750 PSI

o. Hydraulic valves: Individually replaceable cartridge type, in an integrated hydraulic manifold.

p. Hose fittings: At manifold, shall be quick disconnecting type, others shall be swivel type.

q. Hydraulic fluid: High performance type with a viscosity index greater than 375.

r. A zero to 2,000-PSI pressure gauge, mounted on the manifold, shall be a standard component.

s. The hydraulic fluid reservoir shall be formed from a single piece of metal, non-welded, and shall be powder painted on the inside and the outside, to prevent fluid contamination.

7. Minimum standard electrical components:

a. Power supply: 240 VAC, 60 Hz, single-phase.

b. Pump motor: 1 HP, TEFC, continuous duty motor, with a service factor of 1.15, or greater.

c. All components shall have overload protection.

d. Controls: Smart Touch Controller Board with 128K memory, inherent entrapment sensor, built in "warn before operate" system, built in timer to close, liquid crystal display for reporting of functions, 19 programmable output options, anti-tailgate mode, built-in power surge/lightning strike protection, event logging EEPROM for trouble shooting diagnostics, RS232 port for connection to laptop or other computer peripheral.

e. Transformer: 75 VA, for all common voltages.

f. Control circuit: 24 VDC.

8. Provide the following accessories:

a. External entrapment protection sensors: Three sets of infrared photoelectric sensors; one set to be installed on the secured side of the gate, one on the public side and one in the retract area in combination with two sensing edges with gate edge transmitters to be installed on the leading and trailing edge of the gate panel and one gate edge receiver installed in the operator, such that the gate is capable of reversing in either

direction upon sensing an obstruction. Sensors shall comply with Underwriters Laboratory Standard 325.

b. Control devices: One obstruction and one free exit magnetic loops with pre-wired obstruction and free exit loop detectors, as indicated on the drawings.

c. Remote Control:

1) Provide all required interface and relays/cards for remote manual operation of the gate.

2) Provide a remote, flush mounted gate open pushbutton to be located in the Control Room as directed by the Owner. Provide all wiring between the gate operator and the Control Room as required for the proper operation of the system.

3) The gate shall automatically close by the magnetic loop.

d. Keypad: 12 key, 3X4, with a life cycle of over one billion cycles, weatherproof, suitable for 100% relative humidity, and -40° F to 160° F. Keypad shall be provided with a stainless steel illuminated, spy proof housing and shall be suitable for installation in the housing. Provide power supply for housing from the gate operator. Keypad shall be Essex Electronics, Inc. model KTP or Engineer approved equivalent. Contractor shall select input voltage and output as required to coordinate with the remote gate controller.

e. Pedestal: As indicated on the drawings. Finish shall be black powder coat. Pedestals shall be provided with a cover for the baseplate.

f. Pedestal Housing: Provide a custom acrylic housing suitable for mounting the intercom and keypad.

g. Key operated cable release mechanism, operator mounted, part # AMILR001, pre-installed.

h. Cabinet Lock for slide gate cover, pre-installed at the factory, part # AMILK001T, pre-installed.

i. Warning signs to be installed on the gate.

j. Air operated remote release mechanism that includes heavy 3/16" galvanized steel enclosure; with door to accept padlock, Hy-Security Gate Operators Part No. AMKLR 001 RCF, for emergency access.

PART 3 EXECUTION

3.1 PREPARATION:

A. Verify suitability of areas to accept installation.

B. Verify location of underground utilities before starting installation.

C. Installation constitutes contractor acceptance of conditions and responsibility for performance.

3.2 AUTOMATIC GATE OPERATOR FACTORY TESTING

A. Fully assemble and test, at the factory, each automatic gate operator to assure smooth operation, sequencing and electrical connection integrity. Apply physical loads to the operator to simulate field conditions. Tests shall simulate physical and electrical loads equal to the fully rated capacity of the operator components.

B. Check all mechanical connections for tightness and alignment.

C. Check all hydraulic hoses and electrical wires to assure that chafing cannot occur during shipping or operation.

3.3 INSTALLATION:

A. General:

1. Do not start installation until final finish grade elevations are established.
2. Install in accordance with ASTM F567 unless otherwise indicated.

B. Posts and Rails:

1. Provide holes as scheduled:

a. Line Post Holes - 12 inches diameter by 3 feet deep.

b. Corner, Gate, and Terminal Post Holes - 18 inches diameter by 3 feet 6 inches deep.

2. Set posts in Class A concrete. Allow 2-3 inches from bottom of posts to bottom of hole.

3. Plumb posts to 1/4 in. in 10 feet.

4. Slope or dome concrete top to shed water.

5. Space line posts at equal intervals not exceeding 10 feet O.C.

6. Install terminal posts at ends and corners of runs and at wire pull stations.

7. Provide bracing assemblies between terminal posts and line posts adjacent to terminal posts.

   a. Locate compression members at mid-height of fabric.

   b. Extend diagonal tension members from compression members to bases of posts.

8. Provide expansion couplings in rails at not more than 50-foot intervals.

9. Install bracing assemblies at end and gate posts and at both sides of corner and pull posts.

   a. Locate compression members at mid-height of fabric.
   b. Extend diagonal tension members from compression members to bases of posts.
   c. Install so that posts are plumb when under correct tension.

10. Pull post spacing, maximum 300 ft. from terminal or corner post or between pull post.

11. Install post cap on each post.

C. Swinging Gates:

1. Provide 1 inch galvanized pipe (open and closed position) for cane bolt keeper on double gates.

2. Adjust for rigid, non-warping installation, no free swing in open position.

D. Fabric:

1. Pull fabric taut and secure to posts, rails, and supports.

2. Secure so that fabric remains in tension after pulling force is released.

3. Stretch fabric tight between terminal posts, thread tension bars through fabric and secure to posts with metal bands spaced not over 24 in. O.C.

4. Use fabric in one continuous piece between terminal posts. Horizontal fabric joints not allowed.

5. Use U shaped 9 gauge, soft annealed galvanized steel wire conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least one full turn, spacing 30 in. on center vertically and 30 in. O.C. horizontally.

6. Bend ends of wire to minimize hazards to persons or clothing.

E. Tension Bars: Secure with metal bands at 15 in. O.C. Install nuts for tension bar and hardware bolts on side of fence opposite fabric side.

F. Barbed Wire and Tension Wire:

1. Attach to each post it intersects and to arms with 7 gauge galvanized wire tie.

2. Fasten sufficiently to secure wire and to prevent slippage.

G. Automatic gate operator:

1. Install gate operator in accordance with the manufacturer's written instructions.

2. Set up, start-up, adjust and test the gate/gate operator assembly for smooth operation without binding, scraping or uneven motion. Test all limit switches for proper "at rest" gate position. Test all sensors and detection loops for proper operation.

3. Field Quality Control:

a. The gate/gate operator assembly shall be tested through a series of four (4) testing sets. Each set shall consist of ten (10) full cycles (open-close) of gate operation. A minimum of one (1) hour shall elapse between sets. Not more than two (2) sets shall be performed in one (1) twenty-four (24) hour period.

b. The tests shall be performed in the presence of the Contractor, Owner's representative and the Engineer.

c. The gate/operator assembly shall not be accepted until the full four (4) set test sequence is successfully completed in its entirety, without a component or system failure.

END OF SECTION

SECTION 02911

TOPSOILING AND FINISHED GRADING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Topsoiling and finished grading.

1.2 SUBMITTALS:

A. Shop Drawings:

1. See Section 01300 for requirements for the mechanics and administration of the submittal process.

2. Project Data: Test reports for furnished topsoil.

1.3 PROJECT CONDITIONS:

A. Location of Work: All areas within limits of grading designated on the Drawings and all areas outside limits of grading which are disturbed in the course of the work.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Topsoil:

1. Original surface soil typical of the area.

2. Existing topsoil stockpiled under Section 02110 – Site Clearing and Grubbing.

3. Capable of supporting native plant growth.

2.2 TOLERANCE:

A. Finish Grading Tolerance: 0.1 FT plus/minus from required elevations.

PART 3 EXECUTION

3.1 PREPARATION:

A. Correct, adjust and/or repair rough graded areas.

1. Cut off mounds and ridges.

2. Fill gullies and depressions.

3. Perform other necessary repairs.

4. Bring all sub-grades to specified contours, even and properly compacted.

B. Loosen surface to depth of 2 inches, minimum.

C. Remove all stones and debris over 2 inches in any dimension.

3.2 ROUGH GRADE REVIEW:

A. Reviewed by Engineer in Section 02110, Site Clearing & Grubbing.

3.3 PLACING TOPSOIL:

A. Do not place when subgrade is wet or frozen enough to cause clodding.

B. Spread to compacted depth of 4 inches for all areas designated to receive hydro mulch seeding.

C. Provide finished surface free of stones, sticks, or other material 1 inch or more in any dimension.

D. Provide finished surface smooth and true to required grades.

E. Restore stockpile area to condition of rest of finished work.

F. Placing topsoil is incidental to hydro mulch seeding, Section 02921.

3.4 ACCEPTANCE:

A. Upon completion of topsoiling, obtain Engineer's acceptance of grade and surface.

B. Make test holes where directed to verify proper placement and thickness of topsoil.

END OF SECTION

SECTION 02921

HYDRO MULCH SEEDING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Seeding, fertilizing, mulching, and maintenance of areas indicated on Drawings.

1.2 SUBMITTALS:

A. Conform to requirements of Section 01300.

B. Submit certification from supplier that each type of seed conforms to these specifications and requirements of Texas Seed Law. Certification shall accompany seed delivery.

C. Submit certificate stating that fertilizer complies with these specifications and requirements of Texas Fertilizer Law.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Topsoil: Conform to material requirements of Section 02911 – Topsoil and Finished Grading.

B. Seed: Conform to U.S. Department of Agriculture rules and regulations of Federal Seed Act and Texas Seed Law. Seed shall be certified 90 percent pure and furnish 80 percent germination and meet following requirements:

1. Rye: Fresh, clean, Italian rye grass seed (lollium multi-florum), mixed in labeled proportions. As tested, minimum percentages of impurities and germination must be labeled. Deliver in original unopened containers.

2. Bermuda: Extra-fancy, treated, lawn type common bermuda (Cynodon dactylon). Deliver in original, unopened container showing weight, analysis, name of vendor, and germination test results.

3. Wet, moldy, or otherwise damaged seed will not be accepted.

4. Seed requirements, application rates, and planting dates are:

TYPE	APPLICATION RATE POUNDS/A	PLANTING DATE
Hulled Common Bermuda Grass 98/88 Unhulled Common Bermuda Grass 98/88	40 40	Jan 1 to Mar 31
Hulled Common Bermuda Grass 98/88	40	Apr 1 to Sep 30
Hulled Common Bermuda Grass 98/88 Unhulled Common Bermuda Grass 98/88 Annual Rye Grass (Gulf)	40 40 30	Oct 1 to Dec 31

C. Fertilizer: Dry and free flowing, inorganic, water soluble commercial fertilizer, which is uniform in composition. Deliver in unopened containers which bear manufacturers guaranteed analysis. Caked, damaged, or otherwise unsuitable fertilizer will not be accepted. Fertilizer shall contain minimum percentages of following elements:

1. Nitrogen: 10 Percent
2. Phosphoric Acid: 20 Percent
3. Potash: 10 Percent

D. Mulch:

1. Virgin wood cellulose fibers from whole wood chips having minimum of 20 percent fibers 0.42 inches in length and 0.01 inches in diameter.

2. Cellulose fibers manufactured from recycled newspaper and meeting same fiber content and size as for cellulose fibers from wood chips.

3. Dye mulch green for coverage verification purposes.

E. Soil Stabilizer: "Terra Tack 1" or approved equal.

F. Weed control agent: Pre-emergent herbicide for grass areas, such as "Benefin," or approved equal.

PART 3 EXECUTION

3.1 PREPARATION:

A. Place and compact topsoil in accordance with requirements of Section 02310 – Topsoil and Finished Grading.

3.2 APPLICATION:

A. Seed: Apply uniformly at rates given in Paragraph 2.1 B for type of seed and planting date.

B. Fertilizer: Apply uniformly at rate of 500 pounds per acre.

C. Mulch: Apply uniformly at rate of 50 pounds per 1000 square feet.

D. Soil Stabilizer: Apply uniformly at rate of 40 pounds per acre.

E. Weed Control Agent: Apply at manufacturer's recommended rate prior to hydro mulching.

F. Suspend operations under conditions of drought, excessive moisture, high winds, or extreme or prolonged cold. Obtain Engineer approval before resuming operations.

G. Hydro mulch shall be applied to all disturbed areas.

3.3 MAINTENANCE:

A. Maintain grassed areas minimum of 90 days, or as required to establish an acceptable cover. For areas seeded in fall, continue maintenance following spring until acceptable cover is established.

B. Maintain grassed areas by watering, fertilizing, weeding, and trimming.

C. Repair areas damaged by erosion by regrading, rolling and replanting.

D. Reseed small, sparse grass areas. When sparse areas exceed 20 percent of planted area, reseed by hydro mulch.

E. Mow grass when height reaches 3 1/2 inches or greater on average before final acceptance. Mow to height of 2 1/2 inches.

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Design, construction, erection and removal of concrete formwork.

B. Openings in formwork for other affected work.

C. Form accessories.

D. Installation of embedded items.

1.2 REFERENCES:

A. ACI 301-89--Specifications for Structural Concrete for Buildings.

B. ACI 347R-88--Recommended Practice for Concrete Formwork.

C. ASTM A120-84--Pipe, Steel, Black and Hot-Dipped Zinc - Coated (Galvanized) Welded and Seamless.

D. ASTM D226--Asphalt-Saturated Roofing Felt.

E. ASTM D1751--Preformed Expansion Joint Fillers (Bituminous Types).

F. PS 1-74--Construction and Industrial Plywood.

G. PS 20-70--American Softwood Lumber Standard.

1.3 SYSTEM DESCRIPTION:

A. Conventional Concrete Formwork:

1. Conventional formwork as specified in this Section for surfaces of cast-in-place concrete.

2. Extent of formwork is indicated by cast-in-place concrete elements shown on Drawings.

1.4 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Product Data: Manufacturer's product data sheets for accessories and waterstops.

1.5 QUALITY ASSURANCE:

A. Design Criteria: Conform to ACI 347, Chapter 1, and ACI 301.

B. Design Responsibility: Contractor is responsible for design, engineering and construction of formwork, including shoring and bracing.

1. Design formwork for loads, lateral pressures and allowable stresses in accordance with ACI 347.

2. Allow for other applicable requirements of authorities having jurisdiction.

3. Design camber into formwork to compensate for anticipated deflection during concrete placement where necessary to maintain specified tolerances.

4. Design formwork to allow removal without damage to concrete surfaces.

5. Contractor is responsible for determining when temporary supports, shores, backshores and other bracing may be safely removed.

C. Forming Methods:

1. Unless otherwise scheduled or specified, formwork as specified in this Section shall be used or form cast-in-place concrete elements.

2. Where soil is in stable enough condition that it can be shaped to a true and straight surface without caving or sloughing, the following members may be cast against neat cut excavations:

a. Unexposed sides of grade beams cast monolithically with slabs.

b. Sides of footings.

c. Pier caps.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Deliver, store, and handle materials to avoid damage. Store materials in accordance with manufacture's instructions with seals and labels intact and legible.

B. Deliver form materials in manufacture's packaging with installation instructions.

C. Store off ground in ventilated and protected area to prevent deterioration from moisture or damage.

1.7 COORDINATION:

A. Notify Engineer at least 48 hours prior to completion of formwork so that the formwork may be observed. Do not place reinforcing steel or concrete until the forms have been observed.

B. Coordinate block-out sizes for rough openings for other work. Coordinate location and extent of items built-in to concrete formwork.

PART 2 PRODUCTS

2.1 FORM MATERIAL:

A. Framing: Kiln dried softwood lumber, PS20.

B. Smooth Forms:

1. Construct formwork with plywood; tempered, concrete-form hard board; dressed lumber with plywood or fiberboard lining; metal; plastic; or metal-framed plywood-faced panel material to provide continuous, straight smooth surfaces. Form material shall be free of raised grain, torn surfaces, worn edges, patches, dents or other defect. Furnish material in largest practical sizes to minimize the number of joints. Form material shall have sufficient strength and thickness to withstand the pressure of newly place concrete without bow or deflection.

2. Use smooth forms on interior and exterior concrete surfaces exposed to view in the completed structure, including exterior face of grade beams.

3. Unless otherwise shown or specified, as a minimum use plywood complying with U.S Product Standards PS-1, "B-B (Concrete Form) Plywood" Class 1, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible trademark of an approved inspection agency.

C. Rough Forms:

1. Construct forms of dressed or undressed lumber free of knots, splits or other defects; plywood; metal; or other acceptable material. Material shall have sufficient strength and thickness to withstand pressure of newly placed concrete without bow or deflection.

2. Rough forms may be used on concrete surfaces that will not be exposed to view in complete structures unless noted otherwise.

D. Shores: Wood or adjustable metal type with bearing plates and with double wedges at bottom.

E. Carton Forms:

1. Corrugated fiberboard box forms fabricated of natural Kraft with liners, completely impregnated with a polyethylene wax blend, and laminated with a waterproof adhesive. Boxes assembled with steel strappings.

2. Forms shaped to design and dimensions as indicated for formed voids.

3. Forms capable of supporting weight of concrete plus a live load of 20 psf on area supported by void form.

2.2 FORM ACCESSORIES:

A. Form Ties: Factory fabricated, adjustable length, removable or snap-off metal ties, designed to prevent form deflection and to prevent spalling concrete surfaces upon removal. Provide ties so that portion remaining within concrete is at least 1-1/2 inch from outer surfaces. Provide water seal feature on ties used to form water bearing structures.

B. Form Coating: Commercial formulation of form oil or form-release agent having proven satisfactory performance. Coating shall not bond with, stain or adversely affect concrete surfaces nor impair subsequent treatment of concrete surfaces, including bonding agents, curing compounds and waterproofing.

C. Rustications, Bevels, Chamfers: Mill from Northern White Pine, smooth and free of irregularities. Preformed PVC strips may be used for corner chamfers.

D. Sleeves: Standard weight galvanized pipe, ASTM A120.

2.3 JOINTING ACCESSORIES:

A. Joint Fillers: Premolded mastic strips, asphaltic impregnated, ASTM D1751.

B. Bond Breaker: No. 30 asphalt saturated felt, ASTM D226.

C. Mastic Waterstop: Synko-Flex Preformed Plastic Waterstop by Synko-Flex Products Co. or Butyl Resin ConSeal CS-102 by Concrete Sealants, Inc.

PART 3 EXECUTION

3.1 FORMWORK CONSTRUCTION:

A. General:

1. Construct and maintain formwork, in accordance with ACI 347 and these Specifications, to maintain correct sizes of members, shape, alignment, elevation and position during concrete placement and until concrete has gained sufficient strength.

2. Provide for openings, offsets, keyways, recesses, moldings, anchorages and inserts, as required to accommodate other work including mechanical and electrical. Seal such openings to prevent leakage and loss of concrete matrix.

3. Construct forms for easy removal without damage to concrete surfaces.

4. Construct formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints to prevent leakage and fins.

5. Place chamfer strips in forms to bevel exposed edges and corners of members. Edges of formed joints and interior corners shall not be beveled unless shown or specified otherwise. Provide equipment bases with formed beveled edges on vertical and horizontal corners.

6. Provide temporary openings where areas of formwork are inaccessible for cleanout, inspection or concrete placement. Brace openings and set tightly to forms. Locate in as inconspicuous locations as possible.

7. If runways are required for moving equipment, provide for support of runways with struts or legs resting directly on formwork or structural member. Do not allow runways or supports to rest on reinforcing steel.

B. Forms for Surfaces Exposed to View:

1. Drill forms to suit ties used and to prevent leakage of concrete mortar around tie holes. Uniformly space form ties and align in horizontal and vertical rows.

2. Provide sharp, clean corners at intersecting planes, without visible edges or offsets. Back joints with extra studs or girts to maintain true, square intersections.

3. Form molding shapes, recesses and projections with smooth-finish materials and install in forms with sealed joints to prevent displacement.

4. Form exposed corners to produce square, smooth, solid, unbroken lines. Provide exterior exposed corners with 3/4 inch chamfer.

5. Arrange facing material in an orderly and symmetrical fashion. Keep number of form joints to a practical minimum. Support facing material adequately to prevent deflection in excess of allowable tolerances.

6. For flush surfaces exposed to view in the completed structure, overlap previously placed, hardened concrete with form sheathing by approximately one inch. Hold forms against hardened concrete to maintain true surfaces, preventing offsets or loss of mortar.

C. Edge Forms and Screed Strips (Rails) for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finish slab surfaces. Provide and secure units to support types of screeds required.

D. Formed Voids:

1. Level subgrade material to minimize protrusions on surface and set void boxes in accord with manufacturer's recommendations for purpose intended.

2. Where multiple units are required to cover an area, cover void boxes with cover sheets of material similar to material boxes are made of and staple down to boxes.

3. Top surface shall be plane and at design concrete soffit elevation.

4. Protect carton forms from moisture before concrete placing and form crushing during concrete placing. Remove and replace damaged carton forms prior to placing concrete.

3.2 TOLERANCES:

A. Construct formwork to maintain concrete surface tolerances in accordance with ACI 347, 3.3.1.

B. Establish sufficient control points and bench marks as references for tolerance checks. Maintain these references in undisturbed conditions until final completion and acceptance of project.

3.3 ADJUSTMENTS OF FORMWORK:

A. Use wedges or jacks to provide positive adjustment of shores and struts. Fasten wedges used for final adjustment of forms in position after final inspection and before concrete placement.

B. Securely brace forms against lateral deflections. Prepare to compensate for settling during concrete placement.

C. For openings, construct wood forms that facilitate any necessary loosening to counteract swelling of forms.

3.4 PREPARATION OF FORM SURFACES:

A. Before placing concrete, clean surfaces of forms and embedded materials. Remove accumulated mortar, grout, rust and other foreign matter.

B. Coat forms with form oil or form-release agent before placing reinforcement. Cover form surfaces with coating material used in strict accordance with the manufacturer's instructions. Do not allow excess coating material to accumulate in forms or to contact hardened concrete against which fresh concrete will be placed. Remove coating material from reinforcement before placing concrete.

3.5 INSERTS, EMBEDDED ITEMS, OPENINGS AND ACCESSORIES:

A. Make provisions for required installation of accessories, bolts, hangers, sleeves, anchor slots and inserts cast in concrete.

B. Obtain templates or instructions for installation of embedded items and anchor bolts.

C. Locate and set in place items which will be cast directly into concrete.

D. Install sleeves or formed openings for pipes, and other work passing through concrete members. Temporarily fill voids to prevent concrete intrusion.

E. Coat aluminum conduits, pipes and inserts embedded in structural concrete with heavy bituminous coating to prevent material-concrete reaction or electrolytic action between material and steel.

F. Coordinate work of other sections involved in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

G. Install concrete accessories in accordance with manufacturer's recommendations; straight, level, and plumb. Ensure items are not disturbed during concrete placement.

H. Place joint filler in expansion joints. Place building felt bond breaker in control joints where scheduled.

3.6 REMOVAL OF FORMS:

A. Forms on vertical surfaces, when repair of surface defects or finishing is required before concrete is aged, may be removed in 24 hours provided concrete has hardened sufficiently to resist damage form removal operations.

B. Remove top forms on sloping surfaces of concrete as soon as concrete has attained sufficient stiffness to prevent sagging.

C. Loosen wood forms for openings as soon as this can be accomplished without damage to concrete.

D. Formwork for walls, sides of beams, and other parts not supporting weight of concrete may be removed after 24 hours provided that concrete has hardened sufficiently to resist damage from removal operations and provided the removal of these forms will not disturb members supporting weight of concrete.

E. Forms and shoring used to support weight of concrete or construction loads shall remain in place until concrete has reached the minimum design strength specified for removal of forms and shoring. In no case shall forms be removed in less than 7 days.

F. Contractor, at his option and risk, may remove formwork after 7 full days have elapsed after completion of concrete placement, provided that in-place concrete has attained 75 percent of its specified 28 days ultimate compressive strength. At Contractor's expense, provide testing and verification of required specified concrete compressive strengths. In addition, when forms are removed there shall not be excessive deflection or distortion and no evidence of damage to concrete either due to removal of supports or to stripping operations. If such deficiencies are observed, the forms and supports shall remain in-place as specified above.

3.7 REMOVAL STRENGTH:

A. Control Tests: Suitable strength control tests shall be used as evidence that concrete has attained specified strength for removal of formwork or shoring supporting weight of concrete in beams, slabs and other structural members.

1. Field-Cured Test Cylinders. When field-cured test cylinders reach specified removal strength, formwork or shoring may be removed from respective concrete placements. Strength data from field-cured test cylinders shall be furnished by the Contractor.

2. Laboratory-Cured Test Cylinders: When concrete has been cured as specified for cast-in-place concrete for same time period required by laboratory-cured cylinders to reach specified strength, formwork or shoring may be removed from respective concrete placements. Determine length of time that the concrete placement has been cured by totaling number of days or fraction of days, not necessarily consecutive, during which air temperature surrounding concrete is above 50 degrees F and the concrete has been damp or thoroughly sealed against evaporation and loss of moisture.

B. Compressive Strengths: Minimum concrete compressive strengths for removal of formwork supporting weight of concrete shall be 100 percent of specified minimum 28-day strength of class of concrete involved.

3.8 RESHORING:

A. Reshoring is not permitted.

3.9 FORM REUSE:

A. Do not reuse forms that are worn or damaged beyond repair.

B. Thoroughly clean and recoat forms before reuse.

C. For wood and plywood forms to be used for exposed smooth finish, sand or otherwise dress concrete contact surface to original condition or provide form liner facing material. For metal forms, straighten, remove dents and clean to return to original condition.

3.10 WATERSTOP INSTALLATION:

A. Install waterstops continuous to form an impenetrable water barrier.

B. Install mastic waterstops in horizontal and vertical construction joints of:

1. Below grade walls up to 12 inch above finish grade.

2. Joints between below grade walls and slabs.

3. Walls and slabs of liquid-containing structures.

4. As indicated on Drawings.

C. Install mastic waterstops continuously in accordance with manufacturer's directions.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Reinforcing steel for concrete reinforcement except pre-stressing tendons.

B. Grouting of reinforcement dowel bars.

1.2 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. ASTM A82—Steel Wire, Plain, for Concrete Reinforcement.

2. ASTM A185—Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement.

3. ASTM A615—Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

B. American Concrete Institute (ACI):

1. ACI 315-80—Detailing Reinforced Concrete Structures.
2. ACI 318-89—Building Code Requirements for Reinforced Concrete.

C. Concrete Reinforcing Steel Institute (CRSI): CRSI Manual of Standard Practice.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Shop Drawings:

1. Indicate reinforcement fabrication, bar placement location, splices, spacing and bar designation, bar type, length, size, bending, number of bars, bar support type and other pertinent information, including dimensions. Information shall correspond directly to data listed on bill of materials.

2. Provide sufficient detail to permit placement of reinforcement without use of design drawings.

3. Detail shop drawings in accordance with ACI 315.

4. Include bill of materials to be reviewed with shop drawings.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Store steel reinforcement above ground on platforms, skids, or other supports.

B. Protect reinforcing, as far as practicable, from mechanical injury, surface deterioration and rusting caused by exposure to weather.

1.5 COORDINATION:

A. Notify Engineer at least 48 hours prior to completion of reinforcement installation to allow for inspection of reinforcement placement.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Deformed Steel Bars: ASTM A615, grade 60 including Supplementary Requirements (SI), for bars except those shown on drawings as smooth bars.

B. Smooth Steel Bars: ASTM A615, grade 60, for bars shown on the drawings as smooth bars.

C. Welded Wire Fabric: ASTM A185, furnished in flat sheets only.

D. Tie Wire: 18-gauge annealed steel.

E. Bar Supports: Provide sufficient numbers of supports of strength required to carry reinforcement. Bar supports and accessories shall be of size required to provide specified concrete cover. Bar supports and other metal accessories shall meet requirements of CRSI Manual of Standard Practice. Use the following type legs for surfaces listed:

1. Slabs, Walls and Beams: Solid Plastic.

2. Slabs on grade: Precast concrete bar supports (as an alternate for solid plastic) 3-inch wide, 6-inch long and thick enough to allow required cover. Embed tie wires in 3-inch sides.

F. Epoxy Grout: High-strength rigid epoxy adhesive manufactured for purpose of anchoring dowels into hardened concrete.

2.2 FABRICATION:

A. Marking: Clearly mark bars with waterproof tags showing number of bars, size, mark, length and yield strength. Mark steel with same designation as member in which it occurs. Key marks to concrete placement number as designated on concrete placement sequence shop drawings.

B. Bending: Fabricate bars to the spaces shown on drawings by cold bending. Bends shall conform to minimum bend diameters specified in ACI 318. Do not straighten or re-bend bars without specific approval.

C. Splices: Locate splices as shown. Where it is necessary to splice reinforcement at locations other than shown, splices shall be approved by Engineer. Use a minimum number of splices and locate them at points of minimum stress. Stagger splices in adjacent bars. Length of lap splices shall be in accordance with ACI 318 unless shown otherwise.

D. Construction Joints: Reinforcing shall be continuous through construction joints unless detailed otherwise.

E. Fabrication Tolerances: In accordance with fabrication tolerances of CRSI Standard.

PART 3 EXECUTION

3.1 PREPARATION:

A. Clean reinforcement free of scale, loose, or flaky rust, or other foreign material, including oil, mud, or coating that will reduce bond to concrete.

3.2 INSTALLTION:

A. Install reinforcing steel in accordance with applicable codes, reviewed shop drawings and CRSI Standard for details and methods of reinforcement placement and supports.

B. Installation Tolerances: Maintain tolerances in accordance with CRSI Standard.

C. Interferences: If reinforcing interferes with location of other reinforcing steel, conduits, or embedded items, bars may be moved within specified tolerances or one-bar diameter, whichever is greater. If greater movement of bars is required to avoid interferences, notify Engineer. Do not cut reinforcement to install inserts, conduits, mechanical openings, or other items without approval of Engineer.

D. Concrete Cover: Except as otherwise shown, provide a clear cover measured from reinforcement to face of concrete as follows:

Surfaces	Minimum Cover in Inches
Interior not exposed to weather:	
Slabs and walls	3/4
Beams and girders	1-1/2
Exterior formed surfaces not in contact with earth or fresh water:	
Slabs and walls, #5 and smaller bars	1
Slabs and walls, #6 thru #11 bars	
Formed surfaces	1-1/2
Beams and girders	2

Exterior formed surfaces in contact with earth or water:	
Slabs and walls, #5 and smaller bars	1-1/2
Slabs and walls, #6 thru #11 bars	2
Beams and girders	2-1/2
Footings:	
Top	2
Bottom and sides	3
Surfaces cast against and permanently exposed to earth	3

E. Placement in Forms:

1. Use spacers, chairs, wire ties and other accessory items necessary to properly assemble space and support reinforcing.

2. Provide accessories of sufficient number, size and strength to adequately prevent deflection, or displacement, of reinforcing due to construction loads or concrete placement.

3. Use appropriate accessories to position and support bolts, anchors and other embedded items.

4. Tie reinforcing bars at intersections and to accessories. Tie alternate intersections when spacing is less than 12 inches each way. When spacing is 12 inches each way or greater, tie at each intersection. Blocking reinforcement with concrete or masonry is prohibited.

F. Placement for Concrete on Ground:

1. Support reinforcement on chairs with sheet metal bases spaced at approximately 3 feet o.c. each way. Use a minimum of one support for each 9 sq. ft. Tie supports to reinforcing bars.

2. As an alternate, reinforcement may be supported on precast concrete blocks spaced at approximately 3 feet o.c. each way. Use a minimum of one block for each 9 sq. ft. Tie blocks to at least one reinforcing bar using tie wires embedded in block.

G. Splices:

1. Do not splice bars, except at location shown on drawings or reviewed shop drawings, without approval of Engineer.

2. Lap Splices: Tie securely with wire to prevent displacement of splices during placement of concrete.

H. Construction Joints: Place reinforcing continuous through construction joints unless detailed otherwise.

I. Expansion Joints:

1. Do not extend reinforcement through expansion joint.

2. Where shown or scheduled, install smooth steel bar dowels in expansion joints. Apply oil or grease to one end of dowels.

J. Welded Wire Fabric:

1. Install wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh plus 2-inch or 6-inch, whichever is larger, and lace splices with wire.

2. Do not make end laps midway between supporting beams, or directly over beams, or continuous structures.

3. Offset end laps in adjacent widths to prevent continuous laps.

K. Field Bending:

1. Shape reinforcing bent during construction operations to meet requirements of the drawings. Bars shall be cold-bent; do not heat bars.

2. Closely examine reinforcing for breaks. If reinforcing is damaged, replace, Cadweld or otherwise repair as directed by Engineer.

3. Do not bend reinforcement after it is embedded in concrete.

L. Welding: Welding of reinforcing bars is prohibited.

3.3 GROUTING OR REINFORCING BARS:

A. When required and approved by the Engineer, use approved epoxy grout for anchoring reinforcing steel to hardened concrete in accordance with grout manufacturer's instructions.

B. Drill hole in existing concrete that is ¼-inch larger than diameter of reinforcing bar. Immediately, prior to installation of the reinforcing bar, clean hole free of debris using compressed air.

C. Partially fill hole with epoxy. Use enough so that when bar is inserted, epoxy grout will completely fill hole around dowel.

D. Dip end of reinforcing bar in epoxy and install into partially filled hole.

3.4 FIELD QUALITY CONTROL:

A. Inspection of reinforcing steel installation as specified in Section 01400.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Cast-in-place concrete consisting of Portland cement, aggregate, water and admixtures.

B. Mix design requirements.

C. Formwork, reinforcement, joints and placing requirements.

1.2 REFERENCES:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A. ASTM A615—Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

B. ASTM C31—Making and Curing Concrete Test Specimens in the Field.

C. ASTM C33—Concrete Aggregates.

D. ASTM C39—Compressive Strength of Cylindrical Concrete Specimens.

E. ASTM C94—(1986; Rev. b) Ready-Mixed Concrete.

F. ASTM C143—Slump of Portland Cement Concrete.

G. ASTM C172—Sampling Freshly Mixed Concrete.

H. ASTM C173—Air Content of Freshly Mixed Concrete by the Volumetric Method.

1.3 SUBMITTALS:

A. Section 01300—Submittals: Procedures for submittals.

B. Certificates: Mill certificates for bulk cement.

C. Product Data: Manufacturer's data sheets for Engineer approved additives and bonding agents.

D. Submit test data on proposed design mixes for each type of concrete to be used in the project to verify that the Specification requirements are met or exceeded.

1.4 QUALITY ASSURANCE:

A. Project Controls: Provide necessary controls during evaluation of material, mix designs, production and delivery of concrete, placement, compaction, finishing and curing necessary to assure that work will be accomplished in such a manner to produce the work in accordance with contract documents.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Materials shall be delivered, stored and handled in a manner to prevent deterioration, contamination, or any other circumstances that would be harmful to cast-in-place concrete.

1.6 PROJECT CONDITIONS:

A. Do not place concrete during rain, sleet, or snow unless protection is provided and approved by the Engineer.

B. Coordinate concrete placement schedule with other related work.

C. Notify Engineer at least 24 hours before placement.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Cement: ASTM C94, Type 1 Cement, unless approved by the Engineer. Only one brand of any one type of cement shall be used for exposed concrete surfaces of any individual structure.

B. Fine Aggregate: Aggregate meeting the requirements of ASTM C33.

C. Coarse Aggregate: Aggregate sizes No. 467 or No. 57 according to ASTM C33, or as approved by the Engineer.

D. Water: Potable water free from detrimental chemicals and solids that will decrease the strength of the concrete.

E. Embedded Items: Embedded items shall be of the size and type shown, or as needed for the application.

F. Curing Materials: Curing materials shall be burlap, impervious sheets, or membrane-forming compounds.

G. Dowels: Plain carbon steel bars, minimum yield point of 40,000 psi for use in slabs on grade.

H. Expansion Joint Filler Strips: Pre-molded, non-extruding, resilient, bituminous or non bituminous type for use in concrete paving or construction, thickness as shown.

I. Form materials: Wood, metal, or other Engineer approved materials that will produce the specified finishes without adversely affecting the concrete surfaces.

J. Form Coating: Non-staining form oil or form-release agent that will not deleteriously affect concrete surfaces nor impair subsequent applications.

K. Form Ties: Metal, factory-fabricated, removable snap-off type, that will not have holes less than ¼-inch nor more than 1-inch deep and not more than 1 inch in diameter.

L. Joint Sealant: As shown or approved by Engineer for sealing joints in concrete against moisture infiltration.

M. Reinforcement: Bar reinforcement shall be deformed, grade 60 conforming to ASTM A615. Mesh reinforcement shall be welded wire fabric with wires at right angles to each other.

N. Bonding Agent: As approved by Engineer.

O. Admixtures: Air-entraining, retarders and other admixtures as approved by Engineer.

2.2 MIX DESIGN:

A. Concrete Class: Concrete mixes shall be proportioned to obtain the following characteristics:

1. Class "A": Minimum compressive strength of 3000 psi in 28 days with a minimum of 5 bags of cement per cubic yard.

2. Class "B": Minimum compressive strength of 2500 psi in 28 days with a minimum of 4 bags of cement per cubic yard.

B. All concrete shall be Class "A", unless specified otherwise.

C. Air Content: Total air content of exterior concrete shall be maintained at 5 to 7 percent by volume of concrete, or as approved by Engineer.

D. Slump: Slump shall be 3 to 5 inches. If admixtures are used, slump shall be as approved by Engineer.

2.3 STORAGE:

A. Materials shall be stored so as not to deteriorate or become contaminated.

PART 3 EXECUTION

3.1 FORMWORK:

A. Formwork shall be made mortar tight, properly aligned and adequately supported to produce concrete conforming accurately to the indicated

shapes, lines, dimensions and to surfaces free of offsets, waviness, or bulges.

B. Unless otherwise shown, exposed external corners shall be chamfered, beveled, or rounded by moldings placed in the forms. Chamfer shall be 1-inch nominal.

C. Surfaces shall be thoroughly cleaned and coated before each use.

D. Forms shall be removed at a time and in a manner that will not damage the concrete.

3.2 REINFORCEMENT:

A. Reinforcement shall be fabricated to the shapes required.

B. Reinforcement shall be interrupted 2 inches clear on each side or expansion joints.

C. Reinforcement shall be continuous through contraction and construction joints.

D. Supports fabricated of plastic, or other Engineer approved material, shall be used to support reinforcement during placing operations.

E. Dowels and tie bars shall be installed at right angles to joints, accurately aligned parallel to the finished surface and rigidly held in place and supported during concrete placement.

F. One end of dowel shall be oiled and greased.

3.3 INSTALLATION OF ANCHORAGE ITEMS:

A. Installation of anchorage items shall be as shown or required to ensure sufficient anchorage for purpose intended.

3.4 JOINTS:

A. Contraction Joints: Joints shall be installed as specified or shown.

B. Expansion Joints: Joints shall be installed as specified or shown.

C. Construction Joints: Construction joints shall be located as shown or approved by the Engineer.

3.5 PLACING:

A. Surfaces to receive concrete shall be clean and free from frost, ice, mud and water.

B. Concrete may be placed directly on impervious surfaces that are thoroughly moistened but not muddy.

C. During cold weather, in-place concrete shall be protected from freezing weather, throughout the curing period.

D. During hot weather, a retarder may be used if approved by the Engineer.

E. Concrete to receive other construction shall be struck to the proper level leaving a textured surface to receive the additional construction.

3.6 CONSOLIDATION OF CONCRETE:

A. Except for slabs 4 inches or less, each layer of concrete shall be consolidated with internal concrete vibrators supplemented by hand spading, rodding and tamping.

B. Vibrating equipment shall be adequate to thoroughly consolidate the concrete.

C. Concrete in slabs 4 inches and less shall be consolidated by compacting and screening.

3.7 FINISHING CONCRETE:

A. Formed Surfaces:

1. Fins and loose material shall be removed.

2. Unsound concrete, voids over ½-inch in diameter, and tie-rod and bolt holes shall be cut back to solid concrete, reamed, brush-coated with cement grout and filled solid with a stiff Portland-cement-sand mortar mix.

3. Patchwork shall be finished with adjoining concrete surfaces and, where exposed, shall match adjoining surfaces in texture and color.

B. Unformed Surfaces:

1. Surfaces shall be finished to a true place with no deviation exceeding 5/16 inch when tested with a 10-foot straightedge.

2. Surfaces shall be screened and floated to the required finish level with no coarse aggregate visible before finishing as specified below.

C. Monolithic Finish:

1. Monolithic finish shall be given to flatwork unless otherwise specified.

2. After the surface moisture has disappeared, floated surfaces shall be steel-toweled to a smooth, even, dense finish, free from blemish, including trowel marks.

3.8 CURING:

A. Curing shall start as soon as free water has disappeared from concrete surfaces after placing and finishing.

B. Curing materials shall be applied and maintained so as to protect the concrete from moisture loss for 7 days.

C. Curing shall be accomplished by impervious sheet or membrane-forming curing compound.

D. Concrete surfaces shall be thoroughly wetted before covering with impervious sheet materials.

E. Membrane-forming curing compound shall be applied with mechanical spraying equipment at a coverage rate as recommended by manufacturer.

F. Curing compound shall not be used on surfaces receiving applications depending on adhesion or bonding.

3.9 TESTING:

A. The frequency and type of tests shall be determined by the Engineer.

B. Aggregates: Aggregates shall be sampled and tested in accordance with ASTM C33.

C. Sampling of concrete: Samples of concrete for air, slump, unit weight and strength tests shall be taken in accordance with ASTM C172.

D. Air Content: Tests for air content shall be performed in accordance with ASTM C173.

E. Slump: Slump tests shall be performed in accordance with ASTM C143.

F. Cylinders: Cylinders shall be molded and cured according to ASTM C31 and tested in accordance with ASTM C39.

END OF SECTION

SECTION 03600

GROUT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Grout for leveling column base plates, steel beams bearing on masonry, machinery and other equipment and/or accessories.

1.2 REFERENCES:

A. ASTM C33 - Concrete Aggregates.

B. ASTM C109 - Compressive Strength of Hydraulic Cement Mortars.

C. ASTM C230 - Flow Table for use in Test of Hydraulic Cement.

D. CRD-C-611 - Methods of Test for Flow of Grout Mixtures (Flow-Cone Method).

E. CRD-C-621 - Specification for Non-Shrink Grout.

1.3 SUBMITTALS:

A. Procedures for Submittals: Section 01300.

B. Product Data: Manufacturer's product data sheets.

C. Quality Control Submittals: For information only.

1. Certification: Manufacturer's certification, or certified laboratory test reports, confirming that materials meet specification requirements.

2. Installation instructions.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Deliver non-shrink grout to project site in unopened containers with manufacturer's labels intact.

B. Store non-shrink grout material in dry shelter and protect from moisture.

C. Containers that are torn or damaged such that non-shrink grout material has been exposed to elements shall be discarded.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Products of the following manufacturers are acceptable subject to meeting specification requirements:

1. Cormix Construction Chemicals (Gifford-Hill).
2. Dayton Superior Corp.
3. Euclid Chemical Co.
4. Five Star Products, Inc.
5. L&M Construction Chemicals.
6. Master Builders.
7. Symons.

B. Substitutions: Under provision of Section 01600.

2.2 NON-SHRINK GROUT:

A. Qualities: Premixed, non-metallic, non-shrink grout material manufactured under rigid quality control, especially for use in transferring heavy loads.

1. Non-metallic natural aggregate, non-staining and noncorrosive.

2. Resist attack by oil and water.

3. Minimum initial setting time of approximately one hour at 70 degrees Fahrenheit.

4. Minimum compressive strength of 8500 psi at 28 days when placed at a fluid consistency.

5. Free of gas-producing or gas-releasing agents.

6. Not greater than .04 expansion at 3, 14 and 28 days. Expansion at 28 days not less than expansion at 3 and 14 days.

B. Standards:

1. Overall Product: CRD-C-621.
2. Compressive Strength: ASTM C109, 2 inch cubes.
3. Bleed Performance: CRD-C-611.
4. Flow Factor: ASTM C230.

2.3 RELATED MATERIALS:

A. Water: Potable.

B. Pea Gravel: Clean pea gravel, ASTM C33, coarse aggregate graded so that at least 90 percent passes a 3/8 inch sieve and 90 percent is retained by a No. 4 sieve.

C. Membrane-Forming Curing Compound: As specified in Section 03300.

2.4 MIXING:

A. Mix materials in accordance with manufacturer's instructions.

B. Mix as close to area to be grouted as possible. Provide adequate means to transport mixed grout as quickly as possible, and in manner to prevent segregation.

C. No more grout shall be mixed at one time than can be placed in a period of 15 minutes. After grout has been mixed, do not re-temper by adding additional water.

D. For less than a 4-inch clearance, or where size or shape of space makes grouting difficult, grout mix shall consist of grout material and water.

E. For greater than 4-inch clearances where coarse aggregate will not obstruct free passage of grout, grout may be extended by adding clean pea gravel if allowed or recommended by the grout manufacturer. Follow manufacturer's recommendation for maximum amount of pea gravel that may be added to mixture.

F. Use minimum amount of water necessary to produce a flowable grout without causing either segregation or bleeding.

PART 3 EXECUTION

3.1 PROCEDURES:

A. Installation methods and procedures shall conform to the printed instructions of the grout manufacturer and these specifications. Where there is a conflict between these specifications and the printed instructions of the grout manufacturer, the printed instructions of the grout manufacturer shall take precedence.

3.2 PREPARATION:

A. Remove defective concrete, laitance, dirt, oil, grease and other foreign material from concrete surfaces by bush-hammering, chipping, or other similar means, until a second clean concrete surface is achieved.

B. Lightly roughen concrete, but not enough to interfere with proper placement of grout.

C. Remove foreign materials from surfaces in contact with grout.

D. Align, level and maintain final positioning of components to be grouted. Coat shim with a thin film of grease or wax to facilitate removal.

E. Provide relief holes to avoid trapping air beneath base plate.

F. Take special precautions during extreme weather conditions according to the manufacturer's written instructions.

G. Saturate concrete surfaces with clean water for period of time specified by manufacturer. Remove excess water just prior to grouting.

H. Immediately prior to grouting, clean surfaces free of contaminates.

3.3 FORMWORK:

A. Build leak proof forms that are strong and securely anchored and shored to withstand grout pressures. Build forms high enough to provide a "head" of grout where it is required to force grout into difficult locations.

B. Provide enough clearance between formwork and areas to be grouted to permit proper placement of grout.

3.4 PLACING:

A. Place grout in accordance with manufacturer's instructions.

B. Place non-shrink grouting material quickly and continuously by most practical means permissible; pouring, pumping, or under gravity pressure. Do not use either pneumatic-pressure or dry packing methods without authorization of Engineer.

C. When practical, apply grout from one side only to avoid entrapping air.

D. Final installation shall be thoroughly compacted and free from air pockets. To facilitate placement, a ½- to 1-inch chain or metal strap may be pulled back and forth under the equipment during grouting. Remove chain or strap before initial set takes place.

E. Do not vibrate place grout mixture or allow it to be placed if area is being vibrated by nearby equipment, except when approved by grout manufacturer.

F. Do not remove leveling shims for at least 48 hours after grout has been placed. After shims have been removed, fill voids with non-shrink grout.

3.5 CURING:

A. Cure grout for 3 days at a temperature of not less than 50 Fahrenheit after placing by keeping wet and covered with curing paper, by coating with a concrete membrane-forming curing compound, or by other approved methods.

END OF SECTION

SECTION 09870

COATING SYSTEMS FOR STEEL TANKS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. The work of this section includes the coating of all interior and exterior surfaces of the proposed Northeast Elevated Storage Tank.

1.2 REFERENCES:

A. ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.

B. AWWA – American Water Works Association

C. ASTM D3359 - Method for Measuring Adhesion by Tape Test.

D. NACE (National Association of Corrosion Engineers) - Industrial Maintenance Painting.

E. NPCA (National Paint and Coating Association) - Guide to U.S. Government Paint Specifications.

F. SSPC (Society for Protective Coatings) - Steel Structures Painting Manual.

G. TACB (Texas Air Control Board) - 31 TAC Chapter 11.

H. TCEQ (Texas Commission on Environmental Quality) - 30 TAC Chapter 290 - Water Hygiene.

I. Paint Manufacturer's printed instructions.

J. TAC - Texas Administrative Code.

1.3 DEFINITIONS:

A. Dft - dry film thickness.

B. HAPs – Hazardous air pollutants.

C. mil(s) - A unit of measure equal to a thousandth of an inch (0.254 mm).

D. VOC(s) - volatile organic compound(s).

1.4 INTERPRETATION:

A. The Engineer's decision shall be final in the interpretation and/or conflict between any of the referenced Specifications and Standards contained herein.

1.5 SUBMITTALS:

A. Information to be provided: Provide a list of materials to be used under this Section. Submit the list before the materials are delivered to the job site. Cross reference list to the coating system identified. Furnish with the list, the coating manufacturer's standard product data and color chart for each material to be used.

B. Manufacturer's color charts shall be submitted to the Engineer at least 30 days prior to paint application. General Contractor and painting Contractor shall coordinate work so as to allow sufficient time for paint to be delivered to the job site.

1.6 QUALITY ASSURANCE:

A. General: Quality assurance procedures and practices shall be utilized to monitor all phases of surface preparation, application and inspection throughout the duration of the project. Procedures of practices not specifically defined herein may be utilized provided they meet recognized and accepted professional standards.

B. Surface Preparation: Surface preparation will be based upon comparison with "Pictorial Surface Preparation Standards for Painting Steel Surfaces", SSPC-VIS 1-89 and ASTM Designation D2200, "Standard Methods of Evaluating Degree of Rusting on Painted Steel Surfaces", SSPC-VIS 2 and ASTM Designation D610 "Visual Standard for Surfaces of New Steel Airblast Cleaned with Sand Abrasive".

C. Application: No coating shall be applied: When the surrounding air temperature of the temperature of the surface to be coated or painted is below the minimum surface temperature for the products specified herein; or in rain, snow, for, or mist; when the temperature is less than 5 degree F above the dew point; when the air temperature is expected to drop below 35 degree F within six hours after application of coating. Dew point shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychometric Tables. If the above conditions are forecast, coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.

D. Thickness and Holiday Checking: Thickness of coatings and paint shall be checked with a non-destructive, magnetic-type thickness gauge. Use instrument such as a Tooke Gauge if a destructive tester is deemed necessary. The integrity of coated interior surfaces shall be checked with an approved inspection device. For dry film thicknesses below 20 mils, a low voltage holiday detector shall be used. For film thicknesses above 20 mils, a high voltate hoiday detector such as a Tinker and Rasor AP/W shall be used. Non-destructive holiday detector shall not exceed 67 1/2 volts nor shall destructive holiday detectors exceed the voltage recommended by the manufacturer of the coating system. A non-sudsing type wetting agent, such as Kodak Photo Flow, shall be used. Areas failing tests shall be marked, repaired in accordance with the manufacturer's printed recommendations,

and retested. No pinholes or other irregularities will be permitted in the final coating.

E. Inspection Devices: The Contractor shall furnish, until final acceptance of coating and painting, inspection devices in good working condition for detection of holidays and measurement of dry film thickness (dft) of coating. The Contractor shall also furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates to test accuracy of dft gauges and certified instrumentation to test accuracy of holiday detector. Dry film thickness gauges and holiday detectors shall be made available for the Engineer's use at all times until final acceptance of application. Holiday detection devices shall be operated in the presence of the Engineer.

1.7 QUALIFICATIONS:

A. The Contractor shall have three years practical experience and successful history in the application of specified products to surfaces of steel water tanks. The Contractor shall be a knowledgeable and experience professional, fully aware of the methods and regulatory requirements of coating removal and application. Upon request, he shall substantiate this requirement by furnishing a list of references and job completions.

1.8 SAFETY AND HEALTH REQUIREMENTS:

A. General: The Contractor shall perform all work in accordance with applicable local, state, and federal laws and regulations, and material manufacturer's instructions and recommendations pertaining to the methods, materials, or activities in the work. Some of these regulations are included in the following groups:

Occupational Safety and Health Act and derived regulations.

Clean Air Act and derived regulations, both federal and state.

The items listed below in the rest of this Paragraph are intended to call the Contractor's attention to some of the frequently necessary compliance activities. The Contractor is solely responsible for compliance with applicable regulations including, but not limited to, the areas identified in this Specification. The Contractor shall provide and require the use of personal protective equipment for persons working on or about the project.

B. Head and Face Protection and Respiratory Devices: Equipment shall include protective helmets which shall be worn by all persons while in the vicinity of the work. In addition, workers engaged in or near the work during sandblasting shall wear appropriate eye and face protection devices and air purifying, half mask or mouthpiece respirators with appropriate filters.

C. Ventilation: Where ventilation is used to control hazardous exposure, all equipment shall be explosion-proof. Ventilation shall reduce the concentration of air contaminants to the degree that a hazard does not exist. Air circulation and exhausting of solvent vapors shall be continued until coatings have fully cured.

D. Sound Levels: Whenever the occupational noise exposure exceeds maximum allowable sound levels, the Contractor shall provide and require the use of approved ear protective devices.

E. Illumination: Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the Engineer, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the Engineer.

F. Temporary Ladders and Scaffolding: All temporary ladders and scaffolding shall confirm to applicable safety requirements. They shall be erected where requested by the Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Materials specified are those that have been evaluated for the specific service. Products are listed to establish a standard of quality. Equivalent materials of other manufacturers may be substituted on written approval of the Engineer in accordance with Section 01300.

Requests for substitution shall include manufacturer's literature for each product giving name, product number, generic type, descriptive information, solids by volume, recommended dft and certified laboratory test reports showing results to equal the performance criteria of the products specified herein. In addition, a list of five projects shall be submitted in which each product has been used and rendered satisfactory service. The listed projects shall be in the State of Texas, Oklahoma, Louisiana, or Arkansas.

2.2 DELIVERY AND STORAGE:

A. All materials shall be brought to jobsite in original sealed containers. They shall not be used until the Engineer has inspected contents and obtained data from information on containers or label. Materials exceeding storage life recommended by the manufacturer shall be rejected.

B. All coatings and paints shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable coatings or paint must be stored to conform with City, County, State, and Federal safety codes for flammable coating or paint materials. At all times coatings and paints shall be protected from freezing.

2.3 MATERIALS:

A. Interior Tank or Structure Coating System (Wet or Dry):

Surface Preparation: SSPC-SP10 near white metal blast cleaning. All rough edges, weld seams, and sharp corners shall be ground to a curve. After

surface preparation and prior to painting, all weld seams shall be brushed with coating of Tnemec Series 94 H_20 Hydro Zinc. Allow 24 hours minimum dry time before application of full primer coat.

Prime Coat: Tnemec Series 94 H_20 Hydro Zinc @ 2.5-3.5 dft mils.

Second Coat: Tnemec Series N140-1255 Beige Pota-Pox Plus finish @ 4.0-6.0 dft mils. Approved Thinner: No. 4 Thinner.

Third Coat: Tnemec Series N140-15BL Tank White Pota-Pox Plus finish @ 4.0-6.0 dft mils. Approved Thinner: No. 4 Thinner.

Total dft shall be a minimum of 10.5 mils per SSPC dft measuring standard.

When cold weather or scheduling requirements dictate, **Tnemec Series 44-700 Epoxy Accelerator** can be added to Series N140 per manufacturer's printed product data sheet instructions. Series N140F may also be utilized instead of Series N140 for cold weather operations. 44-710 Urethane Accelerator may be utilized with Series 94-H_20 during cold weather operations.

B. All interior roof laps shall be filled with Sika-Flex 1A after application of the finish coat.

C. Exterior Tank Coating System:

When cold weather or scheduling requirements dictate, **Tnemec Series 44-700 Epoxy Accelerator** can be added to the epoxies and **Tnemec Series 44-710 Urethane Accelerator** can be added to the urethanes per manufacturer's printed product data sheet instructions.

Surface Preparation: SSPC-SP6 Commercial Blast cleaning. All rough edges weld seams and sharp corners shall be ground to a curve.

Primer Coat: Tnemec Series 94 H_20 Hydro Zinc @ 2.5-3.0 dft mils. Approved Thinners: No. 2 Thinner (below 80F); No. 3 Thinner (above 80F or for brush or roller application).

Second Coat: Tnemec Series 1075 Endura-Shield (Semi Gloss) @ 2.0-3.0 dft mils.

Finish Coat: Tnemec Series 700 Hydroflon (Tank White – 15BL) @ 2.0-3.0 dft mils.

Total dft shall be a minimum of 6.5 mils per SSPC dft measuring standard.

D. Name/Logos:

Name/logos shall be applied with the following products:

Tnemec Series 700 Hydroflon (Splash-20BL) @ 2.0-3.0 dft mils.

PART 3 EXECUTION

3.1 GENERAL:

A. All surface preparation, coating and painting shall conform to applicable standards of the Steel Structures Painting Council and the manufacturer's printed instructions. Material applied to the surface prior to the approval of the Engineer shall be removed and re-applied to the satisfaction of the Engineer at the expense of the Contractor.

B. All work shall be performed by skilled craftsman qualified to perform the required work in a manner comparable with the best standards of practice.

C. The Contractor shall provide a supervisor at the work site during cleaning and application operations. The supervisor shall have the authority to sign Change Orders, coordinate work and make decisions pertaining to the fulfillment of the contract.

D. Dust, dirt, oil, grease or any foreign matter that will affect the adhesion or durability of the finish must be removed by washing with clean rags dipped in an approved cleaning solvent and wiped dry with clean rags.

E. Coating and painting systems include surface preparation, prime coating and finish coatings. Unless otherwise approved by the Engineer, prime coating shall be field applied. Where prime coatings are shop applied, the Contractor shall instruct suppliers to provide the prime coat compatible with the finish coat specified. Any off-site work which does not conform to this specification that is damaged during transportation, construction, or installation shall be thoroughly cleaned and touched-up in the field as directed by the Engineer. The Contractor shall use repair procedures which insure the complete protection of all adjacent primer. The specified repair method and equipment may include wire brushing, hand or power tool cleaning, or dry-air blast cleaning. In order to prevent injury to surrounding painted areas, blast cleaning may require use of lower air pressure, smaller nozzle and abrasive particle sizes, shorter blast nozzle distance from surface, or shielding and masking. If damage is too extensive or uneconomical to touch-up, then the tank shall be re-cleaned and coated as directed by the Engineer.

F. The Contractor's coating and painting equipment shall be designed for application materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air.

G. Application of the first coat shall follow immediately after surface preparation and cleaning and before rust bloom occurs. Any cleaned areas not receiving first coat within this period shall be re-cleaned prior to application of first coat.

H. Prior to assembly, all surfaces made inaccessible after assembly shall be prepared as specified herein and shall receive the coating or paint system specified. This requirement does not apply to the underside of floor members.

3.2 SURFACE PREPARATION:

A. The latest revision of the following surface preparation specifications of the Steel Structures Painting Council shall form a part of this specification:

1. Solvent Cleaning (SSPC-SP1): Removal of oil, grease, soil and other contaminants by use of solvent, emulsions, cleaning compounds, steam cleaning, or similar materials and method which involve a solvent or cleaning action.

2. Hand Tool Cleaning (SSPC-SP2): Removal of loose rust, loose mil scale and other detrimental foreign matter to degree specified by hand chipping, scraping, sanding and wire brushing.

3. Power Tool Cleaning (SSPC-SP3): Removal of loose rust, loose mil scale and other detrimental foreign matter to degree specified by power wire brushing, power impact tools or power sanders.

4. White Metal Blast Cleaning (SSPC-SP5): Blast cleaning to a gray-white uniform metallic color until each element of surface area is free of all visible residues.

5. Commercial Blast Cleaning (SSPC-SP6): Blast cleaning until at least two-thirds of each element of surface area is free of all visible residues.

6. Brush-Off Blast Cleaning (SSPC-SP7): Blast cleaning to remove loose rust, loose mil scale and other detrimental foreign matter to degree specified.

7. Near White Blast Cleaning (SSPC-SP10): Blast cleaning to near white metal cleanliness, until at least 95% of each element of surface area is free of all visible residues.

B. Slag and weld metal accumulation and spatters not removed by the Fabricator, Erector, or Installer shall be removed by chipping and grinding. All sharp edges shall be peened, ground or otherwise blunted as required by the Engineer.

C. Field blast cleaning for all surfaces shall be dry method unless otherwise directed.

D. Particle size of abrasive used in blast cleaning shall be that which will produce a 1.5-2.0 mils (37.5 microns-50.0 microns) surface profile or in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied.

E. Abrasive used in blast cleaning operations shall be new, washed, graded and free of contaminants that would interfere with adhesion of coating of paint and shall not be reused unless specifically approved by the Engineer.

F. During blast cleaning operations, caution shall be exercised to insure that existing coatings or paint are not exposed to abrasion from blast cleaning.

G. The Contractor shall keep the area of his work and the surrounding environment in a clean condition. He shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the accomplishment of the work, the operation of existing facilities, or to the surrounding environment.

H. Blast cleaned surfaces shall be cleaned prior to application of specified coatings or paint. No coatings or paint shall be applied over damp or moist surfaces.

I. Pitted areas on the tank interior shall be repaired by either filling with Tnemec Series 215 Surfacing Epoxy, or Tnemec Series FC22 Epoxoline, or by welding. Epoxy filler shall be feathered smooth. Filler shall be applied after the prior to the application of the finish coat. No protrusions or spatter will be allowed. Pits deeper than 1/8" shall be filled by welding.

J. Specific Surface Preparation: Surface preparation for the specific system shall be as noted in Section 2.3.

3.3 NON-VISIBLE CONTAMINANTS:

A. Surface shall be checked in three locations for the presence of chlorides, free iron and sulfates. New tanks shall be tested prior to abrasive blasting, tanks being rehabilitated shall be tested prior to blasting. If blisters are present in existing tank, testing shall also be performed after abrasive blasting. These tests are an Iron Test (Fe^{2+}), Chloride Test and Sulfate Test. Testing shall be carried out as per SSPC Technology Guide 15 "Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates". The maximum limits for these contaminants shall be:

1. The maximum level of chlorides is 30 milligrams per square meter or 3 micrograms per square centimeter.

2. The maximum level of sulfates is 100 milligrams per square meter or 10 micrograms per square centimeter.

3. The maximum level of ferrous ions (Fe^{2+}) is 50 milligrams per square meter or 5 micrograms per square centimeter.

4. Contamination levels above these limits will require washing and retesting in accordance with Item 2 (below) until the surface is under the allowable limits.

B. If testing shows amounts present in the test solution to be greater than the limits listed herein, the Contractor shall clean the surface of the entire tank interior with a 5,000 psi water blast with fine entrained abrasive until the levels in the test solutions are below the maximum acceptable level. Alternate cleaning methods may be allowed with prior approval of the Engineer. Surface shall be reblasted as specified in 2.04 at no additional cost to the Owner.

C. Contractor shall provide a written statement from paint manufacturer stating that the maximum acceptable levels are not less than those listed herein. Results of the testing shall be provided to the Owner before any coatings are applied.

D. The following test kits are approved for use on this project:

1. Chlor*Rid Chor*Test Kit
2. KTA SCAT Test Kit

E. Test kits from other vendors shall be submitted to the Engineer for prior approval before use.

3.4 APPLICATION:

A. Coating and paint application shall conform to the requirements of the Steel Structures Painting Council Paint Application Specification SSPC-PA1, latest revision, for "Shop, Field and Maintenance Painting", the American Water Works Association and the manufacturer of the coating and paint materials.

B. Thinning shall be permitted only as recommended by the manufacturer, approved by the Engineer, and utilizing the thinners stated in Section 2.3.

C. Each application of coating or paint shall be applied evenly, free of brush marks, sags, runs, with no evidence of poor workmanship. Finished surfaces shall be free from defects or blemishes.

D. Protective coverings or drop cloths shall be used to protect accessories and equipment not coated. Care shall be exercised to prevent coatings or paints from being spattered onto surfaces which are not to be coated or painted. Report surfaces from which materials cannot be satisfactorily removed to the Engineer.

E. When two coats of coating or paint are specified, where possible, the first coat shall contain sufficient approved color additive to act as an indicator of coverage or the two coats must be of contrasting color.

F. Film thickness per coat specified in Section 2.3 are minimum required. If roller application is deemed necessary, the Contractor shall apply additional coats to achieve the specified thickness.

G. All material shall be applied as specified by the manufacturer.

3.5 COATING SYSTEM APPLICATION:

A. After completion of surface preparation as specified for the specific system, materials shall be applied as noted in Section 2.3.

3.6 COLOR SCHEME:

A. The Engineer will select colors for the Project. Submit a current chart of the manufacturer's available colors to the Engineer thirty days prior to the start of coating operations.

3.7 NAME/LOGO:

A. The Contractor shall paint the name/logo tank as specified by Engineer / Owner.

B. Painting of name/logo shall be professionally done using a skilled craftsman of the trade, neat in appearance and to the satisfaction of the Owner.

C. Contractor to submit logo to Engineer for approval prior to any surface work related to the logo.

3.8 VAPOR REMOVAL:

A. All vapors shall be completely removed by suction type exhaust fans and blowers before placing tank in operating service.

3.9 CLEAN UP:

A. Upon completion of work, all staging, scaffolding, waste blasting abrasive, and other materials and containers shall be removed from the site. Coating or paint spots or oil stains upon adjacent surfaces shall be removed and the jobsite cleaned. All damage to surfaces resulting from the work of this Section shall be cleaned, repaired, or refinished to the satisfaction of the Engineer at no cost to the Owner.

END OF SECTION

SECTION 11600

ELEVATED STORAGE TANK SUBMERSIBLE MIXER

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. This section covers 2 HP submersible tank mixer (MXR-01) at the elevated storage tank (EST). Each mixer shall consist of a water-filled submersible motor, an impeller and a non-submersible control center that houses all control electronics.

B. Furnish a submersible water mixer with control center and install submersible mixing system together with controls and accessories necessary for a complete and operable system. All electrical supply equipment, conduit, and wiring by others.

1.2 REFERENCES:

A. Comply with the applicable reference specifications as specified in the General Requirements.

B. Occupational Safety and Health Administration, OSHA.

C. NSF/ ANSI Standard 61.

D. Underwriters Laboratories Inc., UL 508.

1.3 SUBMITTALS:

A. NSF Certification:

1. Copies of the NSF-61 certified listing for all material being placed inside the tank and headspace, including the motor and power cable.

B. Provide the following information in accordance with Section 01300:

1. Shop drawings showing dimensions.
2. Parts list noting materials of construction.
3. Operation and maintenance manuals.

1.4 QUALITY ASSURANCE:

A. Each mixing system shall be tested prior to deployment according to standard engineering practices at the factory testing facilities.

1.5 WARRANTY:

A. The manufacturer shall provide a warranty on equipment against manufacturer's defects for twelve (12) months, commencing on the date of Owner-accepted substantial completion of the project. If the equipment shall

fail during the warranty period due to a defective part, it shall be replaced and the unit restored at no cost to the owner, including both service and parts.

1.6 STORAGE:

A. Equipment must be stored in accordance with manufacturer's recommendations.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. GridBee.
2. Kasco Marine.
3. PAX Water Technologies (PWM250V3 PAX Mixer with a PCC255V3 PAX Control Center).
4. Engineer approved equivalent.

2.2 PERFORMANCE:

A. Mixing system shall completely mix reservoir according to the following minimum performance requirements. These requirements shall be measured and validated after installation with temperature probes in accordance with manufacturers recommendations.

1. Temperature Uniformity:

a. All temperatures shall converge to within 0.50°C (0.9°F) within 24 hours after mixer is installed and activated.

2.3 DESIGN:

A. Mixing system consists of a spiral-shaped nozzle mounted in a submersible stainless-steel casing. System is lowered to the tank floor and creates a vortical flow pattern inside the tank. Devices with an externally mounted pump shall not be acceptable. Mixer operation shall be independent of tank drain and fill cycles to ensure constant mixing. Mixer shall weigh less than 60 pounds and be able to be hoisted, installed, and/or removed by on-site personnel without additional equipment needed, and so that there is no crush hazard or entanglement hazard present, and so that weight of mixer on tank floor does not cause damage to interior coating.

B. Mixing system inlet shall be elevated at a minimum of 6 inches above tank floor to avoid disturbing accumulated tank sediment or entraining particles and causing accelerated wear of moving parts.

C. Mixers using submersible pump with slit or "water sheet" or horizontal motor mounting designs are not acceptable.

D. Mixers shall include a buoyancy mechanism to keep nozzle pointing upright no matter the angle of the tank floor.

E. Mixers shall include integrated power cable as a lowering mechanism for simplicity.

F. Mixers shall have no oil-filled parts.

G. All wet-side mixer components shall be certified by NSF to the NSF/ANSI Standard 61.

H. Dry-side mixer components shall include sine filter to prolong motor life and reduce noise level.

I. Power source for mixer shall be 230VAC single phase grid power to allow the mixer to operate 24/7.

2.4 CONSTRUCTION:

A. Components – wet-side: shall be NSF/ANSI Standard 61 certified.

Equipment entering tank shall not adhere to, scratch or otherwise cause damage to internal tank coating or put undue stress on the materials of the tank construction. Equipment shall fit through a standard hatch of size 18-inch x 18-inch or larger.

B. Each submersible mixer shall consist of the following components, regardless of the power source selected:

1. Nozzle

AISI Type 316 Stainless Steel
Electropolished to minimize surface corrosion

2. Nozzle Housing

AISI Type 316 Stainless Steel
Brush finish to minimize surface corrosion
Buoyancy mechanism to keep nozzle pointing upright no matter the angle of the tank floor
Chlorine/chloramine resistant rubber foot pad to avoid scratching tank floor
Integrated power cable and lowering mechanism for simplicity

3. 2 HP Motor

AISI Type 304 Stainless Steel body
Chlorine/Chloramine resistant rubber seals
Fully submersible

C. Components – dry-side: Each 230VAC control center shall consist of the following components:

1. Enclosure

   Type 4 (NEMA 4) Lockable
   Weather Resistant
   Overall weight of control center not to exceed 50 lbs.
   Green and Red LED Indicator lights show motor status
   White Power Indicator Led
   Cooling Fan

2. Motor Controller/VFD

   Rated to 3.0 HP
   Operating temperature range -4 ºF to 131 ºF
   HOA Switch
   Manual speed control
   Thermal shut-off protection built-in
   Current overload protection built-in
   SCADA outputs included:
      Digital Output signal indicating motor running
      Digital Output signal indicating fault
      Digital Input/output signal allowing remote motor on/off
      RS-485 or Dry Contact connections
      4-20mA Signal

3. 230VAC, single-phase, with a 300mA trip level GFCI included inside control center

4. Panel equipped with a 230VAC 20-Amp main breaker

5. Sine Filter

2.5 CONTROLS:

A. Each unit shall be equipped with all necessary controls, inter-wired, to provide the following minimum functions:

1. On/Off switch to control power to mixer.

2. Automatically-activated motor shut-off if water level drops below motor height in tank.

3. Sine filter

4. Any other controls shown on electrical and instrumentation drawings.

PART 3 EXECUTION

3.1 INSTALLATION:

A. The CONTRACTOR shall furnish services of a factory-trained installation contractor or crew having experience with installation procedures and operation and maintenance requirements for the type of equipment installed under these specifications. Mixer must be able to be installed through a 30" diameter hatch. Mixer shall be able to be installed without draining tank or taking tank out of service. Wet-side of Mixer shall weigh less than 60 pounds and dry-side shall weigh less than 70 pounds. Both wet-side and dry-side shall able to be hoisted, installed, and/or removed by on-site personnel without additional equipment needed, and so that there is no crush hazard or entanglement hazard present, and so that weight of mixer on tank floor does not cause damage to interior coating.

B. Tank penetration shall be above tank max water line.

1. Fitting shall prevent moisture intrusion into tank.
2. Fitting shall be 1-inch diameter fitting to allow cable to pass through.
3. Strain relief for power cable shall be part of the contractor-supplied fitting for tanks.

C. Installation of the in-tank ("wet-side") components shall be performed.

1. Installation below a hatch opening in a full tank utilizing the Mixer power cord.

2. Installation by personnel with confined space training while the tank is drained and empty.

3. Installation by tank manufacturer personnel during tank manufacture.

D. Installation of the outside-of-tank ("dry-side") components shall be installed by the CONTRACTOR according to the O&M manual.

E. The mixer and control center shall be installed in accordance with approved procedures submitted and as shown, unless otherwise approved in writing from the Factory.

3.2 TRAINING:

A. PAX Water Technologies staff (factory trained) shall instruct designated City of Midland personnel in the safe and proper operation of the PAX Water Mixer. This training shall reference the operations manual provided with equipment and show how to check for proper functioning of the equipment.

END OF SECTION

SECTION 13000

PROCESS CONTROL SYSTEMS - GENERAL PROVISIONS

PART 1 GENERAL

1.1 SCOPE OF WORK:

A. Process Control System Integrator (PCSI)

1. The General Contractor shall procure the services of a single PCSI to investigate, field verify, select, furnish, configure, customize, debug, install all control related equipment, materials, and labor and connect, calibrate, and place into operation all instrumentation, field mounted controllers, and control hardware, except for those services and materials specifically noted as being provided by the Application Service Provider (ASP), required to achieve a fully integrated and operational system as specified herein, and as indicated in the specifications and as shown on the P&ID and electrical drawings.

2. Equipment furnished under this contract as described in the specifications and as shown on the P&ID and electrical drawings shall be integrated into the overall Process Control System (PCS).

3. Radio communications equipment and overall radio communications configuration shall be provided by the PCSI.

B. Application Service Provider (ASP)

1. Signature Automation, LLC shall be the Applications Service Provider (ASP). All work performed by the ASP shall be included under the SCADA Allowance shown on the Bid Form.

2. The ASP shall furnish all PCS programming work (RTU, OIT, SCADA, and HMI) required to achieve a fully integrated and operational system as specified herein.

3. Remote Terminal Unit (RTU), Operator Interface Terminal (OIT), Human Machine Interface (HMI) and Supervisory Control And Data Acquisition (SCADA) software purchase, installation and configuration, and other software configuration, including but not limited to loading of software on existing SCADA computers, operating system software configuration, ethernet configuration/communication (cable and conduit to be furnished and installed by the Electrical Contractor), configuration of Ethernet switches shall be provided by the ASP.

4. The ASP shall perform all work including:

a. RTU programming, testing of RTU logic, and start-up/training activities associated with programmed portions of the RTU.

b. Programming of the existing SCADA HMI, database development, and start-up/training activities associated with the configured portions of the HMI system.

c. SCADA historian programming to add historical data collection, trending, and calculations.

5. The PCSI and ASP shall coordinate, and schedule all required construction activities including startup, testing, inspection and training with the General Contractor, OWNER, and ENGINEER.

1.2 RELATED WORK:

A. General provisions of the Contract are included in Division 01 of the Specifications.

B. Specific control system and instrumentation materials and requirements are included in related sections of Division 13 and 16.

1.3 SUBMITTAL REQUIREMENTS:

A. General

1. Refer to Division 01 for general submittal requirements.

B. Final System Documentation

1. Submit in accordance with Division 01 O&M requirements.

2. The Final System Documentation shall consist of operations and maintenance manuals as specified herein. The manuals shall be bound in three-ring binders, maximum size of 3 inches, with drawings reduced to 11x17 (inch), then folded to 8.5x11 (inch) for inclusion.

Each section shall have a uniquely numbered tab divider, and each component within each section shall have a separate binder tab divider.

3. The operations and maintenance manuals shall be prepared specifically for this installation and shall include catalog data sheets, drawings, equipment lists, descriptions, parts lists and operating and maintenance instructions, at a minimum, contain the following information:

a. Table of Contents

i. A Table of Contents shall be provided for the entire manual with the specific contents of each volume clearly listed. The complete Table of Contents shall appear in each volume.

b. Instrument and Equipment Lists

i. The following lists shall be developed in Excel and provided not only as a hard copy in O&M, but also electronically on a secure flash drive.

ii. An instrument list for all devices supplied including tag number, description, specification section and paragraph number, manufacturer, model number, serial number, range, span, location, manufacturer phone number, local supplier name, local supplier phone number, completion year replacement cost, and any other pertinent data.

iii. An equipment list for all non-instrument devices supplied listing description, specification section and paragraph number, manufacturer, model number, serial number, location, manufacturer phone number, local supplier name, local supplier phone number, completion year replacement cost, and any other pertinent data.

c. Data Sheets with Vendor Operations and Maintenance Information.

i. ISA S20 style data sheets shall be provided for all field instruments.

ii. Cover page for each device, piece of equipment, and OEM software that lists, at a minimum, date, specification number, product name, manufacturer, model number, location(s), and power required. Preferred format for the cover page is ISA S20, general data sheet; however, other formats will be acceptable provided they contain all required information.

iii. Final vendor O&M documentation for each device, piece of equipment, or OEM software shall be either new documentation written specifically for this project or modified standard vendor documentation. All standard vendor documentation furnished shall have all portions that apply clearly indicated with arrows or circles. All portions that do not apply shall be neatly lined out or crossed out. Groups of pages that do not apply at all to the specific model supplied shall be removed.

iv. For any component requiring dip switch settings or custom software configuration, that information shall be included along with the corresponding data sheets and O&M information.

v. Complete parts list with stock numbers, including spare parts.

d. Operations and Maintenance manuals shall be constructed in accordance with Division 01 and shall include the following information:

i. Manufacturer's contact address and telephone number for parts and service.

ii. Instruction books and/or leaflets.

iii. Recommended renewal parts list.

iv. Record documents for the information required by the Submittals section above.

e. Software Programs

i. Provide native backup files of the programming code for each new controller.

- Programming code shall be fully annotated with comments describing the functionality of each section and group of coding.

ii. Provide native backup files of any modified SCADA HMI software files.

f. Communication Equipment

i. Provide documentation and backup files for all communications programming code, including all parameter settings.

g. As-Built Drawings

i. Complete as-built drawings, including all drawings and diagram specified in this section under the "Submittals" section. These drawings shall include all termination points on all equipment the system is connected to, including terminal points of equipment not supplied by the PCSI.

ii. As-built documentation shall include information from submittals, as described in this Specification, updated to reflect the as-built system. Any errors in or modifications to the system resulting from the Factory and/or Functional Acceptance Tests shall be incorporated in this documentation.

h. Original Licensed Software

i. Submit original software media of all software provided under this Contract. Submit original paper based and electronic documentation for all software provided. Submit license agreement information including serial numbers, license agreements, User Registration Numbers and related information. All software provided under this Contract shall be licensed to the OWNER at the time of purchase. Provide media in software sleeves within O&M manual.

i. Electronic O&M Information

i. In addition to the hard copy of O&M data, provide an electronic version of all equipment manuals on a secure flash drive. Electronic documents shall be supplied in Adobe Acrobat (PDF) format.

ii. Provide electronic files for all custom-developed manuals. Text shall be supplied in both Microsoft Office format and Adobe Acrobat format.

iii. Provide electronic files for all drawings produced. Drawings shall be in AutoCAD ".dwg" format and in Adobe Acrobat format. Drawings shall be provided using the AutoCAD eTransmit feature to bind external references, pen/line styles, and fonts into individual zip files along with the drawing file.

iv. Each computer system hardware device shall be backed up onto a secure flash drive after Substantial Completion and shall be turned over to the OWNER.

v. If specified in the training section, provide digital copies of all training videos. Videos shall be in a format that is readable by standard DVD players and by standard PC DVD drives. Format and shall be a minimum of 800 by 900 pixels and shall include sound.

1.4 COORDINATION MEETINGS:

A. Refer to Division 01 Section for coordination meeting requirements.

B. PCSI Kick-off Meeting

1. The purpose of the meeting shall be to discuss the PCSI's and ASP's project plan and schedule, to summarize the PCSI's understanding of the project; discuss any proposed substitutions or alternatives; schedule testing and delivery deadline dates; provide a forum to coordinate hardware and software related issues; and request any additional information required from the OWNER. Prepare and

distribute an agenda for this meeting a minimum of one week before the scheduled meeting date. The meeting will last up to one-half (1/2) business day.

C. PCSI Coordination Meeting

1. The PCSI shall decide for the meetings and prepare and send a proposed agenda to all participants at least one week before scheduled meetings. The PCSI shall be responsible for promptly preparing and distributing meeting minutes to all attendees.

2. The PCSI shall prepare meeting minutes and distribute them to all attendees and others affected by any decisions made at the meetings. The meeting minutes shall be distributed within one week following the meeting.

3. The meetings shall be held at the OWNER's facility, General Contractor's field office, or at the project site (as coordinated with the ENGINEER and OWNER) and shall include, at a minimum, attendance by the OWNER, ENGINEER, General Contractor's project engineer, PCSI/ASP project engineer, and the electrical subcontractor.

   a. The Field Startup Coordination Meeting shall be held no more than one month prior to site testing for each location.

   b. A typical agenda may include, but shall not be limited to, the following:

      i. Review of work progress.

      ii. Field observations, problems, and decisions.

      iii. Identification of problems which may impede planned progress.

      iv. Review of submittal schedule and submittal status.

      v. Review of offsite fabrications and delivery schedules.

      vi. Maintenance of progress schedule.

      vii. Corrective measures to regain projected schedules.

      viii. Planned activities for subsequent work period.

      ix. Coordination of projected progress.

      x. Maintenance of quality and work standards.

      xi. Effect of proposed changes on progress schedule and coordination.

xii. Other business relating to work.

1.5 QUALITY ASSURANCE:

A. The Process Control System Integrator (PCSI) shall be a "systems integrator" regularly engaged in the design and the installation of instrumentation systems and their associated subsystems as they are applied to the municipal water and wastewater industry. For the purposes of this Specification Section, a "systems integrator" shall be interpreted to mean an organization that complies with the following criteria:

1. Employs personnel on this project who have experience installing and configuring process instrumentation and implementation of the specific programmable controllers, computers, and software proposed for this project. Key personnel shall hold ISA CCST Level 1 certification or have a minimum of five years of verifiable plant start-up experience. Key personnel shall include, as a minimum, the lead field technician.

2. Employs a registered professional Control Systems Engineer or Electrical Engineer in the state of Texas to supervise or perform the work required by this Specification Section.

3. Has successfully completed work of similar or greater complexity on at least three previous projects within the last five years. Successful completion shall be defined as a finished project completed on time, without any outstanding claims or litigation involving the PCSI. Potential references shall be for projects where the PCSI's contract was of similar size to this Project.

4. Has been in the water/wastewater industry performing the type of work specified in this specification section for a minimum of five continuous years.

B. The PCSI shall maintain a permanent, fully staffed and equipped service facility within 200 miles of the project site with full-time employees capable of designing, fabricating, configuring, installing, calibrating, and testing the systems specified herein. At a minimum, the PCSI shall be capable of responding to on-site problems within 12 hours of notice. Provide an on-site response within four hours of notification starting at two months before scheduled start-up to two months after start-up completion.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Delivery, storage, and handling shall be in accordance with Division 01, General Requirements.

1.7 WARRANTY:

A. Provide warranty per Division 01.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS – INSTALLATION:

A. The ASP shall support the PCSI, Contractor, and suppliers by providing guidance related to control system installation requirements defined within the contract documents.

B. The PCSI shall provide, install, and coordinate the overall implementation of the control system components defined within the contract documents. The ASP shall purchase and install all RTU, OIT, HMI, and SCADA software.

3.2 GENERAL REQUIREMENTS – TESTING:

A. The ASP and PCSI shall provide all testing, testing procedures, testing forms, and testing coordination with the OWNER/ENGINEER.

B. The PCSI shall supervise and/or perform the requirements of this Section. As part of these services, the PCSI shall include, for those equipment items not manufactured by him/her, the services of an authorized manufacturer's representative to check the equipment installation and place that portion of the equipment in operation. The manufacturer's representative shall be thoroughly knowledgeable about the installation, operation, and maintenance of the manufacturer’s equipment.

C. The PCSI and ASP shall provide all test equipment and staff necessary to perform the testing as specified herein:

1. All Process Control System hardware and software shall be thoroughly tested to verify proper operation as an integrated system.

2. Any defects or problems found during the testing activities shall be corrected and then retested to demonstrate proper operation.

3. Check and confirm the proper installation of all instrumentation and control components and all cable and wiring connections between the various system components prior to placing the various processes and equipment into operation.

4. Conduct a complete system checkout and adjustment, tuning of control loops, checking operation functions, and testing of final control actions. All problems encountered shall be promptly corrected to prevent any delays in startup of the various unit processes.

5. The PCSI and ASP working together shall be responsible for initial operation of the Process Control System and shall make any required changes, adjustment or replacements for operation, monitoring, and control of the various processes and equipment necessary to perform

the functions intended.

D. The PCSI shall provide the following documentation for use during the testing activities.

1. Complete panel schematic and internal point-to-point wiring interconnect Drawings.

2. Complete electrical control schematics in accordance with JIC standards.

3. Complete panel layout Drawings.

4. Complete field wiring diagrams.

5. Complete instrument loop diagrams.

6. Completed Calibration/Recalibration Certificates for all field and panel devices that require adjustment or calibration.

E. Contractor shall provide one set of the above-listed documentation for the OWNER's personnel, one set for the ENGINEER's use, one set for field use, and the required number of sets for the Contractor's use.

F. The Drawings corrected and modified during testing shall form the basis for the "As-Built" Record Drawing requirement.

G. Contractor shall furnish to ENGINEER two copies of an installation inspection report certifying that all equipment has been installed correctly and is operating properly. The report shall be signed by authorized representatives of both Contractor and the system supplier.

H. As part of the requirement of this Specification Section, it is the responsibility of the PCSI and ASP to provide a complete operational control system. Confirmation of an Operational control system is dependent upon results derived from test procedures as specified in this Section.

I. The PCSI and ASP shall test the system so that the OWNER/Engineer can verify all the points in the new process control system. The PCSI and ASP shall coordinate the Operational Readiness Tests (ORT) and Functional Demonstration Tests (FDT) with the OWNER/ENGINEER.

J. At a minimum, the testing shall include the following:

1. Factory Testing

   a. Unwitnessed Factory Test (UFT)
   b. System Integration Test (SIT)

2. Field Testing

   a. Operational Readiness Test (ORT)

b. Functional Demonstration Test (FDT)
c. 30-day Site Acceptance Test (SAT)

K. Each test shall be in the cause and effect format. The person conducting the test shall initiate an input (cause) and, upon the system's or subsystem's producing the correct result (effect), the specific test requirement will have been satisfied.

L. All tests shall be conducted in accordance with prior OWNER/ENGINEER approved procedures, forms, and all checklists as submitted by the PCSI and ASP. Each test to be performed shall be described and a space provided after it for sign-off by the appropriate parties after its satisfactory completion. The PCSI shall include "punchlist" forms with the test procedures to document issues that arise during the testing. Punchlist forms, at a minimum, shall include a specification cross reference; an issues description field; a resolution description field; and a sign-off area for the PCSI/ASP, OWNER, and ENGINEER.

M. Copies of the signed-off test procedures, forms, and checklists will constitute the required testing documentation. The test result forms shall be submitted to the OWNER/ENGINEER for approval within 10 days of completion of each test.

N. The PCSI shall provide all special testing materials and equipment. Wherever possible, perform tests using actual process variables, equipment, and data. Where it is not practical to test with real process variables, equipment, and data, the PCSI and ASP shall provide suitable means of simulation. These simulation techniques shall be defined in the test procedures.

O. The PCSI and ASP shall coordinate all required testing with the Contractor, all affected Subcontractors, the ENGINEER, and the OWNER.

P. The PCSI shall furnish the services of field service engineers, all special calibration and test equipment, and labor to perform the field tests.

Q. The OWNER/ENGINEER reserves the right to test or retest all specified functions, whether explicitly stated on the Test Procedures, as required, to determine compliance with the functional requirements of the overall system. Such testing required to determine compliance with the specified requirements shall be performed at no additional cost to the OWNER. The OWNER/ENGINEER's decision shall be final regarding the acceptability and completeness of all testing.

R. Correction of Deficiencies:

1. All deficiencies in workmanship and/or items not meeting specified testing requirements shall be corrected to meet specification requirements at no additional cost to the OWNER.

2. Testing, as specified herein, shall be repeated after correction of deficiencies is made until the specified requirements are met. This work shall be performed at no additional cost to the OWNER.

3.3 FACTORY TESTING - UNWITNESSED FACTORY TEST (UFT):

A. Application Service Provider (ASP)

1. Prior to field testing, the ASP shall test all RTU, OIT, SCADA and HMI applications at the ASP's facility to ensure the system will operate as specified. All analog and discrete input/output points not interconnected at this time shall be simulated to ensure proper operation of all alarms, monitoring devices/functions, and control devices/functions.

2. An I/O point checkout shall be performed to verify proper operation of the input/output points. The verification of the signals will be accomplished via the use of the RTU programming software. At a minimum, the I/O checkout shall consist of four steps.

a. Digital input signals: Verification of proper alarming, statuses, etc., shall be performed utilizing the tools available in the RTU programming software.

b. Analog input signals: Verify at zero percent, 25 percent, 50 percent, 75 percent, and 100 percent of full scale. The appropriate scaled value shall be verified utilizing the tools available in the RTU programming software.

c. Digital output signals: Initiate by the user by writing to the signals utilizing the RTU programming software.

d. Analog output signals: Initiated by the user by writing to the signals utilizing the RTU programming software. Verify at zero percent, 25 percent, 50 percent, 75 percent, and 100 percent of full scale.

B. Process Control System Integrator (PCSI)

1. All panels, consoles, and assemblies, provided by the PCSI, shall be inspected and tested to verify their conformance with related submittals, Specifications, and Drawings.

2. Tests to be performed shall include, but not be limited to, the following. Each of these tests shall be specifically addressed in the Test Procedure submittal.

a. All panels and enclosures being provided shall undergo a thorough inspection to verify the integrity of the cabinet enclosures, frame structures, paint work and finish, etc. Additionally, the PCSI shall review the panel drawings with the OWNER/ENGINEER to ensure they accurately reflect the panel layout and wiring.

b. Panel wire pull tests shall be performed on all wiring to ensure it has been connected to the appropriate torque to prevent wires from coming loose.

c. For panels provided in new enclosures, heat loading tests shall be performed to ensure proper cooling/ventilation is being provided.

C. All control panels provided or modified shall be included in these tests. Upon successful completion of the UFT, the Contractor shall submit a record copy of the PCSI and ASP test results to the OWNER/ENGINEER and coordinate the scheduling of the ORT.

3.4 FACTORY TESTING - SYSTEM INTEGRATION TEST (SIT):

A. Before scheduling the SIT, the PCSI/ASP shall determine through their own UFT and through their internal quality assurance program that the equipment is ready for shipment to the job site.

B. All system tests performed and specified for the UFT shall be repeated in the presence of the OWNER/ENGINEER.

C. The SIT will be conducted at the PCSI facility. The PCSI/ASP shall notify the OWNER/ENGINEER in writing that the system is ready for the SIT. The OWNER/ENGINEER shall schedule a test date within 14 days of receipt of the "Ready to Test" letter. At the time of notification, the PCSI/ASP shall submit any revisions to the detailed test procedure previously approved by the OWNER/ENGINEER.

D. The purpose of the SIT is to verify the functionality, performance, and stability of the hardware and software. The system must operate continuously throughout the SIT without failure, except where initiated per the established test procedures. Any unanticipated failures may, at the OWNER/ENGINEER's option, result in the overall SIT being deemed unsuccessful. Successful completion of the SIT, as determined by the OWNER/ENGINEER, shall be the basis for approval of the system to be shipped to the job site.

E. The various tests performed during the SIT shall be designed to demonstrate that hardware and software fulfill all the requirements of the specifications and Contract Drawings. The test conditions shall resemble as closely as possible the actual installed conditions. Any additional hardware or software that may be required to successfully verify system operation shall be supplied at no cost to the OWNER.

F. Tests to be performed during the SIT shall include, but not be limited to, the following:

1. Perform a system audit to verify all components have been staged for the test.

2. Inspect the system inventory to verify all components have been documented properly with correct model numbers, serial numbers, etc.

3. For each hardware enclosure, inspection shall include, but not be limited to, cabinet enclosures, frame structure, paint work and finish, dimensions, and hardware operability (i.e., fans, door hinges, keylocks, etc.).

4. For each subpanel, inspection shall include, but not be limited to, I/O subsystem physical layout, power supply sizing and mounting, cable routing, wire runs across hinges properly installed, fans and blowers unobstructed and mounted to maximize air flow, power conditioning correctly installed, and overall layout and installation of components meets manufacturer's recommendations and standard industry-accepted practices.

5. Demonstrate operability of all equipment.

6. 100 percent point check of I/O, including wiring. Analog signals shall include verification of zero percent, 25 percent, 50 percent, 75 percent, and 100 percent of scale. Additionally, out-of-range testing (over and under scale) shall be accomplished.

7. Demonstrate the ability to monitor and change at least 20 pieces of digital and analog data in each RTU from the HMI software at all operator workstations.

8. Demonstrate the operability of all mass storage equipment.

9. Demonstrate communication failure and system restart.

10. Demonstrate total power failure and recovery. The UPS shall be removed for this test.

11. Demonstrate the ability of the UPS's to meet the runtime requirements upon loss of power.

12. Demonstrate logical failure conditions for control strategies (i.e., instrument failures, equipment failures, loss of communication between the Process I/O Server and the RTU, loss of peer-to-peer communication, etc.).

G. During the test, for a period of time equal to at least 20 percent of the test duration, the OWNER/ENGINEER shall have unrestricted access to the system to perform any additional testing desired or to re-test any previously tested components.

H. All analog control panels shall be included in these tests.

I. All deficiencies identified during these tests shall be corrected and re-tested prior to completing the SIT as determined by the OWNER/ENGINEER.

J. The following documentation shall be made available to the OWNER/ENGINEER at the test site both before and during the SIT:

1. All Contract Drawings and Specifications, addenda, and change orders.

2. Master copy of the test procedure.

3. Bill of material of the computer/RTU/LAN equipment and software to be tested including make, model, and serial number.

4. Design-related hardware submittal applicable to the equipment being tested.

5. Software licenses.

6. Software documentation submittal.

K. The daily schedule during these tests shall be as follows:

1. Morning meeting to review the day's test schedule.

2. Scheduled tests and sign-offs.

3. End of day meeting to review the day's test results and to review or revise the next day's test schedule.

4. Unstructured testing period by the witnesses.

L. All test data and procedures followed during testing shall be logged, and certified copies of the logs shall be provided to the OWNER/ENGINEER.

3.5 FIELD TESTING - OPERATIONAL READINESS TEST (ORT):

A. Following installation of the process control system components and prior to startup and the Functional Demonstration Test, the entire system shall be certified (inspected, wired, calibrated, tested, etc., and documented) that it is installed and ready for the ORT as defined below.

B. Loop/Component Inspections and Tests: The entire system shall be checked for proper installation, calibrated, and adjusted on a loop-by-loop and component-by-component basis to ensure that it is in conformance with related submittals and these Specifications.

1. The Loop/Component Inspections and Tests shall be implemented using OWNER/ENGINEER approved forms and checklists.

a. Each loop shall have a Loop Status Report to organize and track its inspection, adjustment, and calibration. These reports shall include the following information and check-off items with spaces for sign-off by the system supplier:

i. Project name, test date, PCSI/ASP name, and lead PCSI/ASP technician name.

ii. Loop number.

iii. Tag number for each component.

iv. Check-offs/sign-offs for each component: Tag/identification; installation; termination (wiring and tubing); scale, range, and setpoint as applicable; and calibration/adjustment (four-point for analog, setpoint for switches) rising and falling.

v. Check-offs/sign-offs for the loop: Panel interface terminations; I/O interface terminations; I/O signal operation; inputs/outputs operational (received/sent, processed, adjusted); total loop operation; process controller scaling and adjustment; and space for comments.

vi. Tag/identification.

vii. Installation.

viii. Termination – wiring.

ix. Calibration/adjustment – Check-offs/sign-offs for the loop.

x. Panel interface terminations.

xi. I/O interface terminations.

xii. I/O signal operation.

xiii. Inputs/outputs operational: Received/sent, processed, and adjusted.

xiv. Total loop operation: Provide space for comments.

b. Each active Analog subsystem element and each I/O module shall have a Component Calibration Sheet. These sheets shall have the following information, spaces for data entry, and a space for sign-off by the PCSI.

i. Project name.

ii. Loop number.

iii. Component tag number of I/O module number.

iv. Component code number analog system.

v. Manufacturer (for Analog system element).

vi. Model number/serial number (for Analog system).

vii. Summary of functional requirements shall include, but not be limited to, scale and chart ranges of indicators, recorders, and transmitters/converters; functions of computing elements; and parameters of controllers (i.e., proportional, integral, derivative, reverse/forward acting, etc.).

- Indicators: Scale.
- Transmitters/Converters: Scale.
- Computing Elements: Function.
- Controllers: Action (direct/reverse) control Modes (PID).
- Switching Elements: Unit range, differential (FIXED/ADJUSTABLE), Preset (AUTO/MANUAL).
- I/O Modules: Input or output.

2. Calibrations

a. Analog Devices: Required and actual inputs and outputs at 0, 25, 50, 75, and 100 percent of span, rising and falling.

b. Discrete Devices: Required and actual trip points and reset points.

c. Controllers: Mode settings (PID).

d. I/O Modules: Required and actual inputs or outputs for 0, 25, 50, 75, and 100 percent of span, rising and falling.

i. Provide space for comments.
ii. Space for sign-off by the PCSI.

C. The PCSI shall maintain the Loop Status Reports sheets at the job site and make them available to the OWNER/ENGINEER at any time.

D. These inspections, calibrations, and tests do not require witnessing. However, the OWNER/ENGINEER will review Loop Status Sheets and spot check the PCSI/ASP test process periodically. Any deficiencies found shall be corrected by the PCSI/ASP prior to commencement of the Functional Acceptance Test.

E. Prior to checkout of the I/O to the SCADA HMI, the PCSI and ASP shall thoroughly test all I/O from the field devices to the RTU terminals, and verify the RTU is powered up and the RTU is communicating to the SCADA servers. After the PCSI and ASP has successfully tested all I/O from the field devices

to the RTU terminals, the PCSI and ASP shall test all I/O from the SCADA HMI to the field devices.

F. Computer-Manual (i.e., Remote-Manual) start/stop, open/close commands of all devices controlled by the SCADA system shall be verified by the PCSI and ASP during the ORT.

G. For all panels with enclosures (new and existing) modified by this Contract, heat load tests shall be performed to ensure proper cooling/ventilation is being provided.

H. Upon successful completion of the ORT, the Contractor shall submit a record copy of the PCSI and ASP test results to the OWNER/ENGINEER and request the scheduling of the FDT as noted in the following section.

3.6 FIELD TESTING - FUNCTIONAL DEMONSTRATION TEST (FDT):

A. Prior to startup and the 30-day Site Acceptance Test, the entire installed instrument and control system shall be certified that it is ready for operation. All preliminary testing, inspection, and calibration shall be complete as defined in the ORT. The FDT will be a joint test by the PCSI, ASP and the equipment suppliers. PCSI shall coordinate with the OWNER/ENGINEER to allow for OWNERS/ENGINEER presence during this test.

B. The Midland NE Transfer Pump Station (TPS), Transfer Pipeline and Elevated Storage Tank (EST) must be fully operational and ready for continuous water transfer prior to the start of the FDT. Upon successful startup of the entire NE water transfer system, the entire system including the process control system shall operate for a continuous 100 hours without failure before the FDT is started.

C. Once a process area has been started up and is operating, a witnessed FDT shall be performed on that system to demonstrate that it is operating and is in compliance with these Specifications. A witnessed FDT shall be performed on each process area. Each specified function shall be demonstrated on a paragraph-by-paragraph, loop-by-loop, and site-by-site basis.

D. Loop-specific and non-loop-specific tests shall be the same as specified under ORT, except that the entire installed system shall be tested, and all functions demonstrated using live field-based data to the greatest extent possible.

E. Updated versions of the documentation specified to be provided for during the factory tests shall be made available to the OWNER/ENGINEER at the job site both before and during the tests. In addition, one copy of all O&M Manuals shall be available for reference at the job site, both before and during testing.

F. During the FDT, a demonstration of communication failure and recovery shall be accomplished. This test shall be scheduled and coordinated with OWNER's personnel to minimize the impact on plant operations.

G. Punchlist items and resolutions noted during the test shall be documented on the Punchlist/Resolution form. In the event of rejection of any part or function test procedure, the PCSI and ASP shall perform repairs, replacement, and/or retest within 10 days.

H. Upon successful completion of the FDT, the Contractor shall submit a record copy of the PCSI and ASP test results to the OWNER/ENGINEER and request the scheduling of the SAT as noted in the following section.

3.7 FIELD TESTING - 30-DAY SITE ACCEPTANCE TEST (SAT):

A. After completion of the Operational Readiness and Functional Demonstration Tests, the PCSI and ASP shall be responsible for operation of the entire system for a period of 30 consecutive days (Site Acceptance Test – SAT), under conditions of full plant process operation, without a single non-field-repairable malfunction.

B. During this test plant operation, PCSI and ASP personnel shall be present from 8 am to 5 pm on the first day of the SAT and as required during the remainder of the SAT to address any potential issues that would impact the overall system operation. The PCSI and ASP are expected to provide personnel for this test who have an intimate knowledge of the hardware, software, field wiring, and network configuration of the system.

C. The PCSI and ASP is expected to provide personnel for this test who have an intimate knowledge of the software programming of the system. When PCSI and ASP personnel are not on site, the PCSI and ASP shall provide cell phone/pager numbers that OWNER personnel can use to ensure that support staff is available by phone and/or on site within four hours of a request by operations staff.

D. While this test is proceeding, the OWNER/ENGINEER shall have full use of the system. Only plant operating personnel shall be allowed to operate equipment associated with live plant processes. Plant operations shall remain the responsibility of OWNER, and the decision of plant operators regarding plant operations shall be final.

E. Any malfunction during the tests shall be analyzed and corrections made by the PCSI or ASP for programming, hardware, software, field wiring, and network configuration issues. The OWNER/ENGINEER will determine whether any such malfunctions are sufficiently serious to warrant a repeat of this test.

F. Any malfunction during this 30 consecutive day test period which cannot be corrected by the PCSI or ASP personnel within 24 hours of occurrence, or more than two similar failures of any duration, will be considered as a non-field-repairable malfunction.

G. The PCSI or ASP shall perform repairs or replacement within 10 days in the event of rejection of any part or function of the hardware, software, field wiring, and network configuration systems.

H. After successful completion of repairs by the PCSI and/or ASP and the OWNER/ENGINEER have accepted and signed off on the repairs, the SAT will be re-started from the beginning of the 30-day period.

I. All database, process controller logic, and graphical interface system errors must be functioning as required per the specifications prior to the start of each test period. The 30-day test will not be considered successful until all database points and logic functions are tested and verified to be correct.

J. The total availability of the system shall be greater than 99.5 percent (99.5%) during this test period. Availability shall be defined as:

Availability in percent = 100 * (Total Testing Time – Down Time) / Total Testing Time

K. Down times due to power outages or other factors outside the normal protection devices or backup power supplies provided shall not contribute to the availability test times above.

L. Throughout the duration of the 30-day SAT, no software or hardware modifications shall be made to the system without prior approval from the OWNER/ENGINEER.

M. Upon successful completion of the 30-day operation test and subsequent review and approval of complete system final documentation, the system shall be considered substantially complete and the warranty period shall commence.

N. Certification of Installation: Following successful completion of the 30-day test, the Contractor shall issue a Certification of Installation. Certification shall be on Contractor corporate letterhead and signed by an officer of the firm. Certification shall state that the contract, including process control system, has been completed in conformance with plans and specifications. Certification shall be submitted to the OWNER/ENGINEER as specified herein.

3.8 GENERAL REQUIREMENTS – TRAINING:

A. PCSI shall provide two (2) hours of onsite training on the O&M of all field instrumentation and control equipment, detailed explanation of the control strategy, and detailed demonstration of local manual control at field control panels.

B. The ASP onsite training shall cover plant operation with the automatic control system using the OIT, SCADA HMI display screens, including at a minimum all the following items:

1. Basics of OIT and SCADA HMI control and navigation.

2. Alarming and Interlocks.

3. Auto functionality of automated processes and OIT and SCADA HMI control.

4. Failure modes of OIT and SCADA HMI equipment and operator responses.

A minimum of two (2) 1-hour training sessions are required.

C. PCSI and ASP training personnel shall be intimately familiar with both the Control System and the Plant Process and shall be familiar with the designed operations of the plant and how the control system executes the operation.

D. The PCSI and ASP shall, at a minimum, distribute the Final O&M Manual as a teaching aid during the Plant Operator field training sessions.

END OF SECTION

SECTION 13211

COMPOSITE ELEVATED WATER STORAGE TANK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. This Section includes the design, construction, testing, and commissioning of a composite elevated water storage tank and related work including foundation, painting, electrical, mechanical, and appurtenances.

1.2 REFERENCES:

The following Specifications, Codes and Standards are referenced in this section.

A. American Concrete Institute (ACI):

117 Standard Tolerances for Concrete Construction and Materials.
304 Guide for Measuring, Mixing, Transporting and Placing Concrete.
318 Building Code Requirements for Structural Concrete.

B. American Institute of Steel Construction (AISC).

C. American National Standards Institute (ANSI).

D. American Petroleum Institute (API).

E. American Society of Civil Engineers.

F. American Society for Testing Materials (ASTM):

A 123 Zinc Coatings on Iron and Steel Products.
A 240 Stainless Steel Plate, Sheet and Strip for Pressure Vessels.
A 285 Pressure Vessel Plates, Carbon Steel.
A 774 Welded Stainless Steel Fittings.
A 778 Welded Stainless Steel Tubular Products.

G. American Water Works Association (AWWA):

D107-10 Composite Elevated Tanks for Water Storage.

H. Federal Aviation Administration (FAA)

70/7460-1H Obstruction Marking and Lighting.

I. National Association of Corrosion Engineers (NACE).

J. National Sanitation Foundation (NSF):

61 Standard for Drinking Water System Components.

K. Occupational Safety and Health Administration (OSHA):

29 CFR Part 1926 Safety and Health Regulations for Construction.

L. TCEQ (Texas Commission on Environmental Quality):

30 TAC Chapter 290--Water Hygiene.

1.3 SYSTEM DESCRIPTION:

A. Elevated Tank: The Composite elevated tank shall consist of the following: foundation, concrete floor slab, reinforced concrete support structure and a welded steel water tank. The support structure shall extend vertically from the foundation as a circular concrete wall. A domed concrete slab shall be provided as structural support for the steel tank within the perimeter of the wall. A reinforced concrete ring beam shall be provided to connect the steel tank, concrete dome and concrete support wall. The elevated tank shall be in accordance with the shape, dimensions and details required by these specifications and drawings.

B. Operating Parameters:

1.	Minimum capacity within operating range		2,000,000 gallon
2.	Maximum operating range		50'-0"
3.	Maximum fill rate		6,000 gpm
4.	Elevation	- overflow/top capacity level	3008.0 ft ±
		- floor slab	2853.50 ft ±

C. General Design:

1. Design Standards - The structural design of the elevated storage tank shall conform to the following design standards except as modified or clarified by this section.

a.	Foundations and Support Structure	ACI 318, AWWA D107, and ASCE 7.
b.	Composite Tank	AWWA D107, TCEQ-30 TAC 290.

2. Design Parameters - The applicable design parameters are:

a.	Earthquake Zone	Refer Geotechnical Report.
b.	Design Wind Speed	90 mph.
c.	Design Snow Load	15 psf.

D. Wind Loads:

1. Wind - Wind effects shall be determined in accordance with AWWA D107 and ASCE 7.

E. Foundation Loads:

The foundations shall be designed by the Contractor to safely support the structure based on the recommendations of the geotechnical report. Foundations shall be sized in accordance with AWWA D-107, Section 7 "Foundations."

1.4 SUBMITTALS:

A. Proposal: Submit the following with the proposal:

1. Experience List - A list of five (5) Composite elevated tank structures of equal or greater capacity that have been designed, constructed and commissioned by the Bidder and in successful service for at least ten (10) years. These tanks shall be of the same design described in paragraph 1.3A. Provide the location, capacity, and year completed. Failure to provide this information shall be cause for rejection of the bid.

2. Tank Drawing - A preliminary section view drawing of the tank proposed for this project. The drawing shall include sufficient detail to illustrate tank geometry, materials of construction, primary dimensions, the elevation of low and high water levels and other information required to show compliance with the specification. If the proposed design does not comply with the specifications, the bid shall be rejected.

3. Foundation Drawing - A foundation design drawing showing preliminary dimensions.

4. Safety Record – A safe work environment is critical for this project, other contractors working in the area, and the community. Given the complexity of this project and associated risk, the tank contractor is required to submit the following information that will be used in the bid evaluation:

a. Experience Modification Rate (EMR) for the last three (3) years.

b. Total Recordable Incident Rate (TRIR) for the last three (3) years.

c. OSHA 300 Logs for the last three (3) years.

d. List and summary of recordable injuries and fatalities in the last three (3) years.

e. Names and resumes of full-time, credentialed health and safety employees. To be considered credentialed, the minimum acceptable level of certification is Certified Health and Safety Technician (CHST).

B. Construction Drawings:

1. Provide elevation, plan and sectional view drawings of the foundation, support structure, tank and all appurtenant equipment and accessories. Show the location, dimensions, material specifications and finish requirements. The submission shall be sealed by professional engineer registered in the State of Texas.

2. Foundation details shall include excavation, soil protection and backfill.

3. Reinforced concrete details shall include construction joints, openings and inserts. Reinforcement shall be clearly indicated on the structural drawings and identified by mark numbers that are used on the fabrication schedule. Location, spacing and splice dimensions shall be shown. Placement and fabrication details shall conform to ACI 318 and AWWA D107.

4. Steel tank details shall include weld joints and a layout showing all primary and secondary shop and field welds.

C. Construction Procedures:

1. Provide design, detail drawings and procedures for the support structure forming system. Details shall include location of form and construction joints, rustications and ties. Procedures shall include form removal criteria and minimum elapsed time for adjacent concrete placement.

2. Provide shop and field weld procedures for all structural joints on the steel tank.

D. Design Data:

1. Provide a table showing capacity of the tank in gallons at all levels in one foot increments.

2. Provide a summary of the design for the foundation, support structure, tank and other components. Include the design basis, loads and load combinations and results.

   Design loads shall be in accordance with ASCE 7 for Category IV (essential facility) structure.

   a. Dead load shall be the estimated weight of all permanent construction.

   b. Water load shall be the weight of water when the tank is filled to overflow.

   c. Roof live load in addition to snow load: none.

d. Roof snow load shall be the larger of 15 psf. or the snow load determined in accordance with ASCE 7. Ground snow load shall be determined from Figure 7-1 in ASCE 7.

e. Wind loads shall be in accordance with ASCE 7 for wind exposure category C, and basic wind speed of 90 mph. (see Figure 6-1 in ASCE 7).

f. Horizontal and vertical seismic loads shall be in accordance with ASCE 7 and the Site Class as determined in the soil investigation report.

Importance factor I = 1.50.

Response Modification Coefficient R = 3.0 in accordance with ASCE 7.

g. A finite element analysis of the tank interface region.

3. The effect of combination of loads shall be considered in accordance with the following.

1.4D + 1.6F + 1.6(L+S)
1.2D + 1.2F + L + 0.5S + 1.6W
1.2D + 1.2F + L + E
0.9D + 1.6W
0.9D + F + E

D = Effect of dead load.
F = Effect of water load.
E = Effect of horizontal and vertical seismic load.
L = Effect of interior or roof live load.
S = Effect of roof snow load.
W = Effect of wind load.

The foundations shall be designed by the Contractor to safely support the structure based on the recommendations of the geotechnical report. Foundations shall be sized in accordance with AWWA D107, Section 7 "Foundations."

E. Operation/Maintenance:

1. Provide operating instructions and maintenance procedures for the elevated tank and applicable appurtenant equipment, mechanical components and accessories.

1.5 QUALITY ASSURANCE:

A. Qualification of Manufacturer:

1. The work described in this section shall be performed by an experienced Contractor that has designed, constructed and

commissioned a minimum of ten (10) Composite elevated tanks of equal or greater capacity in successful service for at least ten (10) years. These tanks shall be of the same design described in paragraph 1.3A.

2. The tanks shall be of the same design and constructed using forming systems as required by this specification.

3. The composite elevated tank design, concrete support structure construction, and welded steel tank design, fabrication and construction shall be performed by the Contractor and shall not be subcontracted. The Contractor shall perform not less than sixty percent (60%) of the total dollar amount of the work, excluding the cost of material and equipment, with forces that are directly in the employment of the Contractor's organization.

B. Acceptable manufacturers are:

1. Landmark Structures, Inc.
2. CBI.
3. Caldwell Tanks, Inc.
4. Phoenix Fabricators and Erectors
5. As approved by Engineer in accordance with required qualifications.

C. Design:

1. The Contractor shall directly employ a full time professional engineer with a minimum five years cumulative experience in the design and construction of Composite elevated tanks as described in paragraph 1.3.A. The engineer shall be registered in Texas and be in responsible engineering charge of the work.

2. A qualified supervisor directly employed by the Contractor shall be on site at all times during construction of the foundation, support structure and steel tank.

1.6 PROJECT CONDITIONS:

A. Licenses or permits of a temporary nature required by specific trades shall be the responsibility of the Contractor.

B. Existing Conditions: A geotechnical investigation has been carried out at the site and a report has been incorporated within these specifications (Appendix 1). The net allowable bearing pressure of shallow foundations and/or the allowable capacity of deep foundation elements have been defined in this report. The Contractor shall be responsible for securing any further geotechnical information required beyond that provided in this report.

C. Working Conditions:

1. Safety and Health - The Contractor shall comply with safe working practices and all health and safety regulations of OSHA, state and

local health regulatory agencies and Material Safety Data Sheets (MSDS). Provide protective and lifesaving equipment for persons working at the site.

2. Times for Work - Times for work shall comply with local, state and federal regulations and laws.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Reinforced Concrete: Concrete materials and reinforcement shall comply with Sections 03100, 03200, and 03300, and provisions of this Section.

B. Steel Tank: Steel tank components, including steel plates, sheets, structural shapes and filler metals shall be in accordance with AWWA D107, Section 5, "Steel Tank".

2.2 CONCRETE FOUNDATION:

A. The concrete foundation shall be designed in accordance with ACI 318.

B. Concrete shall be a minimum 4,000 psi at 28 days.

C. The service load reinforcement tension stress shall not exceed 30,000 psi under dead plus water load unless flexural cracking is otherwise controlled in accordance with ACI 318.

2.3 CONCRETE SUPPORT STRUCTURE:

A. The concrete support structure shall be designed in accordance with ACI 318.

B. Concrete shall have a compressive strength as required by design, but not less than 4,000 psi at 28 days.

C. Maximum compressive strength shall not exceed:

1. Wall - 6,000 psi at 28 days.
2. Dome - 5,000 psi at 28 days.

D. Support Wall: Support wall shall be reinforced concrete with a minimum thickness of 8 inches exclusive of any architectural relief. Wall thickness shall be provided such that the average compressive stress due to the weight of the structure and stored water is limited to 25% of specified compressive strength, but not greater than 1000 psi. A minimum total wall reinforcement of 0.15% vertically and 0.20% horizontally shall be distributed approximately equally to each face. A minimum of 0.75% vertical reinforcement shall be provided in the top 6 ft. of the wall extending into the concrete ring beam. Minimum concrete cover for interior / exterior faces shall be 1 inch and 1-1/2 inches respectively.

E. Tank Floor: Tank floor shall be a reinforced concrete dome not less than 8 inches thick. The average compressive stress due to the weight of the structure and stored water shall not exceed 15% of the specified compressive strength, nor greater than 600 psi. Minimum total reinforcement in orthogonal directions shall be 0.40% distributed approximately equally to each face. Additional reinforcement shall be provided for stress caused by edge restraint effects.

F. Openings: The effects of openings in the wall shall be considered in the design. Not less than 60% of the interrupted reinforcement in each direction shall be placed each side of the opening. Reinforcement shall extend past the opening not less than half the transverse opening dimension.

Openings wider than 3 ft. 6 in. shall be subjected to a rigorous analysis taking into account the stress concentrations and diminished lateral support that exist in the vicinity of such openings. Each side of the opening shall be designed as a column in accordance with ACI 318.

Openings 8 ft. 0 in. or wider used for vehicle access shall be strengthened against vehicle impact and local buckling by means of an internal buttress located on each side of the opening. The buttress shall consist of a thickened, reinforced concrete wall section that is integrally formed and placed with the support wall. The buttress section shall be not less than 3 ft. 0 in. wide and 6 in. thicker than the nominal wall dimension.

2.4 CONCRETE SUPPORT STRUCTURE/ STEEL TANK INTERFACE:

A. Interface Region: The interface region includes those portions of the concrete support structure and steel tank affected by the transfer of forces from the tank cone and the tank floor to the concrete support wall. This includes a ring beam and connection details. The Contractor shall provide evidence that a thorough review of the interface region has been performed. Finite element and finite difference analyses are the required methods for examining such local stresses in detail.

The geometry of the interface shall provide for positive drainage and not allow either condensate or precipitation to accumulate at the top of the concrete wall or ring beam.

B. Ring Beam: The ring beam shall be reinforced concrete with a nominal width and height of at least two times the support wall thickness. Minimum radial and circumferential reinforcement shall be 0.25%. For direct tension, reinforcement shall be provided such that the average service load stress in tension reinforcement due to the weight of the structure and stored water does not exceed 12,750 psi.

Ring beam design shall consider unbalanced forces from the steel tank cone and concrete dome, load conditions varying with water level, eccentricity of loads resulting from design geometry, and allowance for variations due to construction imperfection and tolerance.

2.5 STEEL TANK:

A. General: The steel tank shall be all welded construction and shall be designed in accordance with applicable sections of AWWA D107, Section 5 "Steel Tank". The required capacity and dimensions of the tank are noted on the drawings and in this section of the specifications. All exposed lap joints shall be fully seal welded on both sides. A conical or dome roof design are both acceptable.

B. Plate Thickness: All members shall be designed to safely withstand the maximum stress to which they may be subjected during erection and operation. The minimum thickness of any steel plate shall be 1/4 in.

C. Roof Support: All structural members supporting the roof of the steel tank shall be flat bar or sealed square tubular sections. I-beams or other sections with horizontal projections may be used if the nominal depth is 10 in. or greater. Support beams shall be seal welded to the underside of the roof plate along the entire length of the beam.

D. Cone: Conical sections of the tank that support water shall be designed in accordance with AWWA D107, Section 5 "Steel Tank". To ensure an aesthetically pleasing tank and minimize mold growth the design of the cone and shell plate(s) shall minimize the number and total length of visible weld seams (shop and field). A scaled plate layout sketch must be provided with the bid, or be cause for rejection, noting that the use of any cone or shell plate (excluding roof plates) with widths and/or lengths equal to or less than 10′ x 27′ for the cone and 8′ x 37′ for the shell is unacceptable.

2.6 APPURTENANCES AND ACCESSORIES:

A. General: Accessories shall comply with the minimum requirements of the Specifications, Codes and Standards listed in 1.2, current applicable safety regulations, and the operating requirements of the structure.

B. Ladder Access: Ladders shall be provided from the slab on grade inside the base of the support wall to the upper walkway platform located below the tank floor. The tank floor manhole shall be provided with ladder access from the upper platform. A ladder shall extend from the upper platform, through the access tube interior to the roof. A ladder mounted on the access tube exterior shall be provided for access to the tank interior, extending from the roof manhole to the tank floor.

Ladders that terminate at platforms or landings shall extend a minimum of 48 in. beyond the platform elevations.

Ladders located in the concrete support structure and access tube interior shall be galvanized steel. Tank interior ladders shall be coated in accordance with the tank interior coating system.

Ladder side rails shall be a minimum 3/8 in. by 2 in. with a 16 in. clear spacing. Rungs shall be minimum 3/4 in. diameter, spaced at 12 in. centers and plug welded into holes drilled in the side rails. Tank interior ladders shall

be provided with 1 in. diameter rungs and 1/2 in. x 2 in. side rails and shall be fully seal welded.

Ladder shall be secured to the adjacent structure by brackets located at intervals not exceeding 10 ft. Brackets shall be of sufficient length to provide a minimum distance of 7 in. from the center of rung to the nearest permanent object behind the ladder. Ladder brackets located on the access tube exterior shall be reinforced at the access tube shell so that potential ice damage is confined to the ladder and bracket and not the access tube shell.

C. Safe Climbing Device: High strength aluminum, rigid rail safe climbing devices shall be provided on all ladders. Rails shall be center mounted and extend from 3 ft. above the ladder bottom to the top of the ladder section. Mounting brackets, fasteners and splice bars shall be provided as required for a rigid installation.

Two trolleys with snap hooks shall be provided that are designed to be operated with the aluminum rail. A full body harness with front and side rings shall be supplied for each trolley.

Install rest seat(s) on any ladder 50 feet long or longer at evenly spaced intervals.

D. Platforms: A 4 ft. wide upper walkway platform shall be located at the top of the support wall to provide access from the support wall ladder to the roof access ladder located on the interior of the access tube. Platforms shall be provided with handrails, midrails and toe plates in accordance with OSHA requirements. Grating shall be used for the walking surface. All components shall be galvanized steel.

A fixed lanyard shall be provided at platforms to provide fall prevention.

E. Support Wall Doors:

1. Personnel Door – Personnel door shall be 3'-7". Door frames shall be 16-gauge with concealed reinforcement at hardware locations. Expansion type anchors for existing openings shall be installed near the top, bottom and intermediate point of each jamb to rigidly secure the frame. Doors shall be 1 3/4 in. thick insulated, reinforced, full, flush type with 18-gauge face sheets and concealed reinforcement at hardware locations. All edges shall be finished flush with watertight seams. Shop applied finish for the frame and door shall be baked on rust inhibitive primer. Field finish shall be compatible with the tank exterior. Standard hardware shall be stainless steel and include three 4 1/2 in. by 4 1/2 in. hinges, threshold, sweep and weatherstripping. Install S.S. passage lockset and deadbolt. Closure shall be industrial duty, lockable in the "OPEN" position.

2. Overhead Vehicle Door - Door installation shall be on the interior face of the support wall. The door frame shall be a steel plate fabrication suitably detailed, fastened and reinforced to accept the door. Operation shall be manual with a chain hoist. The curtain shall be

formed of 22-gauge steel interlocking slats with end locks and wind locks designed for a wind loading of 20 psf. Torsion springs shall be mounted on a solid torsion rod, which is attached to an exterior mounted spring tension adjustment wheel. A 24-gauge steel hood shall be provided with a weather seal to protect the assembly. Steel brackets shall be installed to the interior face of the wall with expansion anchors which enclose and support the counterbalance assembly with sealed bearings. Steel curtain guides are mounted to the brackets. The curtain, bottom bar, brackets, guides, hood, pipe and chain shall be galvanized. Provide with locking device keyed to personnel door.

F. Tank Openings:

1. Floor - Provide a 30 in. diameter manhole through the tank floor. The manhole shall be operable from a ladder located on the upper platform and shall be designed to withstand the pressure of the tank contents without leakage. The manhole assembly shall include a stainless steel handwheel operator and threaded components.

2. Roof - Provide two 30 in. diameter access hatches on the roof of the tank. One hatch shall allow egress from the access tube to the roof. The second hatch, located adjacent to the first, shall allow access to the interior of the tank via the ladder mounted on the exterior of the access tube. The opening shall have a minimum 4 in. curb. Provide aluminum covers with a 2 in. down turned edge, gasket, stainless steel hardware, hold open arm and a locking mechanism.

3. Refer to drawings for additional requirements to accommodate coax and roofing mounting of equipment.

G. Access Tube: Provide a minimum 72 in. diameter centrally located access tube through the steel tank to provide access to the tank roof from the upper walkway platform. The access tube shall incorporate a 2 inch by 2 inch channel to collect condensation that may form on the interior surface orthe area under the access tube shall be provided with a galvanized drip pan to prevent condensation from dripping onto the concrete floor slab below. The drip pan shall extend 3 in. beyond the drip line of the access tube. A flexible 3/4" inch. PVC hose complete with backflow preventer shall drain the channel to the overflow pipe.

H. Roof Railing: A 42 in. high roof handrail shall be provided to enclose all centrally located roof accessories. The roof railing shall be a minimum of 18 feet in diameter.

I. Rigging Access: Provide a 24 in. x 36 in. opening at the top of the support wall. This opening shall be accessible from a platform and shall provide access to the exterior rigging rail located at the tank/support wall intersection. The access opening shall be provided with a hinged stainless steel cover with a 16-mesh stainless steel insect screen.

A minimum 24 in. diameter opening shall be provided on the tank roof to provide access to the tank interior rigging rails. This access opening shall be combined with a pressure/vacuum relief mechanism as specified under Paragraph L.1.

J. Painters Rails: Provide permanently installed painter rails suitable for rolling trolleys at the interior of the tank at the wall/roof and access tube/roof connections. Provide an exterior painters rail at the base of the tank adjacent to the support structure.

K. Piping:

1. Inlet and Outlet Pipes - Provide inlet and outlet piping per drawings. Provide a minimum of 12" for silt retention where the outlet pipe enters the tank. The bottom capacity level of the tank's operating range shall be at or above the elevation of the top of the outlet flowline. Pipe material within the support structure shall be Schedule 10S Type 304L stainless steel.

2. Overflow Pipe - The top of the overflow shall be located within the tank at the overflow elevation. It shall run vertically beside the central access tube and extend across the tank floor. This horizontal run shall be sloped to drain. The pipe shall then turn 90º, extend through the tank floor, and run vertically beside the support wall to grade. A base elbow shall direct the overflow through the support wall, where the pipe shall be terminated with a flap valve. Pipe material within the support structure shall be Type 304L (minimum 11 gauge) stainless steel. If the top of overflow is located above top capacity level, the tank shall be designed for the additional capacity provided by the difference.

The entrance to the overflow pipe shall be designed for the maximum inlet flow rate of 6,000 gpm. The design shall be based on the water level cresting within 6 in. above the overflow elevation. A conical weir shall be provided if the entrance capacity of the overflow pipe diameter is not adequate. A vortex prevention device shall be used. The size of the overflow shall be calculated by the tank manufacturer. Provide calculations with submittals.

The overflow shall be designed to support all related static and dynamic loads. Suitable galvanized steel brackets, guides and hangers shall be provided on the support wall and tank floor at intervals not exceeding 20 ft. The overflow and weir section within the tank shall be supported by the central access tube.

The overflow pipe shall be designed and constructed to accommodate any differential movement caused by settlement and by thermal expansion and contraction over the range of extreme temperature differences expected for the support wall and pipe. A layout with sufficient upper offset to accommodate differential movement is acceptable. If this method is not applicable, the required flexibility shall be provided by an expansion joint located

near grade in the vertical section of pipe.

The overflow pipe shall penetrate the support wall approximately 1 ft. above grade and discharge through a flap valve as shown on the Drawings.

3. Stainless Steel Requirements - Pipe and fittings shall be Type 304L stainless steel fabricated from material meeting the requirements of ASTM A-240. Fabrication, inspection, testing, marking and certification of pipe and fittings shall be in accordance with ASTM A-778 and A-774 respectively. Backing flanges shall be in accordance with ASTM A285-C drilled to ANSI B16.5 Class 150. Pipe, fittings and welds shall be cleaned.

   Pipe, fittings and flange thickness shall be in accordance with the manufacturers certified pressure rating for the applicable service pressures. For piping located within closed or valve sections, the design pressure rating shall be 125 psi minimum.

4. Tank Drain – A tank drain shall be provided to completely drain the tank contents if the inlet/outlet pipe does not intersect the low point of the tank. A four (4) inch drain pipe located at the low point of the tank floor shall be fitted with a threaded plug and tee handle.

L. Ventilation:

1. Tank Ventilation - A tank vent shall be provided, located centrally on the tank roof above the maximum weir crest elevation. It shall consist of stainless steel or aluminum components, including a support frame, screened area and cap. The support shall be fastened to a flanged opening in the tank roof. The vent cap shall be provided with sufficient overhang to prevent the entrance of wind driven debris and precipitation. A minimum of 4 in. shall be provided between the roof surface and the vent cap.

   The tank vent shall have an intake and relief capacity sized to prevent excessive pressure differential caused by a water flow rate either entering or leaving the tank of 6,000 gallons per minute. The maximum flow rate of water exiting the tank shall be calculated assuming a break in the inlet/outlet at grade when the tank is full. The vent shall be provided with a 16 - mesh stainless steel insect screen. Vent capacity shall be determined based on open area provided by the screen.

   In addition to the tank vent, a 24 inch pressure/vacuum relief mechanism shall be provided that will operate in the event of vent failure. The mechanism shall be designed to return automatically to its original position after operation. The pressure/vacuum relief mechanism shall be located on the tank roof above the maximum weir crest elevation, and it shall be useable as a rigging access location during tank repairs. Pressure/vacuum relief mechanism shall be a minimum 4 inches above the roof surface.

2. Support Structure Ventilation - Ventilation within the support structure shall comply with the Owner's governing building code requirements, based on occupancy classification. As a minimum, one louvered vent shall be provided at the top of the support wall. This vent shall be accessible from the upper platform and may also be designed to provide access to the exterior rigging rails located at the tank/support wall intersection. Vents shall be accessible from the interior ladders, platforms or floors provided. Vents shall be stainless steel or aluminum and provided with a removable 16 mesh stainless steel, insect screen.

M. Interior Floors:

1. Slab on Grade - Provide a 6 in. thick, 3500 psi concrete floor slab in the base of the support structure. The slab shall be supported on compacted granular fill and shall be reinforced with #4 reinforcing steel at 12 in. centers each way. Provide 1/2 in. expansion joint between floor slab and support wall and at pipes and supports that extend through the floor. Place cap strip and sealant over the expansion joint. The slab shall be sloped at 0.5% toward the truck door for drainage.

N. Level Monitoring:

1. General - Provide three 3/4 in. (NPT-F) couplings welded to the inlet and 3 to the outlet pipe 5 ft. above grade. Each coupling shall be provided with a stainless steel nipple and an isolation gate valve.

2. Pressure Gauge - Provide a pressure gauge in accordance with ASME B40.1 Grade 2A. The dial shall be oil filled, 4 1/2 in. diameter with black markings on white background. Range is 0 - 200 feet. Markings shall be in 2' increments in accordance with TCEQ regulations.

3. Future Equipment Port - Provide a 6 inch ANSI flange welded to the tank roof with bolted blank cover. Flange shall extend 4 inches above roof plate.

O. Lightning Protection: Provide a lightning protection system for the elevated tank structure and any roof mounted equipment that may be damaged by lightning. Install the system in accordance with NFPA 780 with materials that meet UL96 and UL96a.

Minimum requirements include two 28 strand by 14 gauge copper conductors bonded to the steel tank 180 degrees apart. The conductors shall be fastened to the interior support wall at 3 foot minimum spacing, and shall terminate with buried 5/8 inch diameter by 8 foot long copper clad ground rods.

Lightning protection for obstruction lights shall consist of an air terminal mounted on the support and formed to fit around the fixture. The 1/2 inch diameter copper air terminal shall extend a minimum of 10 inches above the

light fixture and shall connect to a copper conductor that terminates in a bonding plate secured to the tank roof.

2.7 ELECTRICAL AND LIGHTING:

A. General: All work shall be performed and all materials shall be provided in accordance with National Electric Code and the Owner's governing electrical, safety and inspection codes, regulations and ordinances and as specified in Section 16000.

1. Install interior lights in the pedestal and in the dry riser pipe.
2. FAA clearance lighting will be required.
3. Install exterior lighting as shown on the drawings.

2.8 SOURCE QUALITY CONTROL:

A. Tests: Review mill test certifications of all steel plate, structural components and reinforcement to ensure compliance with specification requirements.

B. Inspections: Provide inspection of shop fabricated components in accordance with AWWA D107, Section 9 "Inspection and Testing" and as specified in Section 01400 and 09870.

C. **One shop inspection trip may be conducted by Engineer, to inspect the fabrication, shop surface preparation and shop painting of the tank. Engineer will invoice Contractor for trip expenses against allowance in Bid Form.**

1. **Expenses to include the cost of all travel, lodging, meals and incidentals incurred during inspection trip**.

2.9 FINISH:

A. Primer: Baked on.

B. Finish: Finish shall be the following:

SYSTEM NO. 1

TYPE OF SURFACE: Metal or Pre-painted Metal (excluding stainless steel, galvanized steel, and aluminum, except when in contact with dissimilar materials or metals)

TYPE OF STRUCTURE: Normal plant conditions such as: Machinery (if not factory coated), pipes, fittings, valves, equipment housing, ducts, pumps, motors, handrails, steel sash, doors, walkways, stairways, windows, structural steel, and metal trim.

EXPOSURE CONDITION: Non-Submerged; exposed inside or outside

SURFACE PREPARATION: All surfaces should be clean, dry, free of oil, rust, loose and scaling paint and foreign material.

PAINTING SYSTEM:

First Coat:	
Tnemec Series 530 Omnithane	2.5 dft mils
Or Tnemec Series 1 – Purple Prime	2.5-3.0 dft mils
Second Coat:	
Tnemec Series N69 Hi-Build Epoxoline II	4.0 dft mils
Total Thickness Tnemec Series =	10.0 mils min.
Final Coat:	
Tnemec Series 1075 Endura-Shield IV (S-G)	3.0 dft mils
Alternate First Coat:	
Sherwin-Williams Corothane I Aluminum B65 S12	2.0-4.0 dft mils
Alternate Second Coat and Finish Coat:	
Sherwin-Williams Hi-Solids Polyurethane B65-200	3.0-5.0 dft mils
Sherwin-Williams Corothane II (Satin) B65-200	3.0-5.0 dft mils
Total Thickness Sherwin-Williams =	10.0 mils dft min.

C. Coat inside of frame profile for those frames set with bituminous coating to a thickness of 1/16 inch in masonry or concrete.

2.10 STEEL TANK PAINTING:

A. Refer to Section 09870 for tank coatings. Galvanized, stainless steel and concrete surface are not coated.

PART 3 EXECUTION

3.1 EXAMINATION:

A. Foundation Excavation: The foundation bearing surface and excavation shall be inspected by a representative of the geotechnical firm that supplied the report for foundation construction.

B. Environmental Conditions: Prior to performing any work, verify the expected temperature, humidity and weather conditions are within the specified limitations for executing the work.

C. Elevated Tank Components: After completion of each major component and prior to proceeding with the next stage of construction, verify that tolerance inspections and material quality control tests conform to the requirements of this Section.

3.2 REINFORCED CONCRETE CONSTRUCTION:

A. Reinforcement: Fabrication, placement, development and splicing of reinforcement shall be in accordance with ACI 318, and ACI 117 and Section 03200 of these Specifications.

B. Formwork: Formwork design, installation and removal shall comply with the minimum requirements of ACI 318, and ACI 117, the applicable requirements of ACI 347, and Section 03100 of these Specifications.

C. Concrete: Concrete proportioning, production, placement, quality control and curing procedures shall comply with ACI 318, and ACI 117 and Section 03300 of these Specifications. Concrete shall satisfy the specific structural, durability and architectural requirements of the completed components.

3.3 CONCRETE SUPPORT STRUCTURE:

A. Concrete Construction: The concrete and formwork requirements of this section shall be strictly enforced to ensure concrete of the highest practicable structural and architectural standards.

Attention shall be given to ensure the same concrete design mix is used throughout the support wall. The proportion, type and source of cement and aggregates shall not be changed. Uniform moisture content and placing consistency shall be maintained.

Placement is crucial to achieving architectural concrete. All wall concrete shall be placed vertically and directly inside the reinforcement cage with drop chutes to prevent form splatter and the resulting surface finish variations. Placement methods that introduce concrete horizontally through wall reinforcement are strictly prohibited. Vertical pour rate shall be a minimum of 15 feet per hour.

The support wall shall be constructed with a form system using form segments prefabricated to match the wall curvature. Concrete pour height shall be a minimum of 6 ft. and a maximum of 10 ft. Form system shall incorporate a positive means of adjustment to maintain dimensional tolerances specified in Paragraph C below. Wall forms shall be adjusted for vertical plumb and circularity. Formwork shall be secured using bolts through the wall prior to concrete placement. Working platforms that allow safe access for inspection and concrete placement shall be provided.

The form system shall incorporate a uniform pattern of vertical and horizontal rustications to provide architectural relief to the exterior wall surface. Rustication strips shall be sealed to the form face to eliminate the grout leakage that results in broken corners, color variations and rock pockets. Broken edges and chambers will not be accepted. All construction joints and panel joints shall be located in rustications. Vertical panel joints shall be sealed using closures which combine with the form pattern to eliminate grout leakage and panel joint lines. All joints shall be grout tight. The vertical and horizontal rustications shall be proportioned and combined to impart a symmetrical architectural pattern to the completed structure. Form ties shall be located in a uniform pattern. No architectural form treatment is required on the interior surface.

Support wall concreting shall incorporate segmented placement procedures. Temporary vertical bulkheads shall divide the wall pour into segments corresponding to a single batch (truckload) of concrete. The bulkheads shall

be located at rustications, braced rigid and tight to maintain vertical alignment under concrete load without grout leakage. Wall segment concrete shall be placed continuously to full form height from a single load. Placement from multiple batches is not permitted. Temporary bulkheads shall not be removed until adjacent concrete is placed. Support wall concreting operations shall occur a maximum of once per day. Multiple form movements and concrete placements within a day are not permitted.

Wall forms shall not be disturbed or removed until the concrete has attained sufficient strength to prevent forming operations or environmental loads from causing surface damage or excessive stress. The minimum concrete strength shall be established by the Contractor, based on an analysis of stress at critical stages throughout the forming and concrete operations. Support wall concreting operations shall occur a maximum of once per day. Multiple form movements and concrete placements within a day are not permitted. Form removal shall be based on early age concrete strength testing. The minimum concrete strength shall be established by the Contractor, based on an analysis of stress at critical stages throughout the forming and concrete operations. Early age concrete testing shall be in accordance with ACI 228.1R-95. Pull out testing in accordance with ASTM C900-99, Maturity Method testing in accordance with ASTM C1074-93, or field cured cylinders compressive strength tested in accordance with ASTM C172 are the acceptable methods to determine early concrete strength.

The formwork system for the domed structural floor shall be designed to support all construction loads. Adequate shoring and bracing shall be provided to transfer loads without appreciable movements. Form surfaces shall be steel, plastic or fiberglass coated material. Shoring and forms for the structural dome slab shall remain in place until the concrete has gained sufficient strength to carry the floor weight without damaging deflections.

B. Finish: Provide a smooth form finish without rub for the interior and exterior support wall. Tie holes shall be plugged using grout on the interior and manufactured plugs on the exterior which match the color of the cured concrete as closely as possible. Provide a light sandblast to the exposed exterior concrete support wall surface.

Provide a smooth form finish without rub for the interior dome slab. The unformed surface shall have a floated finish.

C. Dimensional Tolerances: Support structure concrete construction shall conform to the following:

Variation in thickness:	
wall	-3.0% to +5.0%
dome	-6.0% to +10%
Support wall variation from plumb:	
In any 5 feet of height	3/8 inch
in any 50 feet of height	1-1/2 inch
maximum in total height	3 inches
Support wall diameter variation	0.4%
not to exceed	3 inches

Dome floor radius variation	1.0%
Level alignment variation:	
from specified elevation	1 inch
from horizontal plane	1/2 inch
Offset between adjacent pieces of formwork:	
Exterior exposed surfaces	1/8 inch
Interior exposed surfaces	¼ inch

D. Mock Up Panel:

A mock up panel shall be constructed using the proposed form work, concrete and placement methods. Minimum size will be 4 ft. wide by 6 ft. high. This panel shall be agreed upon by the Contractor and Engineer as the reference standard with which to judge surface quality, appearance and uniformity of texture and color.

Review and acceptance of formed concrete surface must be made immediately upon form removal. Succeeding pours shall not be placed until the most recent wall pour has been stripped and the form surface approved. The Contractor shall be responsible to inform the Engineer as to pour schedule. The Engineer shall not delay the Contractor by lack of attendance. Non-attendance by the Engineer will be understood by the Contractor to mean acceptance of the lift by the Engineer.

Concrete with surface defects exceeding limitations specified herein or not meeting the standard represented by the mock-up panel shall be repaired to meet that standard, or removed. The mock up panel is to be constructed in the same manner as the actual wall.

3.4 STEEL TANK:

A. Welding: Welding procedures and general welding requirements shall be in accordance with AWWA D107, Section 9.5, "Welding".

No structural welding is permitted to any steel embedded in hardened concrete, unless the weld is at least 2 ft. from the embedment interface.

Grinding of weld contour shall approximate Condition "D" of NACE Standard RP0178.

B. Fabrication: Layout, cutting, forming, edge preparation and workmanship for steel tank components and fabrications shall be in accordance with AWWA D107, Section 5.4, "Fabrication and Construction Requirements".

C. Tank Erection: Steel tank erection procedures and general requirements shall be in accordance with AWWA D107, Section 5.4, "Fabrication and Construction Requirements".

D. Tolerances: Steel tank tolerances shall be in accordance with the requirements of API 650, Section 5.5.

Steel cone shall be constructed to the following tolerance. The deviation

from the theoretical conical surface shall not exceed 0.032 √RT, when measured in the radial direction over length 4√RT, where R is the radius normal to the plate surface at the point of consideration, and T is the plate thickness.

E. Grouting: The interface between the steel tank floor plate and the supporting structural concrete dome shall be constructed with a minimum 1 in. void. Subsequent to testing, the void shall be filled with a flowable grout mix.

3.5 FIELD QUALITY CONTROL:

A. The support wall radius, plumb and thickness shall be verified for each concrete lift at 45 degree intervals. An inspection report certified by the tank designer shall be provided to the Owner at project completion.

B. Steel Tank Testing & Inspection: Inspection procedures for the steel tank shall be as required by AWWA D107, Section 9, "Inspection and Testing" and as specified. Radiographic inspection of full penetration butt-welded joints shall be made by an independent inspection company retained by the Contractor.

Erection tolerance of the steel cone in the radial direction shall be measured. Provide field measurements at 30 degree intervals.

Weld joints of plate over the structural concrete floor shall be tested for leaks by vacuum box / soap solution testing, or equivalent method prior to grouting.

C. Field inspection will be performed by the Engineer under provisions of Section 01400.

D. Engineer may request retest and recertification of any welder at any time at the expense of the Contractor. After retest has been requested, and before retest is successfully completed, welder may not perform welding operations.

E. Field Testing: Tank shall be water-tested in accordance with AWWA D107 in the presence of the Engineer prior to final acceptance.

F. Costs for field testing shall be incidental to the tank construction.

3.6 CLEANING:

A. Site: The project site shall be kept in a clean and safe condition at all times. The Contractor shall remove all construction equipment and debris at project completion.

B. Tank Disinfection: Disinfection shall be performed under this contract in accordance with Section 02675 and Section 09870.

END OF SECTION

SECTION 13320

INSTRUMENTATION SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Instrumentation Devices.

B. Control Panels including PLC/HMI.

C. Appendices:

1. Appendix A Control Strategies.

1.2 SUBMITTALS:

A. Product Data: Under provisions of Section 1300:

1. Block Diagram: A diagram showing all major PLC components. Identify components by manufacturer and model number. Include diagram of interconnecting cables.

2. Descriptive Information: Catalog information, descriptive literature, performance specifications, internal wiring diagrams, power and grounding requirements, power consumption, and heat dissipation for all elements specified herein. Clearly mark all options and features proposed for this project.

3. Schematics, wiring diagrams, and other documentation to show details and operation of proposed system.

4. Outline Drawings: Equipment envelope drawings showing: external dimensions, enclosure materials, conduit connections, and installation requirements.

5. Input/Output List: For each I/O point, list the point type, tag number of the source or final control element, equipment description, PLC number, PLC terminal identification, and PLC address.

6. Installation Details: Any modifications or further details as may be required to supplement the Contract Documents and adequately define the installation of the PLC elements.

B. Operation and Maintenance Information, including As-Built Drawings and Schematics. Information to include detailed descriptions of system operations.

C. Vendor Qualifications showing compliance with paragraph 2.2.

D. Instrumentation and control system integrator shall take responsibility for installing and configuring all instrumentation and control-related equipment. Via the SCADA allowance, the City of Midland's SCADA integrator (Signature Automation) shall install all PLC/HMI software and provide all programming and testing of PLC/HMI (RTU-2) after control equipment and instrumentation is installed.

PART 2 PRODUCTS

2.1 STANDARDS:

A. All aspects of Instrumentation and Control System shall comply with the applicable standards of the Instrumentation Society of America.

B. Instrument installations shall comply with manufacturer's written installation instructions and American Petroleum Institute RP550.

2.2 ACCEPTABLE MANUFACTURERS AND VENDORS:

A. Control system integrator shall demonstrate at least five (5) years experience in design, manufacture, and installation of similar instrumentation systems. **NOTE: Control system integrator is not responsible for programming PLC and HMI and related testing. The City of Midland's SCADA Integrator (Signature Automation) shall install all PLC/HMI software and provide programming and testing after equipment is installed via a separate SCADA allowance. Refer to Section 13000 for more detail on the SCADA Integrator responsibilities.**

2.3 SYSTEM DESCRIPTION:

A. PLC Control Panel Cabinet (RTU-2)

1. The PLC control panel cabinet (RTU-2) shall be a NEMA 12 carbon steel enclosure suitable for use inside climate controlled room. The front panel of the cabinet shall contain operator interface and push buttons, as detailed within this specification. The PLC based control panel shall also include an operator interface display mounted on the front of the control panels. The internal portion of the cabinet shall contain all rack mounted PLC equipment, power supply, processor and interface cards. Relays, terminal strips and surge suppressors shall also be contained within the cabinet. Terminal strips for all field wiring shall be furnished within the panel.

2. Circuit breakers shall be provided within the panel. A duplex outlet and fluorescent panel light shall be included within the panel.

3. One surge suppression device on the 120 VAC main supply line shall be installed.

4. On all analog input signals, current isolators shall be installed to galvanically separate external and internal 4-20 mA current loops.

5. All analog inputs and outputs shall also be protected from surges.

6. All digital outputs shall be provided with isolated relay contacts.

B. Devices for Operator Interface

External face mounted devices for operator interface shall be as follows:

1. Push buttons and selector switches shall be SQ-D class 9001 30 mm, Telemecanique XB2 22 mm, or Engineer Approved Equivalent.

2. Color Touchscreen Operator Interface Display (HMI) shall be included and mounted on the front of the enclosure and be rated with same NEMA rating as the control panel. The Display shall allow the operator to view and modify system variables within the PLC. The display shall be a minimum of 12" and be capable of communicating via Ethernet to the PLC located within the cabinet. The unit shall include a real-time clock with battery back-up, color touchscreen. HMI display shall be Schneider Harmony or Engineer Approved Equivalent. Note: The PLC/HMI software shall be supplied separately by the SCADA integrator under the SCADA allowance.

C. PLC-based Control Panel I/O Field Interface Signals

1. All PLC ladder logic shall reside within the PLC based control panel. The PLC ladder logic shall perform all necessary monitoring and control for the new Transfer Pump Station and associated equipment.

2. All necessary I/O cards shall be supplied to monitor and control the field signals. All PLC and I/O racks shall be supplied with 10% spare I/O.

3. All I/O (Analog Inputs, Analog Outputs, Digital Inputs, and Digital Outputs) shall be confirmed for proper operation from the PLC to the terminals within PLC control panel.

D. Control Panel Components

PLC control panel shall consist of the following components:

1. NEMA 12 freestanding control panel
2. PLC CPU Card
3. PLC I/O Racks
4. PLC Field Interface Cards
5. HMI
6. Power Supply
7. Signal Isolators
8. Surge Protectors
9. Circuit Breakers
10. Terminal Strips
11. Miscellaneous Wire and Conduit

E. Programmable Logic Controller (PLC)

1. Programmable Logic Controller with the required memory and functional capacity to perform the specified sequence of operation with the scheduled input and output points.

2. PLC shall be designed for up to 1024 points of I/O. The PLC shall provide enhanced processing and communication options and shall be a chassis mounted modular system.

3. The PLC shall have a variety of processors available. Each processor shall be capable of being programmed via a USB port with a PC. The processor shall have an embedded web-server supplied with pre-developed and installed system diagnostics screens viewable from any commercial web-browser. The processor shall have a USB terminal port, and a multi-protocol serial port capable of Modbus communication. The processor shall accept an SD memory card with sufficient memory for required application and data files.

4. PLC shall support 10/100Mb Modbus TCP Ethernet, ASi V2 Master, Modbus, ASCII, CANopen, and Unitelway without the need for third party modules.

5. The PLC shall have a configurable alarming capability. Each alarm point can be configured to display an alphanumeric message in the alarm buffer. The alarm buffer can be displayed via a web page, or on an operator interface screen.

6. Unterminated connector cables shall be available for interfacing to the discrete and analog cards. These cables shall have one end terminated to HE10 terminal block modules. The other end shall be unterminated to allow custom interface to panel devices.

   Terminated connector cables shall be available for interfacing to the discrete and analog cards. These cables shall have one end terminated to interface to terminal block, or FCN socket, cards. The other end shall be terminated to interface with HE10 terminal block modules.

7. PLC shall be Modicon MD M340 platform or Engineer Approved Equal.

F. The control cabinet shall be provided with a universal power supply (UPS) double conversion online. The UPS shall be sized to provide power to the PLC, HMI, DC power supplies and instruments. All ancillary equipment within the RTU-2 (e.g. lights, power receptacles) shall not be powered from the UPS. The UPS shall provide 15 minutes of backup power at half load. The UPS shall have an internal automatic static bypass switch such that an overload condition shall transfer load to incoming line power. An external maintenance bypass switch shall be installed in order to service the UPS without losing power to the control panel components. The following UPS status/alarms shall be wired to the PLC and transmitted to the plant SCADA system: external maintenance bypass status, static bypass status, common alarm, power failure. The UPS shall be Sola Hevi-Duty, American Power Conversion or equal.

G. INSTRUMENTS:

Provide the instruments listed in the Section 13321, complete and ready and in operation.

PART 3 EXECUTION

3.1 I&C SYSTEM INTEGRATOR RESPONSIBILITY:

Provide cable, instrumentation, interface devices, hardware, and other labor, supervision, and engineering required to provide a complete and workable control system. Conduit and wiring to and from the MCP shall be provided by others; however, it is the responsibility of the of I&C system integrator to terminate all wiring inside the MCP.

System integrator shall provide all inspection/testing of control wiring from the field back to the PLC, I/O signals, control loops, instrument functionality, PLC/HMI functionality, etc. The Operational Readiness Test (ORT) and Functional Demonstration Test (FDT) described in Section 13000 provides more detail on inspection/testing required by the control system integrator, as well as the required coordination between the control system integrator and the SCADA integrator.

3.2 INSTRUMENT INSTALLATION:

Install and connect instruments in accordance with American Petroleum Institute recommended practice 550 and the manufacturer’s directions and recommendations.

3.3 TRAINING:

Provide four (4) hours of onsite training for Owner's personnel in operation and maintenance of the instrumentation and RTU-2 control panel equipment. PLC/HMI software and related control functionality training shall be done separately by the SCADA integrator under the SCADA allowance.

END OF SECTION

SECTION 13320

APPENDIX A

CONTROL STRATEGIES

The following describes the General Control System operational requirements and goals. Contractor shall develop the Control System as required to fulfill the items described in this Section and/or shown.

Control System Overview:

The Midland NE Elevated Storage Tank (EST) level transducer (LE/LIT-01) reading shall be used to control the new Midland NE Transfer Pump Station (TPS) via radio communication with the existing Midland Water Treatment Plant (WTP) SCADA system. The EST inlet and outlet total chlorine analyzer readings (AE-06/AE-07/AIT-04), tank inlet flowmeter reading (FE/FIT-02), door entry switch, and vault flood switches (LSH-04 and LSH-05) shall be monitored remotely at the WTP SCADA system via radio communication. In addition, the EST mixer (MXR-01) shall be monitored and include manual start/stop functionality at the WTP SCADA system via radio communication. The major components of the control system are:

1. Remote Terminal Unit (RTU-2)
2. Human-Machine Interface (HMI-2)
3. Instrumentation

The text discussion that follows is intended to assist the reader in interpreting the contract documents, electrical drawings, and P&IDs. All specifications and drawings are intended to be complimentary to each other and not exclusive. Items shown and described in one place in the documents shall be considered as if shown in all appropriate locations.

1. The EST level transducer (LE/LIT-01) shall be mounted near the bottom of the vertical tank outlet pipe with pipe tap at 5 ft above finished floor of EST base (tap elev. 2858.50). Level transducer shall be scaled from 0.0 ft (99.5 ft of water column) to 52.0 ft (151.5 ft of water column). The EST level reading shall be communicated from LIT-01 to RTU-2 via 4-20mA signal and then transmitted from RTU-2 to the WTP SCADA computer via radio signal.

   An operator adjustable low tank level alarm (LAL 5 ft default setpoint) and high tank level alarm (LAH 50.0 ft default setpoint) shall be programmed at the RTU-2 HMI-2 and transmitted to the WTP SCADA computer.

2. Two (2) total chlorine analyzers shall be installed within the EST base with one analyzer (AE-06) set to receive a water sample from the EST inlet pipe tap and the other analyzer (AE-07) set to receive a water sample from the EST outlet pipe tap. Both chlorine analyzers shall be hard-wired to a single controller (AIT-04) located on common control panel rack that shall communicate inlet and outlet chlorine readings to RTU-2 via two 4-20mA signals. The chlorine readings shall then be transmitted from RTU-2 to the WTP SCADA computer via radio signal.

   An operator adjustable low chlorine concentration alarm (AAL 1 mg/L default setpoint) and high chlorine concentration alarm (AAH 4 mg/L default setpoint) setpoints shall be programmed for each analyzer at the RTU-2 HMI-2 and transmitted to the WTP SCADA computer.

3. EST mixer (MXR-01) shall be installed inside the elevated tank and hard wired to the mixer control panel, which shall be located inside the EST base on the common control panel rack and supplied by the tank manufacturer. The mixer shall be operated automatically via controls incorporated into the mixer control panel with VFD. The control panel includes external HOA switch, Mixer RUN Light, Mixer POWER Light, and Mixer FAULT Light. The mixer control panel shall be connected to the RTU-2 via Modbus RS485 serial port for communication of remote manual Start/Stop output, Mixer RUN status input, Mixer READY status input, Mixer/VFD FAULT status input, and Mixer SPEED INDICATION input. HOA switch position input shall be communicated to RTU-2 via dry contact discrete signal. HOA switch position, Mixer RUN status, Mixer READY status, Mixer FAULT status, Mixer SPEED INDICATION, and remote manual START/STOP signals shall be transmitted from RTU-2 to the WTP SCADA computer vial radio signal. The operator shall be able to manually START/STOP MXR-01 from the RTU-2 HMI-2 and the WTP SCADA computer.

4. A magnetic flowmeter (FE-02) shall be installed in the flowmeter vault near the EST. The flowmeter shall be scaled from 0.4 – 11 MGD or 270 – 7,640 gpm as selected by OWNER. The flowmeter shall be wired to a flow indicating transmitter (FIT-02) located inside of EST base on common control panel rack that shall communicate flow reading to RTU-2 via a 4-20mA signal. The flow reading shall then be transmitted from RTU-2 to WTP SCADA via radio signal.

   An operator adjustable low flowrate alarm (0.5 MGD or 350 gpm default setpoint) and high flowrate alarm (10 MGD or 6,950 gpm default setpoint) shall be programmed at the RTU-2 HMI-2 and transmitted to the WTP SCADA computer. The low flow rate alarm shall only be active when one or more of the TPS pumps are in operation and low flowrate alarm time delays shall be established for TPS pump start and stop.

5. Both the flowmeter vault and the future chemical injection vault shall include a float switch (LSH-04 for flowmeter vault and LSH-05 for future static mixer vault) to alarm a flooded vault condition. Each float switch shall be wired to send a dry contact discrete signal to RTU-2. Further, the flooded vault alarm conditions shall be transmitted from RTU-2 to the WTP SCADA computer via radio signal.

SECTION 13321

MONITORING AND SENSING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Instrumentation at elevated storage tank.

1.2 RELATED SECTIONS:

A. Division 16 – Electrical

1.3 SUBMITTALS:

A. In accordance with Section 01300, submit complete descriptive literature for each component.

PART 2 PRODUCTS

2.1 MAGNETIC FLOW METERS:

A. Acceptable manufacturers:

1. ABB WaterMaster Mag Meter.
2. Endress-Hauser Mag Meter.
3. McCrometer ULTRAMAG UM-06 with Signal Converter.
4. Or Engineer Approved Equal.

B. Design and fabrication:

1. Meter shall be a velocity sensing electromagnetic type flanged tube meter with sealed housing for 150 PSI working pressure.

2. Meter Tube: 24-inch with AWWA Class D steel flanges rated for 150 psig. Tube shall be 316 SS and lined with NSF 61 approved fusion bonded epoxy. Electrodes shall be constructed of 316 SS.

3. Meter shall include a digital indicating transmitter having a range of 0.4 to 11 MGD (or 270 – 7,640 gpm) and be equipped with a 9-digit digital totalizer reading in units of MG.

4. Mag Shield shall be welded to the tube providing a completely sealed environment for all coils, electrode connections and wiring harness capable of NEMA 6P/IP68 operation.

5. The meter assembly shall operate within a range of 0.2 FPS to 5.7 ft/s.

6. Operating pressure:

a. Maximum of 150 psi.

7. Process temperature range: 35°F to 100°F. Ambient temperature range: 10°F to 120°F

8. Grounding requirements: 316 SS grounding rings shall be supplied with meter tube.

9. Accuracy:

a. Accuracy: ±0.5% of actual flow.
b. Repeatability: ±0.1%.

10. 4-20 mA DC isolated output, suitable for proportional output of flow measurement to PLC/SCADA system.

11. Power supply 100-240VAC/60 Hz or 10 -35VDC.

12. Magmeter shall be installed in meter vault with transmitter in sealed IP67 rated enclosure attached to wall inside of elevated storage tank pedestal. Sensor cable shall be adequate for distance from sensor to transmitter.

13. Transmitter electronics shall use microprocessor-based architecture and be configured using parameters. Device shall include four separate digital programmable outputs.

14. Provide configuration / diagnostic tool.

Schedule of Flow Transmitters		
TAG NUMBER	SERVICE	SPAN
FE/FIT-02	Fill Line to EST (Potable Water)	0.4 – 11 MGD (270 – 7,640 gpm)

2.2 PRESSURE GAUGES:

A. Acceptable manufacturers:

1. Ashcroft.
2. Ametek.
3. Rosemount.

B. Materials:

1. Bourdon tube, socket/process connection, connecting tube: 316 stainless steel.

2. Case: Phenolic.

3. Pressure snubber:

a. Filter disc: 316 stainless steel.
b. Housing: 316 stainless steel.

C. Accessories:

1. Utilize pressure snubbers with porous metal discs to provide pulsation dampening on gauge applications as shown on schedule.

D. Design and fabrication:

1. All components suitable for service at:

a. 250 Deg F.
b. The maximum process temperature to which the gauge is to be exposed.

2. Provide viewer protection from element rupture.

3. Calibrate gauges at jobsite for pressure and temperature in accordance with manufacturer's instructions.

4. Unless otherwise required by codes, provide stem mounted or flush mounted, as required, and as follows:

Tag Number	DIAL SIZE	PROCESS CONNECTION	SERVICE	OPERATING RANGE
PG-08	4-1/2 IN	½" MNPT	EST Outlet Pipe (Potable Water)	0 - 155 ft H2O

5. Equip with white faces, black numerals and black pointers.

6. Gauge tapping position to be clear of equipment functions and movements, and protected from maintenance and operation of equipment. Gauge to be readable from an accessible standing position.

7. Gauge accuracy: 1 percent of full range.

8. Select gauge range so that:

a. The normal operating value is in the middle third of the dial.
b. Maximum operating pressure does not exceed 75 percent of the full-scale range.

9. Provide pressure gauge at outlet standpipe from elevated storage tank as shown on drawings.

2.3 LEVEL INDICATING TRANSMITTERS:

A. Acceptable manufacturers:

1. Endress & Hauser Cerabar S PMP71
2. Or Engineer Approved Equal

B. Materials:

1. Isolating diaphragm: 316 stainless steel.
2. Process adapter: 316 stainless steel ½" MNPT.
3. Housing: Aluminum.
4. Fill fluid: Silicone

C. Design and fabrication:

1. 2-wire, piezoresistive level transmitter with integrally mounted 4-line LCD scaled in units of feet (converted from psig).

2. Level transmitter shall be capable of handling surge pressures of 400 psig without damage to the instrument.

3. Smart transmitter utilizing microprocessor-based electronics and self-diagnostic capability. The transmitter shall be programmable via Hall magnetic switch external pushbuttons without pressure source or hand-held device.

4. Output: 4-20 mA DC proportional to level measurement with HART protocol.

5. Unit shall use DC loop-power supply 10.5 to 45 VDC with self-diagnostic capability and a non-volatile memory.

6. Adjustable zero and span.

7. The unit shall be rated for process temperature inclusive of 35°F to 100°F and an ambient environment of 10 degrees F to 120 degrees F.

8. Damping: Adjustable between 0 and 60 seconds.

9. Reference accuracy shall be +/- 0.05% of calibrated span including non-linearity hysteresis and non-reproducibility in accordance with IEC 60770. Total performance accuracy including non-linearity hysteresis and non-reproducibility in addition to thermal change of the zero point shall be +/- 0.2% URL.

Schedule of Level Transmitters for Water Service (LE/LIT)

TAG NUMBER	SERVICE	WATER COLUMN RANGE / INSTRUMENT SCALE
LE/LIT-01	EST Outlet Pipe (Potable Water)	99.5 – 151.5 ft / 0.0 – 52.0 ft

2.4 CHLORINE RESIDUAL SENSORS AND TRANSMITTERS:

A. Acceptable manufacturers:

1. Total and residual chlorine analyzer:

a. Hach CL17SC

B. Design and fabrication:

1. Method of measurement shall be colorimetric employing the DPD method. Analyzer shall operate with an LED light source at a peak wavelength of 510 nm.

2. Analyzer shall include pump, colorimetric measuring cell with viewing window, flow meter and total chlorine buffer/indicator solutions.

3. Analyzer housing shall be NEMA 4X (IP66) with gasketed door and include wall mount kit.

4. Capable of measurement every 2.5 minutes that is displayed on Hach SC200 controller.

5. Shall operate on 115 VAC power.

6. The analyzer must perform a self-test and auto-blanking between analysis points to compensate for sample color, turbidity, and changes in light intensity due to voltage fluctuations or light source aging.

7. Analyzer controller shall be a Hach SC200 and have two (2) standard isolated analog outputs, selectable as 0/4 to 20mA, field programmable over any portion of the analyzer range. The analyzer shall have four standard SPDT relay alarms, with contacts. Alarm options include low and high setpoint, low and high dead band, and on/off delay. **One (1) controller shall be shared for two (2) total chlorine analyzers.**

8. Include 6-months of buffer and indicator solutions. Each replacement set of solutions shall provide a minimum of 30 days of operation.

9. Analyzer shall include installation kit, tubing kit, cell cleaning kit, calibration verification kit, and any other accessories for a fully functional system.

Schedule of Chlorine Analyzers

TAG NUMBER	SERVICE	SPAN	TYPE
AE-06 and 07/ AIT-04	EST Inlet and Outlet (Potable Water)	0-10 PPM	Total chlorine

2.5 FLOAT SWITCHES:

A. Acceptable manufacturers:

1. High level float switches:

a. Anchor Scientific, Eco-Float Model G

B. Design and fabrication:

1. The float switch shall be mercury-free for controlling liquid levels.

2. Device shall be a snap-action float switch, activated by a steel ball rolling back and forth within a switching tube in a polypropylene 3" diameter x 4.25" long plastic float housing.

3. Minimum differential between "on" and "off" of approximately 3.5 inches.

4. Switch shall be attached to a stainless-steel sump pump discharge pipe at each vault.

5. Electrical rating 7A @ 115VAC.

6. Cable length shall be as required for application.

7. Circuit configuration shall be normally open (NO).

TAG NUMBER	SERVICE
LSH – 04, and 05	Vault Flood Indication

2.6 PIPE, TUBING, AND FITTINGS:

A. Acceptable Manufacturers:

1. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

a. Tube fittings:

i Parker CPI.
ii Swagelok.

B. Submit requests for substitution in accordance with Specification Section 01640.

C. Instrument Tubing and Fittings:

1. Material:

a. Tubing: ASTM A269, Grade TP 316 stainless steel.

b. Straight fittings: 316 stainless steel per ASME SA-479 or ASTM A276.

c. Shaped bodies: ASME SA-182 F316 stainless steel.

2. Design and fabrication:

a. Tubing:

i Seamless.
ii Fully annealed.
iii Maximum hardness: 80 Rb.
iv Free from surface scratches and imperfections.
v Diameter: 1/2 IN OD unless specified otherwise.
vi Wall thickness:

- Meet requirements of paragraph 122.3 of ASME B31.1.
- Minimum 0.049 IN for 1/2 IN OD tubing.

b. Fittings:

i Flareless.
ii Compression type.

D. Instrument Piping:

1. For applications where the instrument is supported solely by the sensing line, (e.g. pressure gauge directly mounted to process line) utilize piping as specified below.

a. Diameter: 1/2 IN unless specified otherwise.
b. Schedule 80.
c. 316 stainless steel.

2.7 ACCESSORIES:

A. Furnish all mounting brackets, hardware and appurtenances required for mounting primary elements and transmitters.

1. Materials, unless otherwise specified, shall be as follows:

a. Bolts, nuts, washers, expansion anchors: 316 stainless steel.
b. Mounting brackets:

i Standard: 316 stainless steel.
ii Highly corrosive areas: Aluminum.

c. Mounting plates, angles:

i Standard: Carbon steel.
ii Corrosive areas: 316 Stainless steel.

d. Instrument pipe stands:

i Standard: Hot-dipped galvanized 2 IN schedule 40, ASTM A106, Grade B carbon steel.
ii Corrosive areas: 316 stainless steel.

B. Tubing Support Angles and Brackets

1. Any of the following materials are acceptable:

a. Aluminum support with dielectric material between support and tubing.
b. Type 316 stainless steel.
c. Fiberglass.

C. Tubing Tray or Channel: Aluminum

1. Provide dielectric material between tray or channel and tubing.

D. Provide handheld communicator compatible with all intelligent transmitters furnished. Hand-held communicator shall provide capability to check calibration, change transmitter range, and provide diagnostics. If these features are provided with the intelligent transmitter, the hand-held communicator is not required.

E. Cable lengths between sensors and transmitters shall be continuous (without splices) and as required to accommodate locations as shown on Drawings.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install products in accordance with manufacturer's instructions.

B. Install instrument mounting pipe stands level and plumb.

C. Instrument Valves:

1. Orient stems for proper operation.

2. Install arrays orderly and neat in appearance with true horizontal and vertical lines.

3. Provide a minimum of 2 IN clearance between valve handle turning radii where there are multiple valve handles appearing in a straight line.

4. Valves shall have bonnets and any soft seals removed during welding or soldering into the line. When cool, reassemble the valves.

5. Support each valve individually. The tubing system does not qualify as support for the valve.

D. Locate instrument piping and tubing so as to be free of vibration and interference with other piping, conduit, or equipment.

E. Keep foreign matter out of the system.

F. Remove all oil on piping and tubing with solvent before piping and tubing installation.

G. Plug all open ends and connections to keep out contaminants.

H. Tubing Installation:

1. General:

a. Install such that tube shows no sign of crumpling, bends of too short a radius, or flattening, etc.

b. Make tube runs straight and parallel or perpendicular to the floor, equipment and piping runs.

c. For liquid and steam applications, slope continuously from the process to the instrument with a minimum slope of 0.50 IN per foot.

d. For gas and air applications, slope continuously from the instrument to the process with a minimum slope of 0.50 IN per foot.

e. If the sensing line cannot be continuously sloped, install high point vents and low point drains.

f. Keep instrument tubing clean during all phases of work.

g. Blow out with clean, dry, oil-free air immediately before final assembly.

h. Cut by sawing only and debur.

2. Bending:

a. Make each bend with tube bender of the correct size for the tube.

b. Make all bends smooth and continuous.

c. Rebending is not permitted.

d. Make bends true to angle and radius.

e. Maintain a true circular cross section of tubing without buckling or undue stretch of tube wall.

f. Allowable tolerance for flattening out of tubing bends: Maximum of 8 percent of the OD for stainless steel tubing.

g. Minimum bending radius for stainless steel tubing:

TUBE OD INCHES	MINIMUM BENDING RADIUS, INCHES
1/4	9/16
3/8	15/16
1/2	1-1/2

h. Minimum bending radius for type L, hard (drawn) copper.

TUBE OD INCHES	MINIMUM BENDING
3/8	1-3/4
1/2	2-1/2

3. Tubing support:

a. Intermittently support by clamping to support angle.

b. Install supports to be self-draining, supported by hangers, or cantilevered from walls or structural beams.

c. Support at 5 FT-0 IN maximum spans for horizontal or vertical runs.

d. Use tubing trays in areas where spans between supports are greater than 5 FT and for all signal tubing support.

e. Support each tubing tray at 10 FT maximum spans.

f. Align tubing in orderly rows and retain in the tray by bolted clips. The use of spring or speed clips is not acceptable.

g. Maintain order of the tubing throughout the length of the tray.

h. Locate angle, channel and tray installation to protect tubing from spills and mechanical damage.

i. Locate support members to clear all piping, conduit, equipment, hatchways, monorails, and personnel access ways and allow access for equipment operation and maintenance.

j. Support trays to prevent torsion, sway or sag.

k. Permanently attach supports to building steel or other permanent structural members.

l. Arrange supports and trays so that they do not become a trough or trap.

4. Routing and orientation:

a. Route to maintain a minimum headroom clearance of 8 FT.

b. Locate and orient valves and specialties so that they are accessible for operation and maintenance from the operating floor. Do not route through or over equipment removal areas, below monorails or cranes nor above or below hatches.

5. Expansion and vibration provisions:

a. Provide horizontal expansion loops at the process connections.

b. Route tubing parallel to relative motion through sleeved supports that allow linear tube movement.

c. Cold springing of tubing to compensate for thermal expansion is prohibited.

d. Utilize flexible hoses to connect pneumatic tubing to air users which may move or vibrate.

I. Threaded Connection Seals:

1. Use Tite-Seal or acceptable alternate.
2. Use of lead base pipe dope or Teflon tape is not acceptable.
3. Do not apply Tite-Seal to tubing threads of compression fittings.

J. Capillary Tubing:

1. Route capillary tubing in tubing tray.

2. Install capillary tubing with a 2 IN minimum bend radius which does not kink or pinch the capillaries.

3. Do not cut or disconnect at any point.

4. Coil excess capillary tubing and secure at the instrument.

K. Instrument Mounting:

1. Mount all instruments where they will be accessible from fixed ladders, platforms, or grade.

2. Mount all local indicating instruments with face forward toward the normal operating area, within reading distance, and in the line of sight.

3. Mount instruments level, plumb, and support rigidly.

4. Mount to provide:

   a. Protection from heat, shock, and vibrations.
   b. Accessibility for maintenance.
   c. Freedom from interference with piping, conduit and equipment.

3.2 DEVICE OPERATION:

Demonstrate device operation and calibration in conjunction with overall instrumentation system testing, checkout, and operator training.

END OF SECTION

SECTION 15000

GENERAL PROVISIONS FOR MECHANICAL

PART 1 GENERAL

1.1 CHECKING DOCUMENTS:

A. The drawings and the specification are numbered consecutively. The contractor shall check the drawings and specifications thoroughly and shall notify the Engineer of any discrepancies or omissions of sheets or pages. Upon notification, the Engineer will promptly provide the Contractor with any missing portions of the drawings or specifications. Discrepancies or omissions of sheets or pages of the contract documents will not relieve the Contractor of his duty to provide all work required by the complete contract documents.

1.2 GENERAL:

A. In general, the lines and ducts and units to be installed by the various trades under these specifications shall be run as indicated, as specified herein, as required by particular conditions at the site, and as required to conform to the generally accepted standards as to complete the work in a neat and satisfactorily workable manner. The following is a general outline concerning the running of various lines and ducts and is to be excepted where the drawings or conditions at the building necessitate deviating from these standards.

B. All piping and ductwork for the mechanical trades shall be concealed in chases in finished areas, except as indicated on the drawings. Horizontal lines run in areas that have ceilings shall be run concealed in those ceilings, unless otherwise specifically indicated or directed.

C. Piping and ductwork may be run exposed in machinery and equipment spaces, where serving as connections to motors and equipment items in finished rooms where exposed connections are required, and elsewhere as indicated on the drawings or required.

D. The Contractor shall thoroughly acquaint himself with the details of the construction and finishes before submitting his bid, as no allowances will be made because of the Contractor's unfamiliarity with these details. Place all inserts in masonry walls while they are under construction. All concealed lines shall be installed as required by the pace of the general construction to precede that general construction.

E. The mechanical and electrical plans do not give exact locations, etc., and do not show all the offsets, control lines, pilot lines and other installation details, The Contractor shall carefully lay out his work at the site to conform to the Engineering and structural conditions, to provide proper grading of lines, to avoid all obstruction, to conform to details of installation supplied by the manufacturers of the equipment to be installed, and thereby to provide an integrated, satisfactorily operating installation.

F. The mechanical plans do not give exact location of outlets, fixtures, equipment items, etc. The exact location of each item shall be determined by reference to the general plans and to all detail drawings, equipment drawings, roughing-in drawings, etc., by measurements at the building, and in cooperation with other sections. Minor relocations necessitated by the conditions at the site or as directed by the Engineer shall be made without any additional cost to the Owner.

G. The Contractor shall be responsible for the proper fitting of his material and apparatus into the space. Should the particular equipment which any bidder proposes to install require other space conditions than those indicated on the drawings, he shall arrange for such space with the Engineer before submitting his bid. Should changes become necessary on account of failure to comply with this clause, the Contractor shall make such necessary changes at his (the Contractor's) own expense.

H. The Contractor shall submit working scale drawings of all his apparatus and equipment which in any way varies from these specifications and plans, which shall be checked by the Engineer before the work is started, and interferences with the structural conditions shall be corrected by the Contractor before the work proceeds.

I. Order of precedence shall be observed in laying out the pipe, ductwork, material in order to fit the material into the space above the ceiling and in the chases and walls. The following order shall govern:

1. Items affecting the visual appearance of the inside of the building such as lighting fixtures, diffusers, grilles, outlets, panelboards, etc. Coordinate all items to avoid conflicts at the site.

2. Large ducts and pipes with critical clearances.

3. Water lines, and other lines whose routing is not critical and whose function would not be impaired by bends and offsets.

J. Piping and ducts serving outlets on items of equipment shall be run in the most appropriate manner. Where the equipment has built-in chases, the lines shall be contained therein. Where the equipment is of the open type, the lines shall be run as close as possible to the underside of the top and in a neat and inconspicuous manner.

K. Exceptions and inconsistencies in plans and specifications shall be brought to the Engineer's attention before the contract is signed. Otherwise, the Contractor shall be responsible for any and all changes and additions that may be necessary to accommodate his particular apparatus, material or equipment.

L. The Contractor shall distinctly understand that the work described herein and shown on the accompanying drawings shall result in a finished and working job, and any item required to accomplish this intent shall be included whether specifically mentioned or not.

M. Each bidder shall examine the plans and specifications for the General Construction. If these documents show any item requiring work under Division 15 and that work is not indicated on the respective "M" or "P" drawings, he shall notify the Engineer in sufficient time to clarify before bidding. If no notification so received, the Contractor is assumed to require no clarification, and shall install the work as indicated on the General Plans in accordance with the specifications.

1.3 DIMENSIONS:

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings. Any difference which may be found shall be submitted to the Engineer for consideration before proceeding with the work.

1.4 MOTORS:

A. All motors furnished under any of the several sections of these specifications shall be of recognized manufacturers of adequate capacity for the loads involved and wound for the current characteristics shown on the electrical drawings. All motors shall conform to the standards of the manufacture and performance of the National Electrical Manufacturer's Association. They further shall be listed by Underwriters Laboratories.

1.5 MANUFACTURER'S DIRECTION:

A. All manufactured articles shall be applied, installed and handled as recommended by the manufacturer.

1.6 MATERIALS AND WORKMANSHIP:

A. All materials shall be new unless otherwise specified and of the quality specified. Materials shall be free from defects. All materials of a type for which the Underwriters Laboratories have established a standard shall be listed by the Underwriters Laboratories and shall bear their label.

B. Wherever the make of material or apparatus required is not definitely specified, the Contractor shall submit a sample to the Engineer before proceeding.

C. The Engineer reserves the right to call for samples for any item of material offered in substitution, together with a sample of the specified material, when, in the Engineer's opinion, the quality of the material and/or the appearance is involved and it is deemed that an evaluation of the two materials may be better made by visual inspection. This shall be limited to plumbing brass, grilles, registers, ceilings outlets and similar items an shall not be applicable to major manufacturers' items of equipment.

D. The Contractor shall be responsible for transportation of his materials to and on the job, and shall be responsible for the storage and protection of these materials and work until the final acceptance of the job.

E. The Contractor shall furnish all necessary scaffolding, tackle, tools and appurtenances of all kinds, and all labor required for the safe and expeditious execution of his contract.

F. The workmanship shall in all respects be of the highest grade and all construction shall be done according to the best practice of the trade.

1.7 SUBSTITUTION OF MATERIAL:

A. See Section 01600.

B. Where a definite material or only one manufacturer's name is mentioned in these specifications, it has been done in order to establish a standard. The product of the particular manufacturer mentioned is of satisfactory construction and any substitution must be of quality equal to or exceeding the named article. No substitution shall be made without review by the Engineer, who will be the sole judge of equality.

C. The Contractor shall submit for approval a complete list of the materials he proposes to use. This list shall give manufacturers' names and designations corresponding to each and every item and the submission shall be accompanied by complete descriptive literature and/or any supplementary data, drawings, etc., necessary to give full and complete details.

D. Should a substitution be acceptable under the provisions of the conditions of these specifications, and should this substitute prove to be defective or otherwise unsatisfactory for the service for which it is intended within the guarantee period, the Contractor who originally requested the substitution shall replace the substitute material with the specified material.

1.8 SHOP DRAWINGS:

A. See Section 01300.

B. Wherever shop drawings are called for in these specifications, they shall be furnished by the Contractor for the work involved after review by the Engineer as to the make and type of material and in sufficient time so that no delay or changes will be caused. This is done in order to facilitate progress on the job and failure on the part of the Contractor to comply shall render him liable to stand the expense of any and all delays, changes in construction, etc., occasioned by his failure to provide the necessary details. Also, if the Contractor fails to comply with this provision, the Engineer reserves the right to deal directly with the manufacturer he selects and secure any details he might deem necessary. Should there be any charges in connection with this, they shall be borne by the Contractor.

C. Shop drawings will be reviewed by the Engineer for general compliance with the design concept of the project and general with the information given in the contract documents. Review by the Engineer and any action by the Engineer in marking shop drawings is subject to the requirements of the entire contract documents. The Contractor will be held responsible for quantities, dimensions which shall be confirmed and correlated at the job site, fabrication processes,

and techniques of construction, coordination of all trades, and the satisfactory performances of his work.

D. Shop drawings submitted shall not consist of manufacturers' catalogues or tear sheets that contain no indication of the exact item offered. Rather, the submission of individual items shall designate the exact item offered and shall clearly identify the item with the project.

E. All shop drawings shall be submitted at one time and shall consist of a bound catalogue of all shop drawings under each section properly indexed and certified that the Contractor has checked them.

F. The omission of any material from the shop drawings which has been shown on the contract drawings or specified, even though reviewed by the Engineer, shall not relieve the Contractor from furnishing and erecting same.

1.9 LAWS, CODES AND ORDINANCES:

A. All work shall be executed in strict accordance with all local, state and national codes, ordinances and regulations governing the particular class of work involved, as interpreted by the inspecting authority. The Contractor shall be responsible for the final execution of the work under this heading to suit those requirements. Where these specifications and the accompanying drawings conflict with these requirements, the Contractor shall report the matter to the Engineer, shall prepare any supplemental drawings required illustrating how the work may be installed so as to comply and, on approval, make the changes at no cost to the Owner. On completion of the various portions of the work the installation shall be tested by the constituted authorities, approved and, on completion of the work, the Contractor shall obtain and deliver to the Owner a final certificate of acceptance.

1.10 TERMINOLOGY:

A. Wherever the words "furnish, "provide", "furnish and install", "provide and install", and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalogue number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" conveys a mandatory condition to the contract.

D. "This section" always refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. "Concealed" areas are those areas which cannot be seen by the building occupants from the floor with all building components in place. "Exposed" areas are all areas which are exposed to view by the building occupants,

including mechanical rooms.

G. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

1.11 PAINTING:

A. All painting shall be done by the Contractor under Division 9. Following is a general outline of the required painting of Mechanical work under Divisions 15.

1. When the factory finish on any apparatus or equipment is marred, it shall be touched up and then given one coat of half flat half enamel, followed by a coat of machinery enamel of a color to match the original. Paint factory primed surfaces.

2. Paint all exposed pipe, hangers and supports.

3. Paint all insulated surfaces exposed to view, including piping, equipment, etc. Sand surfaces until a smooth, non-grainy surface is obtained.

1.12 ROUGH-IN AND FINAL CONNECTIONS FOR EQUIPMENT:

A. The shop drawings for all equipment are hereby made a part of these specifications. The Contractor under each section of the specification shall rough-in for the specifications or by the owner. The Contractor shall refer to all drawings and other sections of the specifications for the scope of work involved for the new required equipment connections for the Owner furnished equipment.

B. Should any of the equipment furnished require connections of a nature different from that shown on the drawings, report the matter to the Engineer and finally connect as directed by the Engineer.

C. Should any shop drawings not be available for equipment furnished under other contracts or by the Owner, the Contractor under each section of these specifications shall bid the work as detailed on the drawings.

D. Minor differences in the equipment furnished and that indicated on the drawings will not constitute grounds for additional payment to the Contractor.

1.13 PIPE IDENTIFICATION:

A. The Contractor shall mark all accessible piping systems.

1.14 IDENTIFICATION AND LABELING:

A. The Contractor shall make it possible for the personnel operating and maintaining the equipment and systems in this project to readily identify the various pieces of equipment, valves, piping, etc., by marking them. All items of equipment such as fans, pumps, etc., shall be clearly marked. The item of

equipment shall indicate the same number as shown on the drawings. For example, pumps shall be identified as P-1, P-2, P-3, etc.; exhaust fans will be EF-1, EF-2, EF-3, etc.; Fan Coil Units will be FC-1, FC-2, etc.

1.15 OPERATING MANUALS:

A. Prepare and submit 3 copies of the operating manuals bound in hard covered three ring binders three weeks prior to completion of the work. The Engineer will check the manuals and any additional material necessary to complete the manuals shall be furnished and inserted by the Contractor.

B. Manuals shall contain the following data:

1. Catalogue data of all equipment.
2. Shop drawings of all equipment.
3. Wiring diagrams.
4. Recommended maintenance schedule for equipment.
5. Parts list for all items.
6. Name and address of each vendor.

1.16 GUARANTEE:

A. Unless a longer guarantee is hereinafter called for, all work, material and equipment items shall be guaranteed for a period of one year after acceptance by the Owner. All defects in labor and materials occurring during this period, as determined by the Engineer, shall be repaired and/or replaced to the complete satisfaction of the Owner. Guarantee shall be in writing and in triplicate.

1.17 COMPLETION REQUIREMENTS:

A. Before acceptance and final payment the Contractor under each Division of the specifications shall furnish the following:

1. Accurate record drawings, shown in red ink on blue line prints, furnished for that purpose, all changes from the original plans made during installation of the work. Drawings shall be filed with the Engineer when the work is completed.

2. All manufacturers' operating manuals.

3. All operating manuals.

4. Guarantee.

5. Test and Balance Report.

END OF SECTION

SECTION 15050

BASIC MECHANICAL MATERIALS

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and the Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

A. This Section includes the following basic mechanical materials and methods to complement other Division 15 Sections.

1. Piping materials and installation instructions common to most piping systems.
2. Concrete equipment base construction requirements.
3. Equipment nameplate data requirements.
4. Labeling and identifying mechanical systems and equipment is specified in Division 15 Section "Mechanical Identification."
5. Nonshrink grout for equipment installations.
6. Field-fabricated metal and wood equipment supports.
7. Installation requirements common to equipment specification Sections.
8. Mechanical demolition.
9. Cutting and patching.
10. Touchup painting and finishing.

B. Pipe and pipe fitting materials are specified in piping system Sections.

1.3 DEFINITIONS:

A. Pipe, pipe fittings, and piping include tube, tube fittings, and tubing.

B. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below the roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.

C. Exposed Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

D. Exposed Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

E. Concealed Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

F. Concealed Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants, but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.4 SUBMITTALS:

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product data for following piping specialties:

1. Mechanical sleeve seals.
2. Identification materials and devices.

C. Samples of color, lettering style, and other graphic representation required for each identification material and device.

D. Shop drawings detailing fabrication and installation for metal and wood supports and anchorage for mechanical materials and equipment.

E. Coordination drawings for access panel and door locations.

F. Prepare coordination drawings according to Division 1 Section "Submittals" to a 1/4 inch equals 1 foot (1:48) scale or larger. Detail major elements, components, and systems of mechanical equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Show where sequence and coordination of installations are important to the efficient flow of the Work. Include the following:

1. Proposed locations of piping, ductwork, equipment, and materials. Include the following:

a. Planned piping layout, including valve and specialty locations and valve stem movement.

b. Planned duct systems layout, including elbow radii and duct accessories.

c. Clearances for installing and maintaining insulation.

d. Clearances for servicing and maintaining equipment, including space for equipment disassembly required for periodic maintenance.

e. Equipment service connections and support details.

f. Exterior wall and foundation penetrations.

g. Fire-rated wall and floor penetrations.

h. Sizes and location of required concrete pads and bases.

2. Scheduling, sequencing, movement, and positioning of large equipment into the building during construction.

3. Floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

4. Reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communication systems components, sprinklers, and other ceiling-mounted items.

G. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

1.5 QUALITY ASSURANCE:

A. Qualify welding processes and operators for structural steel according to AWS D1.1 "Structural Welding Code--Steel."

B. Qualify welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."

1. Comply with provisions of ASME B31 Series "Code for Pressure Piping."

2. Certify that each welder has passed AWS qualification tests for the welding processes involved and that certification is current.

C. ASME A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

D. Equipment Selection: Equipment of greater or larger power, dimensions, capacities, and ratings may be furnished provided such proposed equipment is approved in writing and connecting mechanical and electrical services, circuit breakers, conduit, motors, bases, and equipment spaces are increased. No additional costs will be approved for these increases, if larger equipment is approved. If minimum energy ratings or efficiencies of the equipment are specified, the equipment must meet the design requirements and commissioning requirements.

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Deliver pipes and tubes with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and prevent entrance of dirt, debris, and moisture.

B. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. When stored inside, do not exceed structural capacity of the floor.

C. Protect flanges, fittings, and piping specialties from moisture and dirt.

D. Protect stored plastic pipes from direct sunlight. Support to prevent sagging and bending.

1.7 SEQUENCING AND SCHEDULING:

A. Coordinate mechanical equipment installation with other building components.

B. Arrange for chases, slots, and openings in building structure during progress of construction to allow for mechanical installations.

C. Coordinate the installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

D. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.

E. Coordinate connection of electrical services.

F. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.

G. Coordinate requirements for access panels and doors where mechanical items requiring access are concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "Access Doors."

H. Coordinate installation of identifying devices after completing covering and painting where devices are applied to surfaces. Install identifying devices prior to installing acoustical ceilings and similar concealment.

PART 2 PRODUCTS

2.1 PIPE AND PIPE FITTINGS:

A. Refer to individual piping system specification Sections for pipe and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS:

A. Refer to individual piping system specification Sections in Division 15 for special joining materials not listed below.

B. Pipe Flange Gasket Materials: Suitable for the chemical and thermal conditions of the piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3-mm) maximum thickness, except where thickness or specific material is indicated.

    a. Full-Face Type: For flat-face, Class 125 cast-iron and cast-bronze flanges.

    b. Narrow-Face Type: For raised-face, Class 250 cast-iron and steel flanges.

2. ASME B16.20 for grooved, ring-joint, steel flanges.

3. AWWA C110, rubber, flat face, 1/8 inch (3 mm) thick, except where other thickness is indicated; and full-face or ring type, except where type is indicated.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, except where other material is indicated.

D. Plastic Pipe Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer, except where other type or material is indicated.

E. Solder Filler Metal: ASTM B 32.

1. Alloy Sn95 or Alloy Sn94: Tin (approximately 95 percent) and silver (approximately 5 percent), having 0.10 percent lead content.

2. Alloy Sn50: Tin (50 percent) and lead (50 percent).

3. Alloy E: Tin (approximately 95 percent) and copper (approximately 5 percent), having 0.10 percent maximum lead content.

4. Alloy HA: Tin-antimony-silver-copper-zinc, having 0.10 percent maximum lead content.

5. Alloy HB: Tin-antimony-silver-copper-nickel, having 0.10 percent maximum lead content.

6. Alloy Sb5: Tin (95 percent) and antimony (5 percent), having 0.20 percent maximum lead content.

F. Brazing Filler Metals: AWS A5.8.

1. BCuP Series: Copper-phosphorus alloys.
2. BAg1: Silver alloy.

G. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

H. Solvent Cements: Manufacturer's standard solvents complying with the following:

1. Acrylonitrile-Butadiene-Styrene (ABS): ASTM D 2235.
2. Chlorinated Poly(Vinyl Chloride) (CPVC): ASTM F 493.
3. Poly(Vinyl Chloride) (PVC): ASTM D 2564.
4. PVC to ABS Transition: Made to requirements of ASTM D 3138, color other than orange.

I. Plastic Pipe Seals: ASTM F 477, elastomeric gasket.

J. Flanged, Ductile-Iron Pipe Gasket, Bolts, and Nuts: AWWA C110, rubber gasket, carbon steel bolts and nuts.

K. Couplings: Iron body sleeve assembly, fabricated to match outside diameters of plain-end pressure pipes.

1. Sleeve: ASTM A 126, Class B, gray iron.
2. Followers: ASTM A 47 (ASTM A 47M), Grade 32510 or ASTM A 536 ductile iron.
3. Gaskets: Rubber.
4. Bolts and Nuts: AWWA C111.
5. Finish: Enamel paint.

2.3 PIPING SPECIALTIES:

A. Escutcheons: Manufactured wall, ceiling, and floor plates; deep-pattern type where required to conceal protruding fittings and sleeves.

1. Inside Diameter: Closely fit around pipe, tube, and insulation.

2. Outside Diameter: Completely cover opening.

3. Cast Brass: One-piece, with set-screw.

a. Finish: Rough brass.
b. Finish: Polished chrome plate.

4. Cast Brass: Split casting, with concealed hinge and set-screw.

a. Finish: Rough brass.
b. Finish: Polished chrome plate.

5. Stamped Steel: One-piece, with set-screw and chrome-plated finish.

6. Stamped Steel: One-piece, with spring clips and chrome-plated finish.

7. Stamped Steel: Split plate, with concealed hinge, set-screw, and chrome-plated finish.

8. Stamped Steel: Split plate, with concealed hinge, spring clips, and chrome-plated finish.

9. Stamped Steel: Split plate, with exposed-rivet hinge, set-screw, and chrome-plated finish.

10. Stamped Steel: Split plate, with exposed-rivet hinge, spring clips, and chrome-plated finish.

11. Cast-Iron Floor Plate: One-piece casting.

B. Dielectric Fittings: Assembly or fitting having insulating material isolating joined dissimilar metals to prevent galvanic action and stop corrosion.

1. Description: Combination of copper alloy and ferrous; threaded, solder, plain, and weld neck end types and matching piping system materials.

2. Insulating Material: Suitable for system fluid, pressure, and temperature.

3. Dielectric Unions: Factory-fabricated, union assembly for 250-psig (1725-kPa) minimum working pressure at a 180 deg F (82 deg C) temperature.

4. Dielectric Flanges: Factory-fabricated, companion-flange assembly for 150- or 300-psig (1035-kPa or 2070-kPa) minimum pressure to suit system pressures.

5. Dielectric-Flange Insulation Kits: Field-assembled, companion-flange assembly, full-face or ring type. Components include neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

a. Provide separate companion flanges and steel bolts and nuts for 150- or 300-psig (1035kPa or 2070kPa) minimum working pressure to suit system pressures.

6. Dielectric Couplings: Galvanized-steel coupling, having inert and noncorrosive, thermoplastic lining, with threaded ends and 300-psig (2070-kPa) minimum working pressure at 225 deg F (107 deg C) temperature.

7. Dielectric Nipples: Electroplated steel nipple, having inert and noncorrosive thermoplastic lining, with combination of plain, threaded, or grooved end types and 300-psig (2070-kPa) working pressure at 225 deg F (107 deg C) temperature.

C. Mechanical Sleeve Seals: Modular, watertight mechanical type. Components include interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve. Connecting bolts and pressure plates cause rubber sealing elements to expand when

tightened.

D. Sleeves: The following materials are for wall, floor, slab, and roof penetrations:

1. Steel Sheet-Metal: 24-gage (0.70mm) or heavier galvanized sheet metal, round tube closed with welded longitudinal joint.

2. Steel Pipe: ASTM A 53, Type E, Grade A, Schedule 40, galvanized, plain ends.

3. Cast-Iron: Cast or fabricated wall pipe equivalent to ductile-iron pressure pipe, having plain ends and integral water stop, except where other features are specified.

4. Wall Penetration Systems: Wall sleeve assembly, consisting of housing, gaskets, and pipe sleeve, with 1 mechanical-joint end conforming to AWWA C110 and 1 plain pipe-sleeve end.

   a. Penetrating Pipe Deflection: 5 percent without leakage.

   b. Housing: Ductile-iron casting having waterstop and anchor ring, with ductile-iron gland, steel studs and nuts, and rubber gasket conforming to AWWA C111, of housing and gasket size as required to fit penetrating pipe.

   c. Pipe Sleeve: AWWA C151, ductile-iron pipe.

   d. Housing-to-Sleeve Gasket: Rubber or neoprene push-on type of manufacturer's design.

5. Cast-Iron Sleeve Fittings: Commercially made sleeve having an integral clamping flange, with clamping ring, bolts, and nuts for membrane flashing.

   a. Underdeck Clamp: Clamping ring with set-screws.

6. PVC Plastic: Manufactured, permanent, with nailing flange for attaching to wooden forms.

7. PVC Plastic Pipe: ASTM D 1785, Schedule 40.

8. PE Plastic: Manufactured, reusable, tapered, cup-shaped, smooth outer surface, with nailing flange for attaching to wooden forms.

2.4 IDENTIFYING DEVICES AND LABELS:

A. General: Manufacturer's standard products of categories and types required for each application as referenced in other Division 15 Sections. Where more than one type is specified for listed application, selection is Installer's option, but provide single selection for each product category.

B. Equipment Nameplates: Metal nameplate with operational data engraved or stamped, permanently fastened to equipment.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data.

2. Location: An accessible and visible location.

C. Stencils: Standard stencils, prepared for required applications with letter sizes conforming to recommendations of ASME A13.1 for piping and similar applications, but not less than 1-1/4-inch (30-mm) -high letters for ductwork and not less than 3/4-inch (19-mm) -high letters for access door signs and similar operational instructions.

1. Material: Fiberboard.

2. Material: Brass.

3. Stencil Paint: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.

4. Identification Paint: Standard identification enamel of colors indicated or, if not otherwise indicated for piping systems, comply with ASME A13.1 for colors.

D. Snap-On Plastic Pipe Markers: Manufacturer's standard preprinted, semirigid snap-on, color-coded pipe markers, conforming to ASME A13.1.

E. Pressure-Sensitive Pipe Markers: Manufacturer's standard preprinted, permanent adhesive, color-coded, pressure-sensitive vinyl pipe markers, conforming to ASME A13.1.

F. Plastic Duct Markers: Manufacturer's standard laminated plastic, color coded duct markers. Conform to following color code:

1. Green: Cold air.
2. Yellow: Hot air.
3. Yellow/Green: Supply air.
4. Blue: Exhaust, outside, return, and mixed air.
5. For hazardous exhausts, use colors and designs recommended by ASME A13.1.
6. Nomenclature: Include following:

   a. Direction of air flow.
   b. Duct service (supply, return, exhaust, etc.).
   c. Duct origin (from).
   d. Duct destination (to).
   e. Design cfm.

G. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white (letter color) melamine subcore, except when other colors are indicated.

1. Fabricate in sizes required for message.

2. Engraved with engraver's standard letter style, of sizes and with wording to match equipment identification.

3. Punch for mechanical fastening.

4. Thickness: 1/16 inch (1.5 mm), except as otherwise indicated.

5. Thickness: 1/8 inch (3 mm), except as otherwise indicated.

6. Thickness: 1/16 inch (1.5 mm) for units up to 20 square inches (13,000 sq. mm) or 8 inches (200 mm) long; 1/8 inch (3 mm) for larger units.

7. Fasteners: Self-tapping stainless-steel screws or contact-type permanent adhesive.

H. Plastic Equipment Markers: Laminated-plastic, color-coded equipment markers. Conform to following color code:

1. Green: Cooling equipment and components.

2. Yellow: Heating equipment and components.

3. Yellow/Green: Combination cooling and heating equipment and components.

4. Brown: Energy reclamation equipment and components.

5. Blue: Equipment and components that do not meet any of the above criteria.

6. For hazardous equipment, use colors and designs recommended by ASME A13.1.

7. Nomenclature: Include following, matching terminology on schedules as closely as possible:

   a. Name and plan number.
   b. Equipment service.
   c. Design capacity.
   d. Other design parameters such as pressure drop, entering and leaving conditions, and rpm.

8. Size: Approximately 2-1/2 by 4 inches (65 by 100 mm) for control devices, dampers, and valves; and 4-1/2 by 6 inches (115 by 150

mm) for equipment.

I. Lettering and Graphics: Coordinate names, abbreviations, and other designations used in mechanical identification, with corresponding designations indicated. Use numbers, lettering, and wording indicated for proper identification and operation/maintenance of mechanical systems and equipment.

1. Multiple Systems: Where multiple systems of same generic name are indicated, provide identification that indicates individual system number as well as service such as "Boiler No. 3," "Air Supply No. 1H," or "Standpipe F12."

2.5 GROUT:

A. Nonshrink, Nonmetallic Grout: ASTM C 1107, Grade B.

1. Characteristics: Post-hardening, volume-adjusting, dry, hydraulic-cement grout, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.

2. Design Mix: 5000-psi (34.50-MPa), 28-day compressive strength.

3. Packaging: Premixed and factory-packaged.

PART 3 EXECUTION

3.1 PIPING SYSTEMS--COMMON REQUIREMENTS:

A. General: Install piping as described below, except where system Sections specify otherwise. Individual piping system specification Sections in Division 15 specify piping installation requirements unique to the piping system.

B. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings.

C. Install piping at indicated slope.

D. Install components having pressure rating equal to or greater than system operating pressure.

E. Install piping in concealed interior and exterior locations, except in equipment rooms and service areas.

F. Install piping free of sags and bends.

G. Install exposed interior and exterior piping at right angles or parallel to building walls. Diagonal runs are prohibited, except where indicated.

H. Install piping tight to slabs, beams, joists, columns, walls, and other building elements. Allow sufficient space above removable ceiling panels to allow for ceiling panel removal.

I. Install piping to allow application of insulation plus 1-inch (25-mm) clearance around insulation.

J. Locate groups of pipes parallel to each other, spaced to permit valve servicing.

K. Install fittings for changes in direction and branch connections.

L. Install couplings according to manufacturer's printed instructions.

M. Install pipe escutcheons for pipe penetrations of concrete and masonry walls, wall board partitions, and suspended ceilings according to the following:

1. Chrome-Plated Piping: Cast-brass, one-piece, with set-screw, and polished chrome-plated finish. Use split-casting escutcheons, where required, for existing piping.

2. Uninsulated Piping Wall Escutcheons: Cast-brass or stamped-steel, with set-screw.

3. Uninsulated Piping Floor Plates in Utility Areas: Cast-iron floor plates.

4. Insulated Piping: Cast-brass or stamped-steel, with concealed hinge, spring clips, and chrome-plated finish.

5. Piping in Utility Areas: Cast-brass or stamped-steel, with set-screw or spring clips.

N. Sleeves are not required for core drilled holes.

O. Permanent sleeves are not required for holes formed by PE plastic (removable) sleeves.

P. Install sleeves for pipes passing through concrete and masonry walls, concrete floor and roof slabs, and where indicated.

Q. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, concrete floor and roof slabs, and where indicated.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches (50 mm) above finished floor level. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring where specified.

2. Build sleeves into new walls and slabs as work progresses.

3. Install large enough sleeves to provide 1/4-inch (6-mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

   a. PVC Pipe Sleeves: For pipes smaller than 6 inches (150 mm).

   b. Steel Pipe Sleeves: For pipes smaller than 6 inches (150 mm).

   c. Steel Sheet-Metal Sleeves: For pipes 6 inches (150 mm) and larger that penetrate gypsum-board partitions.

   d. Cast-Iron Sleeve Fittings: For floors having membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches (50 mm) above finished floor level. Flashing is specified in Division 7 Section "Flashing and Sheet Metal."

      i. Seal space outside of sleeve fittings with nonshrink, nonmetallic grout.

4. Except for below-grade wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using elastomeric joint sealants specified in Division 7 Section "Joint Sealants."

R. Above Grade, Exterior Wall, Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeve for 1-inch (25-mm) annular clear space between pipe and sleeve for installation of mechanical seals.

1. Install steel pipe for sleeves smaller than 6 inches (150 mm).
2. Install cast-iron wall pipes for sleeves 6 inches (150 mm) and larger.
3. Assemble and install mechanical seals according to manufacturer's printed instructions.

S. Below Grade, Exterior Wall, Pipe Penetrations: Install cast-iron wall pipes for sleeves. Seal pipe penetrations using mechanical sleeve seals. Size sleeve for 1-inch (25-mm) annular clear space between pipe and sleeve for installation of mechanical seals.

T. Below Grade, Exterior Wall, Pipe Penetrations: Install ductile-iron wall penetration system sleeves according to manufacturer's printed installation instructions.

U. Fire Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestopping sealant material. Firestopping materials are specified in Division 7 Section "Firestopping."

V. Verify final equipment locations for roughing in.

W. Refer to equipment specifications in other Sections for roughing-in requirements.

X. Piping Joint Construction: Join pipe and fittings as follows and as specifically required in individual piping system Sections.

1. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

2. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

3. Soldered Joints: Construct joints according to AWS "Soldering Manual," Chapter 22 "The Soldering of Pipe and Tube."

4. Brazed Joints: Construct joints according to AWS "Brazing Manual" in the "Pipe and Tube" chapter.

5. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full inside diameter. Join pipe fittings and valves as follows:

a. Note the internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.

b. Apply appropriate tape or thread compound to external pipe threads (except where dry seal threading is specified).

c. Align threads at point of assembly.

d. Tighten joint with wrench. Apply wrench to valve end into which pipe is being threaded.

e. Damaged Threads: Do not use pipe or pipe fittings having threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

6. Welded Joints: Construct joints according to AWS D10.12 "Recommended Practices and Procedures for Welding Low Carbon Steel Pipe" using qualified processes and welding operators according to the "Quality Assurance" Article.

7. Flanged Joints: Align flange surfaces parallel. Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly using torque wrench.

8. Plastic Pipe and Fitting Solvent-Cement Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join pipe and fittings according to the following standards:

   a. Comply with ASTM F 402 for safe handling of solvent-cement and primers.

   b. Acrylonitrile-Butadiene-Styrene (ABS): ASTM D 2235 and ASTM D 2661.

   c. Chlorinated Poly(Vinyl Chloride) (CPVC): ASTM D 2846 and ASTM F 493.

   d. Poly(Vinyl Chloride) (PVC) Pressure Application: ASTM D 2672.

   e. Poly(Vinyl Chloride) (PVC) Non-Pressure Application: ASTM D 2855.

   f. PVC to ABS (Non-Pressure) Transition: Procedure and solvent cement described in ASTM D 3138.

9. Plastic Pipe and Fitting Heat-Fusion Joints: Prepare pipe and fittings and join with heat-fusion equipment according to manufacturer's printed instructions.

   a. Plain-End Pipe and Fittings: Butt joining.
   b. Plain-End Pipe and Socket-Type Fittings: Socket joining.

Y. Piping Connections: Except as otherwise indicated, make piping connections as specified below.

1. Install unions in piping 2 inches (50 mm) and smaller adjacent to each valve and at final connection to each piece of equipment having a 2-inch (50-mm) or smaller threaded pipe connection.

2. Install flanges in piping 2-1/2 inches (65 mm) and larger adjacent to flanged valves and at final connection to each piece of equipment having flanged pipe connection.

3. Dry Piping Systems (Gas, Compressed Air, and Vacuum): Install dielectric unions and flanges to connect piping materials of dissimilar metals.

4. Wet Piping Systems (Water and Steam): Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.2 EQUIPMENT INSTALLATION--COMMON REQUIREMENTS:

A. Install equipment to provide the maximum possible headroom where mounting heights are not indicated.

B. Install equipment according to approved submittal data. Portions of the Work are shown only in diagrammatic form. Refer conflicts to the Architect.

C. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, except where otherwise indicated.

D. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

E. Install equipment giving right-of-way to piping systems installed at a required slope.

3.3 LABELING AND IDENTIFYING:

A. Piping Systems: Install pipe markers on each system. Include arrows showing normal direction of flow.

1. Stenciled Markers: Complying with ASME A13.1.

2. Plastic markers, with application systems. Install on pipe insulation segment where required for hot noninsulated pipes.

3. Locate pipe markers wherever piping is exposed in finished spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums), and exposed exterior locations as follows:

a. Near each valve and control device.

b. Near each branch, excluding short take-offs for fixtures and terminal units. Mark each pipe at branch, where flow pattern is not obvious.

c. Near locations where pipes pass through walls, floors, ceilings, or enter inaccessible enclosures.

d. At access doors, manholes, and similar access points that permit view of concealed piping.

e. Near major equipment items and other points of origination and termination.

f. Spaced at a maximum of 50-foot (15-m) intervals along each run. Reduce intervals to 25 feet (7.5 m) in congested areas of piping and equipment.

g. On piping above removable acoustical ceilings, except omit intermediately spaced markers.

B. Equipment: Install engraved plastic laminate sign or equipment marker on or near each major item of mechanical equipment.

1. Lettering Size: Minimum 1/4-inch (6-mm) -high lettering for name of unit where viewing distance is less than 2 feet (0.6 m), 1/2-inch (13-mm) -high for distances up to 6 feet (1.8 m), and proportionately larger lettering for greater distances. Provide secondary lettering 2/3 to 3/4 of size of principal lettering.

2. Text of Signs: Provide text to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to name of identified unit.

C. Duct Systems: Identify air supply, return, exhaust, intake, and relief ducts with duct markers; or provide stenciled signs and arrows, showing duct system service and direction of flow.

1. Location: In each space where ducts are exposed or concealed by removable ceiling system, locate signs near points where ducts enter into space and at maximum intervals of 50 feet (15 m).

D. Adjusting: Relocate identifying devices which become visually blocked by work of this Division or other Divisions.

3.4 PAINTING AND FINISHING:

A. Refer to Division 9 Section "Painting" for field painting requirements.

B. Damage and Touch Up: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.5 CONCRETE BASES:

A. Construct concrete equipment bases of dimensions indicated, but not less than 4 inches (100 mm) larger than supported unit in both directions. Follow supported equipment manufacturer's setting templates for anchor bolt and tie locations. Use 3000-psi (20.70-MPa), 28-day compressive strength concrete and reinforcement as specified in Division 3 Section "Cast-in-Place Concrete."

3.6 ERECTION OF METAL SUPPORTS AND ANCHORAGE:

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.

B. Field Welding: Comply with AWS D1.1 "Structural Welding Code--Steel."

3.7 ERECTION OF WOOD SUPPORTS AND ANCHORAGE:

A. Cut, fit, and place wood grounds, nailers, blocking, and anchorage to support and anchor mechanical materials and equipment.

B. Select fastener sizes that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood members.

C. Attach to substrates as required to support applied loads.

3.8 DEMOLITION:

A. Disconnect, demolish, and remove work specified under Division 15 and as indicated.

B. Where pipe, ductwork, insulation, or equipment to remain is damaged or disturbed, remove damaged portions and install new products of equal capacity and quality.

C. Accessible Work: Remove indicated exposed pipe and ductwork in its entirety.

D. Abandoned Work: Cut and remove buried pipe abandoned in place, 2 inches (50 mm) beyond the face of adjacent construction. Cap and patch surface to match existing finish.

E. Removal: Remove indicated equipment from the Project site.

F. Temporary Disconnection: Remove, store, clean, reinstall, reconnect, and make operational equipment indicated for relocation.

3.9 CUTTING AND PATCHING:

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of the trades involved.

B. Repair cut surfaces to match adjacent surfaces.

3.10 GROUTING:

A. Install nonmetallic nonshrink grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors. Mix grout according to manufacturer's printed instructions.

B. Clean surfaces that will come into contact with grout.

C. Provide forms for placement of grout, as required.

D. Avoid air entrapment when placing grout.

E. Place grout to completely fill equipment bases.

F. Place grout on concrete bases to provide a smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout according to manufacturer's printed instructions.

END OF SECTION

SECTION 15062

DUCTILE IRON PIPE AND FITTINGS

PART 1 GENERAL

1.1 SCOPE OF WORK:

A. Furnish all labor, materials, equipment and incidentals required to install, in the locations shown on the Drawings, all ductile iron piping, cast iron or ductile iron fittings, and appurtenances as shown on the Drawings and as specified herein.

1.2 QUALIFICATIONS:

A. All of the ductile-iron pipe and cast-iron or ductile iron fittings shall be furnished by the manufacturers who are fully experienced, reputable, and qualified in the manufacture of the materials to be furnished. Pipe and fittings shall be designed, constructed, installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.

B. Pipe and fittings shall be as manufactured by the American Cast Iron Pipe Company, U.S. Pipe and Foundry Company, Clow Corporation or equal.

1.3 SUBMITTALS:

A. Submit to the Engineer within thirty (30) days after execution of the Contract a list of materials to be furnished, the names of the suppliers and the date of delivery of materials to the site.

B. All ductile-iron pipe and cast-iron or ductile iron fittings to be installed under this Contract shall be inspected and tested at the foundry as required by the standard specifications to which the material is manufactured. Furnish in duplicate to the Engineer sworn certificates of such tests and their results. In addition, all ductile-iron pipe and fittings to be installed under this Contract may be inspected at the foundry for compliance with these Specifications by an independent testing laboratory selected by the Owner. The manufacturer's cooperation shall be required in these inspections.

C. Shop drawings including piping layouts within, under, or between structures shall be submitted to the Engineer for approval in accordance with General Requirements and shall include dimensioning, methods and locations of supports and all other pertinent technical specifications for all piping to be furnished.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Ductile iron pipe shall conform to and AWWA C 151/ ANSI A21.51. Pipe shall be the rubber-ring type push-on joint, the standard mechanical joint or the flange joint as shown on the Drawings. The pipe shall be supplied in lengths not in excess of 20 feet.

B. Ductile iron pipe for underground installation shall meet the following requirements.

1. Fittings for underground piping shall be push-on or mechanical joint as shown on drawings or specified otherwise, and shall meet the requirements of ANSI and AWWA specifications for compact fittings as applicable. Rubber gaskets joints shall conform to ANSI A21.11 for mechanical and push-on type joints. Unless noted otherwise, all pipe and fittings to have an asphaltic coating on the outside per AWWA C 151. Provide polyethylene encasement for all buried ductile iron pipe and fittings in accordance with AWWA C105.

2. Mechanical-joint ductile-iron pipe shall be as specified for the flanged pipe except the joints shall conform to ANSI Specification A21.11 as applicable. Mechanical-joint pipe shall be furnished with sufficient quantities of accessories as required for each joint.

3. Seal strips, where required on the Drawings, shall be Link Seal as manufactured by Thunderline Corporation, Wayne, Michigan, or equal.

4. Anchoring pipe for hydrant installations shall be Clow F-1216 or equal, 18-inch long.

C. Ductile-iron pipe for exposed use shall meet the following requirements:

1. Flanged ductile-iron pipe shall conform to AWWA C115/A21.15 with factory applied screwed long hub flanges except as otherwise specified hereinafter. Flanges shall be faced and drilled after being screwed on the pipe, with flanges true to 90 degrees with the pipe axis and shall be flush with end of pipe.

2. Flanges joints shall be 125 pound ANSI flanges and conform to ANSI B16.1. Pipe for use with split-type flexible coupling shall have radius grooved ends.

3. Fittings shall be ductile iron or cast-iron as specified above. Except as specified below, flanges and flanged fittings shall conform to AWWA C110/ANSI A21.10 for 150 psi pressure rating.

4. Pipe thickness shall be according to AWWA C115/A21.15 unless noted otherwise.

5. Pipe and fittings exposed to view in the finished work shall not receive the standard tar or asphalt coat on the outside surfaces but shall shop primed on the outside with one coat of rust inhibitive primer. All other pipe and fittings shall be shop coated on the outside with coal tar enamel in accordance with the above referenced ANSI Specifications and will not require any other coating. Should portions of the pipe inadvertently be given the outside coating of coal tar enamel instead of the rust inhibitive primer as required for exposed piping the surfaces shall be sealed with a non-bleeding sealer coat such as Inertol Tar Stop,

or Mobil Anti-Bleeding Aluminum Sealer. Sealing shall be a part of the work of this Section.

D. Split Type Couplings:

1. Split type couplings shall be of the mechanical type designed to engage and lock grooved pipe ends to a positive connection.

2. Couplings shall consist of ductile iron, ASTM Specification A536 housing clamps in two or more parts, a single chlorinated butyl composition sealing gasket with a "C" shaped cross-section and internal AAA had type bolts with hexagonal heavy nuts conforming to ASTM Specification A183 and A194 to assemble the housing clamps. Bolts and nuts shall be cadmium plated. Housings shall be furnished with an enamel coating. Split type couplings shall be equal to Coupling Style 31 as manufactured by the Victaulic Company of America. Couplings shall be suitable for both rigid joint grooves and flexible joint grooves.

3. Pipe ends for use with split type couplings shall have radius grooved ends to provide either a rigid joint or flexible joint in the locations shown on the Drawings or as specified herein. Groove dimensions and tolerances shall fully conform to the coupling manufacturer's specifications.

4. Flexible joint grooving shall permit expansion and contraction, and angular deflection. Rigid joint grooving shall allow no angular or linear movement.

5. Split type couplings may be used in lieu of flanged connections. However, the location and the number and type of joints shall be subject to the approval of the Engineer.

6. Flanged adapter connections at fittings, valves, and equipment shall be Vic-Flange Style 341 as manufactured by the Victaulic Company of America, or equal.

E. Sleeve Type Couplings:

1. Sleeve-type couplings shall be as made by Dresser Manufacturing Division, Bradford, PA, Smith-Blair, Inc., San Francisco, California, R. H. Baker & Company, Inc., Huntington Park, California, or equal.

2. Couplings for buried pipe shall be of cast iron and shall be Dresser Style 53, Smith-Blair Style 431, Baker Allsteel, or equal. The couplings shall be provided with stainless steel bolts and nuts unless indicated otherwise.

3. Couplings for exposed pipe shall be of steel and shall be Dresser Style 38, Smith-Blair Style 413, Baker Allsteel, or equal. When installed in force mains, harness couplings or joint harnesses shall be provided.

The couplings shall be provided with black steel bolts and nuts unless indicated otherwise.

4. All couplings shall be furnished with the pipe stop removed.

5. Couplings shall be provided with gaskets of a composition suitable for exposure to the liquid within the pipe.

F. Wall Castings:

1. Wall castings shall be of the sizes and types as shown on the Drawings. Flanges and mechanical joint bells shall be drilled and tapped for studs where flush with the wall.

2. Wall casting shall be provided with an intermediate wall collar. The collar shall be located at the center of the overall length of casting for castings set flush with the wall. For castings which extend through the wall, the collar shall be located such that it is within the middle third of the wall. Collars shall either be cast integrally with the casting or shall be of the assembled type as manufactured by U. S. Pipe & Foundry Company or equal consisting of two (2) mechanical joint retainer glands with gasket.

G. Base bends and base tees shall have machined and drilled bases.

H. Filler flanges and beveled filler flanges shall be furnished and installed as required. Filler flanges and beveled filler flanges shall be furnished faced and drilled complete with extra length bolts. Filler flanges shall be Clow Figure F-1984 or equal and beveled filler flanges shall be Clow Figure F-1986 or equal.

I. Blind flanges shall be furnished and installed as required. Blind flanges shall be furnished faced and drilled to ANSI B16.1 125 lb Standard.

J. Interior Linings

1. Water Main Interiors:

Pipe and fittings shall be cement mortar lined and bituminous seal coated on the inside in accordance with ANSI Specification A21.4 except that the cement lining thickness shall be not less than 1/8-inch for 3-12 inch pipe, 3/16-inch for 14-24 inch pipe and ¼-inch for pipe 30-inch and larger. A plus tolerance of 1/8-inch will be permitted. Ring gaskets shall be of approved composition suitable for the required service.

2. Process Piping Interiors:

Plant pipe and fittings not designated for finished water or potable water service shall be furnished with asphaltic lining on the inside in accordance with AWWA C110, C115, or C151. Ring gaskets shall be of approved composition suitable for the required service.

3. Sanitary Sewer and Force Main Interiors:

a. Preparation: Commercial blast cleaning conforming to SSPC-SP6.

b. Liner thickness: Nominal 40 mils, minimum 35 mils, for pipe barrel interior; minimum 6 to 10 mils at gasket groove and outside spigot end to 6-inches back from end.

c. Testing: ASTM G 62, Method B for voids and holidays; provide written certification.

d. Acceptable Lining Materials:

i Virgin polyethylene conforming to ASTM D 1248, with inert fillers and carbon black to resist ultraviolet degradation during storage, heat bonded to interior surface of pipe and fittings; "Polyline" by American Cast Iron Pump Company; or equal.

ii Polyurethane: Corro-pipe II by Madison Chemicals.

iii Ceramic Epoxy: Protecto-401 by Enduran Protective Coatings.

PART 3 EXECUTION

3.1 HANDLING PIPE AND FITTINGS:

A. Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe or coatings. Pipe or fittings shall not be dropped.

All pipe or fittings shall be examined before laying, and no pieces shall be installed which is found to be defective. Any damage to the pipe coatings shall be repaired as directed by the Engineer.

B. All pipe and fittings shall be subjected to a careful inspection and hammer test just prior to being laid or installed.

C. If any defective pipe is discovered after it has been laid it shall be removed and replaced with a sound pipe in a satisfactory manner at no expense to the Owner. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work, and when installed or laid, shall conform to the lines and grades required.

3.2 LAYING EXTERIOR PIPE AND FITTINGS:

A. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA Standard Specification C600 except as otherwise provided herein. A firm, even bearing throughout the length of the pipe shall be constructed by tamping selected material at the sides of the pipe up to the springline. Blocking will not be permitted.

B. All pipe shall be sound and clean before laying. When laying is not in progress, including lunchtime, the open ends of the pipe shall be closed by watertight plug or other approved means. Good alignment shall be preserved in laying. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the plans, shall be provided, if required, in crossing utilities which may be encountered upon opening the trench. Solid sleeves shall be used only where approved by the Engineer.

C. When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged.

D. There shall on hand at the start of the job, one 1/32 bend, one 1/16 bend for each size of pipe. These shall be used as job conditions require.

E. Joint restraint shall be provided at all fittings and other locations as directed by the Engineer or shown on the Drawings. Except where otherwise shown on the Drawings, restraint shall be provided either by concrete thrust blocks or mechanical joint restraint as specified herein. Where pipe is installed in locations where there is insufficient undisturbed material, mechanical joint restraint shall be used. For concrete thrust blocks, bearing area shall be adequate to prevent any movement of the fitting. Minimum bearing areas shall be as shown on the Drawings. Joints shall be protected by felt roofing paper prior to placing concrete. Concrete shall be no leaner than 1 part cement, 2-1/2 parts sand, and 5-1/2 part stone. Concrete shall be placed against undisturbed material, and shall not cover joints, bolts or nuts, or interfere with the removal of any joint. Wooden side forms shall be provided for thrust blocks.

F. Unless otherwise shown or approved by the Engineer, all outside pipe lines shall have a 3 foot minimum cover.

G. Jointing Ductile-Iron Pipe:

1. Push-on joints shall be made in strict accordance with the manufacturer's instructions. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe, and the joint surfaces cleaned and lubricated. The plain end of the pipe to be entered shall then be inserted in alignment with the bell of the pipe to which it is to be joined, and pushed home with a jack or by other means. After joining the pipe, a metal feeler shall be used to make certain that the rubber gasket is correctly located.

2. Mechanical joints at valves, fittings, and where designated shall be in accordance with the "Notes on Method of Installation" under ANSI Specification A 21.11 and the instructions of the manufacturer. To assemble the joints in the field, thoroughly clean the joint surfaces and rubber gaskets with soapy water before tightening the bolts. Bolts shall be tight to the specified torques. Under no condition shall extension wrenches or pipe over handle or ordinary ratchet wrench be used to secure greater leverage.

3. Flanges joints shall be made using ring gaskets of rubber with cloth insertion. Gaskets 12-inch in diameter and smaller shall be 1/16-inch thick; larger than 12-inch 3/32-inch thick. Flanged joints shall be made with bolts, bolt studs with a nut on each end, or studs with nuts where the flange is tapped. The number and size of bolts shall conform to the same American Standard as the flanges. Bolts and nuts shall, except as otherwise specified or noted on the Drawings, be Grade B conforming to the AS TM Standard Specification for Low-Carbon Steel, Externally and Internally Threaded Standard Fasteners, Designation A307-68. Bolt studs and studs shall be of the same quality as machine bolts.

   a. Bolts in fanged joints or mechanical joints shall be tightened alternately and evenly. After installation two heavy bitumastic coatings comparable to Inertol No. 66 Special Heavy shall be applied to bolts and nuts.

4. Prior to installation of sleeve-type couplings, the pipe ends shall be cleaned thoroughly for a distance of 8-inches. Soapy water may be used a gasket lubricant. A follower and gasket, in that order, shall be slipped over each pipe to a distance of about 6-inches from the end, and the middle ring shall be placed on the already laid pipe end until it is properly centered over the joint. The other pipe end shall be inserted into the middle ring and brought to proper position in relation to the pipe already laid. The gaskets and followers shall then be pressed evenly and firmly into the middle ring flares. After the bolts have been inserted and all nuts have been made up finger tight, diametrically opposite nuts shall be progressively and uniformly tightened all around the joint, preferably by use of a torque wrench of the appropriate size and torque for the bolts. The correct torque as indicated by a torque wrench shall not exceed 75 ft. lb. for 5/8-inch bolts and 90 ft. lb. for 3/4-inch bolts.

5. If a wrench other than a torque wrench is used, it should be no longer than 12-inches, so that when used by the average man the above torque valves shall not be exceeded. After assembly and inspection and before being backfilled, all exterior surfaces of buried sleeve-type couplings, including the middle and follower rings, bolts, and nuts, shall be heavily and thoroughly coated with an approved heavy-bodied bituminous mastic. Care shall be taken and appropriate devices used to ensure that the underside, as well as the more readily accessible parts, is well coated.

   Where fanged pipe joints are to be on either side of a sleeve-type coupling in the piping, sleeve-coupling bolts should not be made up until the fanged joints have first been made.

   To prevent sleeve-type couplings from pulling apart under pressure, a suitable flange clamp assembly shall be provided and installed where shown on the drawings.

6. All valves, hydrants, fittings and other appurtenances needed upon the pipe lines shall be set and jointed as indicated on the Drawings or as required.

3.3 INSTALLING EXPOSED DUCTILE-IRON PIPE AND FITTINGS:

A. All piping and fittings shall be installed true to alignment and rigidly supported thrust anchors shall be provided where required. Any damage to linings shall be repaired to the satisfaction of the Engineer before the pipe is installed. Each length of pipe shall be cleared out before erection.

B. Sleeves shall be installed of proper size for all pipes passing through floors or walls as shown on the Drawings. Where indicated on the Drawings or required for liquid or gas-tightness the pipe shall be sealed with a mechanical seal equal to Link-Seal as manufactured by Thunderline Corporation, Wayne, Michigan.

C. Concrete inserts for hangers and supports shall be furnished and installed in the concrete as it is placed. The inserts shall be set in accordance with the requirements of the piping layout and jointing method and their locations shall be verified from approved piping layout drawings and the structural drawings.

D. Except as otherwise shown on the Drawings either split type couplings or flange joints may be used. Prior to approval of jointing method, layouts for hanger and supports shall be submitted to the Engineer for approval. Pipe for use with non-restrained sleeve type couplings shall have plain ends. Pipe for use with split type couplings shall have radius grooved ends.

E. Flanges joints shall be made with bolts, bolt studs with a nut on each end, or studs with nuts where the flange is tapped. The number and size of bolts shall conform to the same American Standard as the flanges. Bolts and nuts shall, except as otherwise specified or noted on the drawings, be Grade B conforming to the ASTM Standard Specification for Low-Carbon Steel, Externally and Internally Threaded Standard Fasteners, Designation A307-68. Bolt studs and studs shall be of the same quality as machine bolts.

Gaskets shall be ring gaskets of rubber with cloth insertion. Gaskets 12-inch in diameter and smaller shall be 1/16-inch thick; larger than 12-inch in diameter 3/32-inches thick.

F. Prior to assembly of split couplings, the grooves as well as other parts shall be thoroughly cleaned. The ends of the pipes and outside of the gaskets shall be moderately coated with the petroleum jelly, cup grease, soft soap, or graphite paste and the gasket shall be slipped over one pipe end. After the other pipe has been brought to the correct position, the gasket shall be centered properly over the pipe ends with the lips against the pipes. The housing sections than shall be placed. After the bolts have been inserted, the nut shall be tightened until the housing sections are firmly in contact, metal-to-metal, without excessive bolt tension.

G. All valves, fittings, equipment, and appurtenances needed upon the pipelines shall be set and jointed as indicated on the Drawings or as required. All pipe and appurtenances connected to equipment shall be supported in such a

manner as to prevent any straining being imposed on the equipment. When manufacturers have indicated requirements that piping loads shall not be transmitted to their equipment, a certification shall be submitted stating that such requirements have been complied with.

3.4 TESTING:

A. All pipe lines shall be hydrostatically tested for leakage.

END OF SECTION

SECTION 15090

PIPE SUPPORT SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe support and anchor systems.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Society of Mechanical Engineers (ASME):

a. B31.1, Power Piping.
b. B31.3, Process Piping.

2. ASTM International (ASTM):

a. A36, Standard Specification for Carbon Structural Steel.

b. A510, Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel.

c. A575, Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades.

d. A576, Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality.

3. American Welding Society (AWS):

a. D1.1, Structural Welding Code - Steel.

4. Manufacturers Standardization Society of the Valve and Fittings Industry Inc. (MSS):

a. SP-58, Pipe Hangers and Supports - Materials, Design and Manufacture.
b. SP-69, Pipe Hangers and Supports - Selection and Application.

1.3 SUBMITTALS

A. Shop Drawings:

1. See Division 01 for requirements for the mechanics and administration of the submittal process.

2. Product technical data including:

a. Acknowledgement that products submitted meet requirements of standards referenced.

b. Manufacturer's installation instructions.

c. Itemized list of wall sleeves, anchors, support devices and all other items related to pipe support system.

d. Scale drawings showing guides, hangers, supports, anchors, structural members and appurtenances to describe the pipe support system.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the manufacturers listed in the applicable Articles below are acceptable.

B. Submit request for substitution in accordance with Division 01.

2.2 MANUFACTURED UNITS

A. Hanger Rods: For use in all areas except hazardous locations. See Pipe Support Notes in Drawings for designation of hazardous locations.

1. Material: Type 316 Stainless Steel.

a. ASTM A575, Grade M1020.
b. Minimum allowable tensile stress of 12,000 psi at 650 DegF per MSS SP-58.

2. Continuously threaded.
3. Load limit:

NOMINAL ROD DIAMETER	MAXIMUM SAFE LOAD, (LBS)
3/8 IN DIA (min)	610
1/2 IN DIA	1,130
5/8 IN DIA	1,810
3/4 IN DIA	2,710
7/8 IN DIA	3,770
1 IN DIA	4,960

B. Hanger Rods: For use in hazardous locations.

1. Material: Type 316 Stainless steel.

2. Load limit: Modify load limit for steel hangers based on strength of rod. Obtain from manufacturer.

C. Hangers:

1. Hangers in all locations: Type 316 stainless steel.
2. Hanger types: as shown on Drawings.

D. Concrete Inserts for Hanger Rods:

1. Continuous slots: Unistrut #P1000.
2. Individual inserts: ANVIL Figure 281.
3. Self-drilling expansion anchors: Phillips flush-end or snap-off end type.

E. Beam Clamps for Hanger Rods:

1. Heavy duty.
2. Material: as indicated in Drawings.
3. ANVIL Figure 134.

F. Trapeze Hangers for Suspended Piping:

1. Material: Type 316 stainless steel unless otherwise indicated in Drawings.
2. Angles, channels, or other structural shapes.
3. Curved roller surfaces at support point corresponding with type of hanger required.

G. Vertical Pipe Supports:

1. At base of riser.
2. Lateral movement:

a. Clamps or brackets:

i. Grinnell Figure 199.

H. Expanding Pipe Supports:

1. Spring hanger type.
2. MSS SP-58.

I. Pipe Support Saddle:

1. For pipe located 3 FT or less from floor elevation, except as otherwise indicated on Drawings.
2. ANVIL Figure 264.

J. Pipe Support Risers:

1. Schedule 40 pipe.
2. Type 316 stainless steel.

3. Type 316 stainless steel in hazardous locations.
4. As recommended by saddle manufacturer.

K. Pipe Support Base Plate:

1. 4 IN larger than support.

2. Collar 3/16 IN thickness, circular in shape, and sleeve type connection to pipe.

3. Collar fitted over outside of support pipe and extended 2 IN from floor plate.

4. Collar welded to floor plate.

5. Edges ground smooth.

6. Type 316 stainless steel.

L. Pipe Covering Protection Saddle:

1. For insulated pipe at point of support.
2. ANVIL Figure 167, Type B.

M. Wall Brackets:

1. For pipe located near walls and 8 FT or more above floor elevation or as otherwise indicated on the Drawings.
2. Material: as indicated in Drawings.
3. ANVIL Figure 199.

N. Pipe Anchors:

1. For locations shown on the Drawings.
2. 1/4 IN Type 316 stainless steel plate construction.
3. Type 316 stainless steel.
4. Designed to prevent movement of pipe at point of attachment.

O. Pipe Guides:

1. For locations on both sides on each expansion joint or loop.
2. To ensure proper alignment of expanding or contracting pipe.
3. ANVIL Figure 256.

P. Substitutions:

1. Submit request for substitution in accordance with Division 01.

2.3 DESIGN REQUIREMENTS

A. Contractor is responsible for selection of pipe supports, design of supports, and placement.

1. Support configurations shown on Drawings or included in this Section may be used.

2. Submit alternative configurations, materials, manufactured units, etc. if those shown and specified do not meet Contractor requirements.

B. Supports capable of supporting the pipe for all service and testing conditions.

1. Provide 5 to 1 safety factor.

C. Allow free expansion and contraction of the piping to prevent excessive stress resulting from service and testing conditions or from weight transferred from the piping or attached equipment.

D. Design supports and hangers to allow for proper pitch of pipes.

E. For chemical and waste piping, design, materials of construction and installation of pipe hangers, supports, guides, restraints, and anchors:

1. ASME B31.3.
2. MSS SP-58 and MSS SP-69.
3. Except where modified by this Specification.

F. For steam and hot and cold water piping, design, materials of construction and installation of pipe hangers, supports, guides, restraints, and anchors:

1. ASME B31.1.
2. MSS SP-58 and MSS SP-69.

G. Check all physical clearances between piping, support system and structure.

1. Provide for vertical adjustment after erection.

H. Support vertical pipe runs in pipe chases at base of riser.

1. Support pipes for lateral movement with clamps or brackets.

I. Place hangers on outside of pipe insulation.

1. Use a pipe covering protection saddle for insulated pipe at support point.

2. Insulated piping 1-1/2 IN and less: Provide a 9 IN length of 9 LB density fiberglass insulation at saddle.

3. Insulated piping over 1-1/2 IN: Provide a 12 IN length of 9 LB density fiberglass insulation on saddle.

J. Provide 20 GA galvanized steel pipe saddle for fiberglass and plastic support points to ensure minimum contact width of 4 IN.

K. Pipe Support Spacing:

1. General:

   a. Factor loads by specific weight of liquid conveyed if specific weight is greater than water.

   b. Locate pipe supports at maximum spacing scheduled unless indicated otherwise on the Drawings.

   c. Provide at least one (1) support for each length of pipe at each change of direction and at each valve.

2. Steel, stainless steel, cast-iron pipe support schedule:

PIPE SIZES - IN	MAXIMUM SPAN - FT
1-1/2 and less	5
2 thru 4	10
5 thru 8	15
10 and greater	20

3. Copper pipe support schedule:

PIPE SIZES - IN	MAXIMUM SPAN - FT
2-1/2 and less	5
3 thru 6	10
8 and greater	15

4. PVC pipe support schedule:

PIPE SIZES - IN	MAXIMUM SPAN - FT
1-1/4 and less	3
1-1/2 thru 3	4
4 and greater	5

* Maximum fluid temperature of 120 Deg F.

5. Support each length and every fitting:

   a. Bell and spigot piping:

      i. At least one (1) hanger.
      ii. Applied at bell.

   b. Mechanical coupling joints:

      i. Place hanger within 2 FT of each side of fittings to keep pipes in alignment.

6. Space supports for soil and waste pipe and other piping systems not included above every 5 FT.

7. Provide continuous support for nylon tubing.

PART 3 EXECUTION

3.1 INSTALLATION

A. Provide piping systems exhibiting pulsation, vibration, swaying, or impact with suitable constraints to correct the condition.

1. Included in this requirement are movements from:

a. Trap discharge.
b. Water hammer.
c. Similar internal forces.

B. Weld Supports:

1. AWS D1.1.
2. Weld anchors to pipe in accordance with ASME B31.3.

C. Locate piping and pipe supports as to not interfere with open accesses, walkways, platforms, and with maintenance or disassembly of equipment.

D. Inspect hangers for:

1. Design offset.
2. Adequacy of clearance for piping and supports in the hot and cold positions.
3. Guides to permit movement without binding.
4. Adequacy of anchors.

E. Inspect hangers after erection of piping systems and prior to pipe testing and flushing.

F. Install individual or continuous slot concrete inserts for use with hangers for piping and equipment.

1. Install concrete inserts as concrete forms are installed.

G. Welding:

1. Welding rods: ASTM and AWS standards.
2. Integral attachments:

a. Include welded-on ears, shoes, plates and angle clips.
b. Ensure material for integral attachments is of good weldable quality.

3. Preheating, welding and postheat treating: ASME B31.3, Chapter V.

END OF SECTION

SECTION 15100

VALVES: BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Valving, actuators, and valving appurtenances.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Society of Mechanical Engineers (ASME):

a. B1.20.1, Pipe Threads, General Purpose.
b. B16.1, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
c. B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
d. B16.34, Valves – Flanged, Threaded, and Welding End.

2. ASTM International (ASTM):

a. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

b. D256, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.

c. D638, Standard Test Method for Tensile Properties of Plastics.

d. D648, Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.

e. D695, Standard Test Method for Compressive Properties of Rigid Plastics.

f. D2240, Standard Test Method for Rubber Property-Durometer Hardness.

3. American Water Works Association (AWWA):

a. C207, Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 IN through 144 IN.

b. C500, Standard for Metal-Seated Gate Valves for Water Supply Service.

c. C504, Standard for Rubber-Seated Butterfly Valves.

d. C507, Standard for Ball Valves, 6 IN through 48 IN (150 MM through 1200 MM).

e. C509, Standard for Resilient-Seated Gate Valves for Water Supply Service.

f. C550, Standard for Protective Coatings for Valves and Hydrants.

g. C606, Standard for Grooved and Shouldered Joints.

4. American Water Works Association/American National Standards Institute (AWWA/ANSI):

a. C111/A21.11, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

5. National Electrical Manufacturers Association (NEMA):

a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
b. MG 1, Motors and Generators.

1.3 DEFINITIONS

A. The following are definitions of abbreviations used in this Specification Section or one (1) of the individual valve sections:

1. CWP: Cold water working pressure.
2. SWP: Steam working pressure.
3. WOG: Water, oil, gas working pressure.
4. WWP: Water working pressure.

1.4 SUBMITTALS

A. Shop Drawings:

1. See Division 01 for requirements for the mechanics and administration of the submittal process.

2. Product technical data including:

a. Acknowledgement that products submitted meet requirements of standards referenced.
b. Manufacturer's installation instructions.
c. Valve pressure and temperature rating.
d. Valve material of construction.
e. Special linings.
f. Valve dimensions and weight.
g. Valve flow coefficient.
h. Wiring and control diagrams for electric or cylinder actuators.

3. Test reports.

B. Operation and Maintenance Manuals:

1. See Division 1 for requirements for:

a. The mechanics and administration of the submittal process.
b. The content of Operation and Maintenance Manuals.

C. Informational Submittals:

1. Verification from valve actuator manufacturer that actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted, and that the valve actuator responds correctly to the valve position command.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, refer to individual valve Specification Sections for acceptable manufacturers.

2.2 MATERIALS

A. Refer to individual valve Specification Sections.

2.3 VALVE ACTUATORS

A. Valve Actuators - General:

1. Provide actuators as shown on Drawings or specified.

2. Counterclockwise opening as viewed from the top.

3. Direction of opening and the word OPEN to be cast in handwheel or valve bonnet.

4. Size actuator to produce required torque with a maximum pull of 80 LB at the maximum pressure rating of the valve provided and withstand without damage a pull of 200 LB on handwheel or chainwheel or 300 foot-pounds torque on the operating nut.

5. Unless otherwise specified, actuators for valves to be buried, submerged or installed in vaults or manholes shall be sealed to withstand at least 20 FT of submergence.

6. Extension stem:

a. Install where shown or specified.
b. Solid steel with actuator key and nut, diameter not less than stem of valve actuator shaft.

c. Pin all stem connections.
d. Center in valve box or grating opening band with guide bushing.

B. Buried Valve Actuators:

1. Provide screw or slide type adjustable cast iron valve box, 5 IN minimum diameter, 3/16 IN minimum thickness, and identifying cast iron cover rated for traffic load.

2. Box base to enclose buried valve gear box or bonnet.

3. Provide 2 IN standard actuator nuts complying with AWWA C500, Section 3.16.

4. Provide at least two (2) tee handle keys for actuator nuts, with 5 FT extension between key and handle.

5. Extension stem:

a. Provide for buried valves greater than 4 FT below finish grade.
b. Extend to within 6 IN of finish grade.

6. Provide concrete pad encasement of valve box as shown for all buried valves unless shown otherwise.

C. Plastic Valve Vault:

1. Provide in non-traffic areas only on valve applications 3-1/2 IN and less.
2. Nominal 7-1/2 IN DIA top section.
3. Design unit for screw type extension section having nominal 9 IN DIA bell.
4. Cast iron ring and lid.
5. Constructed of injection molded polyolefin compound with fibrous inorganic component reinforcing and UV stabilization.
6. Armor Access Boxes.

D. Exposed Valve Manual Actuators:

1. Provide for all exposed valves not having electric or cylinder actuators.

2. Provide handwheels for gate and globe valves.

a. Size handwheels for valves in accordance with AWWA C500.

3. Provide lever actuators for plug valves, butterfly valves and ball valves 3 IN DIA and smaller.

a. Lever actuators for butterfly valves shall have a minimum of 5 intermediate lock positions between full open and full close.

b. Provide at least two (2) levers for each type and size of valve furnished.

4. Gear actuators required for plug valves, butterfly valves, and ball valves 4 IN DIA and larger.

5. Provide gearing for gate valves 20 IN and larger in accordance with AWWA C500.

6. Gear actuators to be totally enclosed, permanently lubricated and with sealed bearings.

7. Provide chain actuators for valves 6 FT or higher from finish floor to valve centerline.

   a. Cadmium-plated chain looped to within 3 FT of finish floor.
   b. Equip chain wheels with chain guides to permit rapid operation with reasonable side pull without "gagging" the wheel.

8. Provide cast iron floor stands where shown on Drawings.

   a. Stands to be furnished by valve manufacturer with actuator.
   b. Stands or actuator to include thrust bearings for valve operation and weight of accessories.

E. Submerged Actuators:

1. Mount the valve actuator on top of an extension bonnet 3 FT above any adjacent personnel access, or as shown.

2. The valve and bonnet connection shall be flanged and watertight.

3. Provide a top brace support for the bonnet.

   a. Mount the brace 6 IN below the top of the wall as shown.

4. Provide intermediate stem extension guides as required.

5. Materials:

   a. Extension bonnet: Cast iron ASTM A126 or steel.
   b. Braces and anchor bolts: Type 316 stainless steel.

F. Electric Actuators (480 V, 3 PH) (Valves 6 IN and Larger):

1. Conform to AWWA C542.

2. Provide electric valve actuators with integral control devices. Where scheduled, provide a remote pushbutton station.

3. Furnish electric actuator integral with valve consisting of:

   a. Motor.
   b. Gearing.
   c. Handwheel.

d. Limit and torque switches.
e. Lubricants.
f. Heating elements.
g. Wiring.
h. Terminals for motor power and controls.
i. Drive nut.

4. Housing/enclosure:

a. Provide cast iron gear housing and cast iron load bearing enclosure.

b. Non load bearing enclosure and housing: Aluminum or cast iron.

c. Rated for area classification shown on Drawings.

d. Provide O-ring seals for covers and entries.

e. Terminal and limit switch compartment covers are to be fastened to gear housing by stainless steel fasteners with capture device to prevent loss.

5. Motors:

a. Provide motors that are totally enclosed, high torque design made expressly for valve actuator service and capable of operating the valve under full differential pressure for complete open-close and reverse cycle of travel at least twice in immediate succession without overheating.

b. Design motors in accordance with NEMA MG 1 standards, with Class B insulation, and to operate successfully at any voltage within 10 percent above or below rated voltage.

c. Provide positive method to ensure motor bearings are permanently lubricated.

d. Provide three (3) thermal switches imbedded in windings:

i. 120 degrees apart.
ii. Provide motor shutdown at high temperature.

e. Motor housing:

i. Aluminum or cast iron.
ii. Totally enclosed nonventilated with cooling fins.

f. Provide motor capable of operating in any position.

g. Provide motor sealed from gearcase to allow any mounting position.

h. Provide motors suitable for 480 V, 3 PH, 60 Hz.

6. Gearing:

a. Provide power gearing consisting of heat treated steel helical gears, carburized and hardened alloy steel worm, and alloy bronze worm gear, all grease or oil bath lubricated, designed for 100 percent overload, and effectively sealed against entrance of foreign matter.

b. Provide gearing mechanism constructed to permit field changes of reduction gear ratio.

c. Design actuators so that motor comes up to speed before stem load is encountered in either opening or closing operation.

d. Limit switch gearings and feedback device reduction gearing:

i. Steel or bronze.

e. Support rotating shafts with anti-friction bearings.

f. Provide separate drive nut/thrust bearing assembly:

i. Mounted to base of actuator.
ii. High tensile bronze.
iii. Quarter turn actuator: Provide 90 degree mounting intervals.
iv. Provide grease fitting on drive assembly.

7. Handwheel:

a. Permanently attached for manual operation.
b. Positive declutch mechanism to engage and disengage handwheel.
c. Handwheel shall not rotate during motor operation.
d. Inoperable motor shall not prevent manual operation.

8. Limit torque and thrust loads in both closing and opening directions by torque limit switches.

a. Provide torque switches with micrometer adjustment and reference setting indicator.

i. Assure adjustment variation of approximately 40 percent in torque setting.

b. Provide switches having rating of not less than 6 A at 120 Vac and 2.2 A at 115 Vdc.

c. Limit and torque switches shall have totally sealed contacts.

9. Furnish electric actuator with two (2) geared limit switch assemblies with each switch assembly having four (4) separate limit switches:

   a. Assure each limit switch assembly is geared to driving mechanism and is independently adjustable to trip at any point at and between the fully open and fully closed valve position.

   b. Provide minimum of two (2) normally open contacts and two (2) normally closed contacts at each end of valve travel.

   c. Provide switches with inductive contact rating of not less than 6 A at 120 Vac, 3 A at 240 Vac, 1.5 A at 480 Vac, 2.2 A at 115 Vdc and 1.1 A at 230 Vdc.

   d. Limit switches shall be fully adjustable when power is applied to actuator.

10. Provide space heating elements sized to prevent condensation in both motor and geared limit switch compartment(s).

   a. Furnish heating elements rated at 120 Vac with heaters continuously energized.

11. Open-close actuator controls:

   a. Provide control assembly with necessary holding relays, reversing starter, control transformers of sufficient capacity to provide control power, space heating element power and valve position transmitter.

   b. Provide control assembly in an enclosure rated for the defined area classification.

   c. Controls for open/close actuator:

      i. Provide remote pushbutton station where scheduled with enclosure rated for area classification shown on Drawings with:

         - Open pushbutton.
         - Close pushbutton.
         - Stop pushbutton.
         - Remote/local switch.
         - Full open light.
         - Full close light.
         - Open and close relays as required.

      ii. Provide control enclosure to accept:

         - Remote open/close switches.

      iii. Provide contacts in control enclosure:

- Remote/local contact.
- Full open contact.
- Full close contact.

iv. Wire all components to an internal terminal strip and include mounted wiring diagram inside enclosure.

12. Additional requirements for modulating valve actuators:

a. Proportional position servo-amplifier mounted integral with the actuator control compartment.

b. Positioning of valve shall be proportional to a 4-20 mA signal input to the position servo-amplifier when remote control has been selected.

c. Servo-amplifier adjustments shall include zero, span, gain, and dead-band.

d. Provide 4-20 mA signal position control as shown on the drawings that interfaces with the position control/position feedback instrumentation wiring to and from PLC.

G. Pneumatic Actuators

1. Acceptable manufacturers:

a. K-Tork
b. Or Engineer approved equal

2. Pneumatic actuators shall be designed and constructed as follows:

a. Shall be vane with lip seals design housed in a split housing.

b. The lip seal on the vane shall be dual opposed injection molded polyurethane and must totally isolate the shaft seals from the air supply.

c. Stainless steel expanders shall be fitted beneath the vane lip seal to ensure continual seal-to-case contract. O-ring vane seals are unacceptable.

d. Actuator housing shall be zinc (ILZRO-16) or aluminum (ASTM-380 or ASTM-356T%) and must be externally coated with corrosion resistant baked epoxy enamel coating. Actuator housing interior surfaces shall be electrolyses nickel plated, baked epoxy enamel or Teflon impregnated.

e. Actuator shall have stainless steel threaded travel stops allowing adjustment at each end of stroke. All fasteners shall be stainless steel.

f. The actuator shall be designed hold the valve in position without fluttering when in any position and during modulation.

g. The actuator shall have a minimum working pressure of 150 psig and be designed with a minimum factor of safety of 3 based on the yield strength of the material.

3. Operators shall be sized to open and close valves based on customer supplied air of 80 psig. The rated torque capabilities of each operator shall be 1.25 times the maximum valve torque required to seat, unseat, operation (dynamic) without jerking the disc and hold the valve open under any operation condition. Visual position indication shall be provided on all actuators.

4. Provide handwheel operation between the valve and pneumatic operator to allow the valve to be manually opened or closed. Provide with handwheel operator engage/disengage lever. Pneumatic operator shall be provided with a manual air bleed to release air pressure and allow manual operation of the valve. Air bleed shall be an integral part of the actuator.

5. OPEN/CLOSE Actuators:

a. Shall consist of a solenoid (to control air to actuator vane), position indicator and limit switches housed in NEMA 4 enclosures.

b. Solenoid valve shall be four-way and control the actuator by exhausting or applying air to the appropriate side of the vane actuator.

c. Solenoid valves shall have integral manual override mechanisms to allow manual operation in the event of power failure.

d. Solenoid valve shall be the diaphragm type and ported to allow contaminants up to 40 microns.

e. Solenoid valves shall be sized to open valve in 45 seconds and have speed control devices that allow an increase or decrease by a factor of two in cycle time for both open and closed travel time.

f. Solenoid valves shall be a two position spring return and designed so that the valve being controlled will fall in the open or closed position as specified in the control strategy on loss or power, or control signal.

g. The solenoid valves may be either externally mounted or internally mounted. Externally mounted solenoid valves shall be manufactured by AUTOMATIC SWITCH CO or approved equal.

h. Solenoid valve body and internals shall be brass or stainless steel.

i. Provide all actuators with two limit switches for open-close limit stops. Limit switches shall be hermetically sealed proximity-type limit switches. Switches shall be solid state and include integral solid state voltage spike and current surge protection.

j. Provide all actuators with position indicators (green for open and red for closed).

k. Actuator components shall be designed for a 120 VAC power supply.

l. Provide wiring terminal strip pre-wired and labeled.

2.4 FABRICATION

A. End Connections:

1. Provide the type of end connections for valves as required in the Piping Schedules presented in Specification Section 15060 or as shown on the Drawings.

2. Comply with the following standards:

a. Threaded: ASME B1.20.1.

b. Flanged: ASME B16.1, Class 125 unless otherwise noted or AWWA C207.

c. Bell and spigot or mechanical (gland) type: AWWA/ANSI C111/A21.11.

d. Soldered: ASME B16.18.

e. Grooved: Rigid joints per Table 5 of AWWA C606.

B. Refer to individual valve Specification Sections for specifications of each type of valve used on Project.

C. Nuts, Bolts, and Washers:

1. Wetted or internal to be stainless steel (type 316).

a. Exposed to be zinc or cadmium plated.

D. On Insulated Piping: Provide valves with extended stems to permit proper insulation application without interference from handle.

E. Epoxy Interior Coating: Provide epoxy interior coating for all ferrous surfaces in accordance with AWWA C550.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Setting Buried Valves:

1. Locate valves installed in pipe trenches where buried pipe indicated on Drawings.

2. Set valves and valve boxes plumb.

3. Place valve boxes directly over valves with top of box being brought to surface of finished grade.

4. Install in closed position.

5. Place valve on firm footing in trench to prevent settling and excessive strain on connection to pipe.

6. After installation, backfill up to top of box for a minimum distance of 4 FT on each side of box.

C. Support exposed valves and piping adjacent to valves independently to eliminate pipe loads being transferred to valve and valve loads being transferred to the piping.

D. For grooved coupling valves, install rigid type couplings.

E. Install electric or cylinder actuators above or horizontally adjacent to valve and gear box to optimize access to controls and external handwheel.

F. For threaded valves, provide union on one (1) side within 2 FT of valve to allow valve removal.

G. Install valves accessible for operation, inspection, and maintenance.

3.2 ADJUSTMENT

A. Adjust valves, actuators and appurtenant equipment to comply with Division 01.

1. Operate valve, open and close at system pressures.

B. For all 120 Vac and 480 Vac electric actuators, employ and pay for services of valve actuator manufacturer's field service representative to:

1. Inspect valve actuators covered by this Specification Section.

2. Supervise adjustments and installation checks:

a. Open and close valves electrically under local manual and demonstrate that all limit switches are properly adjusted and that switch contacts are functioning properly by verifying the inputs are received at the remote input/output (RIO) panels or local control panel as appropriate.

b. Simulate a valve position command signal at the RIO panel or local control panel as appropriate and demonstrate that the valve is controlled to the desired position without excessive hunting.

3. Provide Owner with a written statement that the valve actuator manufacturer has verified that the actuators have been installed properly, that all limit switches and position potentiometers have been properly adjusted and that the valve actuator responds correctly to the valve position command.

END OF SECTION

SECTION 15101

GATE VALVES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Gate valves for water service.

1.2 REFERENCES:

A. ASTM B62--Standard Specifications for Composition Bronze or Ounce Metal Castings.

B. ANSI B16.1--Cast Iron Pipe Flanges and Flanged Fittings.

C. AWWA C509--Resilient Seated Gate Valve.

D. AWWA C515--Reduced-Wall, Resilient-Seated Gate Valves

E. AWWA C500--Double Disc Gate Valve.

1.3 SYSTEM DESCRIPTION:

A. Valves 4-inch through 48-inch shall be manufactured in accordance with AWWA C515. Valves smaller than 4-inch shall be manufactured in accordance with AWWA C500.

B. Where the requirements of these specifications conflict with AWWA C509 and AWWA C500, these specifications shall govern.

1.4 SUBMITTALS:

A. Provide the following information in accordance with Section 01300:

1. Dimensional information.
2. Manufacturer's installation, operation, and maintenance instructions.
3. Recommended list of spare parts.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Storage: Store all valves and appurtenances in accordance with the manufacturer's written instructions. Protect all valves and appurtenances from damage.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Approved Gate Valve Manufacturers (AWWA C515):

1. M&H.
2. Clow.
3. Mueller.
4. Approved equivalent.

2.2 VALVES:

A. Gate Valves (4-inch through 48-inch):

1. Type: Solid wedge, resilient-seat type.
2. Standard: AWWA C515.
3. Working Pressure: Rated to 200 psi minimum.
4. Stem: Non-rising stem with O-ring valve packing and 2-inch square nut, except as shown otherwise.
5. Joints: Mechanical (buried); Flanged (above grade).
6. Opening: Counterclockwise.
7. Finish: Ferrous surfaces of valve interior epoxy-coated, AWWA C550.
8. Wrapping: Wrap valve body with 8 mil polyethylene encasement in a manner which will not interfere with valve operation, buried service.

2.3 MANUAL VALVE ACTUATORS:

A. Provide manual actuators/operators for valves.

B. Manual actuators shall be locking lever-type on valves 8-inch diameter or less. Levers shall be capable of being locked in the "OPEN," "CLOSED," and at least 8 intermediate positions. Levers shall lock by means of a visible spring loaded locking system that must be released before operating the valve.

C. Manual actuators for valves 10-inch diameter and larger shall be rotary manual (gear) type. Rotary manual actuators shall have hand wheel input. Rotary manual actuators shall be enclosed lubricated, and sealed. Provide "OPEN" and "CLOSED" position stops that are externally adjustable. An external indicator shall show the position of the valve disc.

D. Actuators shall be factory-installed only. Attaching the actuators to the valves while in the field is not acceptable.

E. Actuator orientation shall be in accordance with the direction of the Owner and Engineer.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install valves in accordance with manufacturer's instructions and as shown.

B. Demonstrate valve operation by manual control at valve.

END OF SECTION

SECTION 15180

PIPE INSULATION

PART 1 GENERAL:

1.1 SECTION INCLUDES:

A. Types of mechanical insulation specified in this section include the following:

1. Insulation for Outdoor, Exposed Water, Air, and Chemical Piping Systems:

a. Preformed fiberglass pipe, valve, and fitting insulation.
b. Preformed aluminum alloy pipe, valve, and fitting jackets.

2. Insulation for Indoor and Outdoor Liquid Refrigerant Piping

a. Preformed fiberglass pipe, valve, and fitting insulation.
b. Preformed PVC pipe, valve, and fitting jackets.

3. Insulation for HVAC Ductwork:

a. Rigid board with lagging fabric
b. Information in this specification shall supersede insulation giving on drawings.
c. Preformed fiberglass pipe, valve, and fitting insulation.
d. Preformed PVC pipe, valve, and fitting jackets.

4. Insulation for HVAC Ductwork:

a. Rigid board with lagging fabric.
b. Information in this specification shall supersede insulation information given on drawings.

1.2 CODES AND REGULATIONS:

A. Building Codes: comply with applicable requirement of all governing authorities.

B. Certifying Agencies:

1. UL.
2. OSHA.
3. NFPA.
4. ASTM.

C. Regulations, Standards, and References:

1. ASTM C921: Properties of Jacketing Materials for Thermal Insulation.

2. NICA: Guide to Insulation Product Specifications. Above available from National Insulation Contractors Association, 1025 Vermont Avenue, NW # 410, Washington, DC 20005; (202) 626-7547.

3. UL-723: test for Surface Burning Characteristics of Building Materials.

1.3 QUALITY ASSURANCE:

A. Flame/Smoke Rating: Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame-spread index of 25 or less, and smoke-developed index of 50 or less, as tested by ASTM E84 (NFPA)

1. Exception: Outdoor mechanical insulation may have flame spread index of 75 and smoke development index of 150.

2. Exception: Industrial mechanical insulation that will not affect life safety egress of building may have flame spread index of 75 and smoke development index of 150.

1.4 SUBMITTALS:

A. Product Data: Submit manufacturer's technical product data and installation instructions for each type of mechanical insulation and jacket in accordance with Section 01300. Submit schedule showing manufacturer's product number, k-value, thickness, and furnished accessories for each mechanical system requiring insulation. Submit information on insulation and jacket properties, UV inhibitors and associated expected life.

B. Maintenance Data: Submit maintenance data and replacement material lists for each type of mechanical insulation. Include this data and product data in maintenance manual.

C. Samples: Submit manufacturer's sample of each insulation type required. Affix label to sample completely describing product.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Deliver insulation, coverings, cements, adhesive, and coatings to site in containers with manufacturer's stamp or label, affixed showing hazard indexes of products.

B. Protect insulation against dirt, water, and chemical and mechanical damage. Do not install damaged or wet insulation; remove from project site.

PART 2 PRODUCTS

2.1 PIPING SYSTEM INSULATION: PREFORMED FIBERGLASS INSULATION:

A. Insulation Product Manufacturers:

1. CertainTeed 500 Snap-On Fiberglass Pipe Insulation with all service jacket (ASJ) with self-sealing lap.

2. Manville 850 Micro-Lok Fiberglass Pipe Insulation with pressure sensitive lap sealing system (AP-T Plus) Jacket.

3. Owens-Corning 850 ASJ/SSL-II fiberglass pipe insulation with jacket and sealing system.

B. Insulation Properties:

1. Type: Heavy density, preformed, one-piece insulation sections of glass fibers bonded with thermosetting resin.

2. Thermal performance per ASTM C335: K-factor of 100° F = 0.23 btu in/hr -SF - F.

3. Flame spread per ASTM E84: 25 or less.

4. Smoke development per ASTM E 84: 50 or less.

5. Temperature range: 0° to 500° F.

6. Moisture absorption per ASTM C553: Less than 0.2 percent by volume.

7. Shrinkage per ASTM C356: Negligible.

8. Corrosivity: Does not accelerate corrosion to steel or alum or copper.

9. Resistance to bacteria and fungi: Does not breed or promote.

C. Jacketing for Outdoor and Exposed Piping:

1. Jacketing for outdoor and exposed piping shall be aluminum alloy 3003, 3105, or 5005 conforming to ASTM B209 with an embossed finish and a factory applied moisture barrier consisting of one layer of 40- to 60- pound virgin kraft paper coated on one side with a 0.001-inch minimum thickness polyethylene film.

2. Minimum jacketing thickness shall be:

a. Pipe, fitting, and valve insulation 12 inches or less in outside diameter: 0.020-inch.

b. Pipe, fitting, and valve insulation greater than 12 inches in diameter: 0.032-inch.

c. All removable and reusable insulation panels and sections: 0.032-inch.

D. Jacketing for Indoor Piping:

1. A final covering of the insulation for indoor piping shall be of 0.030 inch thick PVC. All valves, flanges, fittings, and ends of insulation shall be covered with a pre-molded, high-low temperature PVC fitting cover or end cap, or similar preformed unit. The pre-molded cover shall be sized to receive the same thickness of insulation as used on the adjacent piping. Pre-mold fittings shall be Zeston, 2000 PVC; or equal.

E. Securements and Supports:

1. Securement wire shall be the annealed galvanized type.
2. Securement bands shall be stainless steel.
3. Pipe insulation supports for vertical pipe runs may be either the welded or clamped type. Materials shall be galvanized carbon steel.

F. Accessories:

1. Sealants: Silicone and Weatherban sealants as recommended by manufacturer.
2. Tapes supplied with products per manufacturers recommendations.

G. Insulation Thickness Schedule for Outdoor and Exposed Piping:

Pipe Size, in.	Insulation Thickness, in.
½ or less	3/4
3/4	1
1	1
1-1/4	1
1-1/2	1
2	1-1/2
2-1/2	1-1/2
3	1-1/2
4	1-1/2
6	2
8	2
10	2
12	2
>12	2

H. Insulation Thickness for Indoor and Outdoor Liquid Refrigerant Piping Shall be a minimum 2 inches for all pipe sizes.

I. Heat Traced Piping/Tanks:

1. Size insulation to accommodate heat tracing cable.

2.2 SPARE PARTS:

A. All piping System Insulation and Jacketing:

1. Ten (10%) percent of total installed length or 100 linear feet for each pipe size whichever is greater.

2. Fifteen (15%) percent of total number of each size fittings, valves, and flanges of five (5) each whichever is greater.

3. One (1) case of sealants and tapes as applicable.

2.3 DUCTWORK INSULATION:

A. All HVAC ductwork with exterior insulation shall be a minimum 1-inch thick, rigid board, having a thermal conductivity of not greater than 0.23 BTU/SF/degree F/HR at 75 degrees F mean temperature with a foil faced reinforced facing. The insulation shall be applied with edged tightly butted and secured by impaling on pins fastened to the ductwork. The pin spacing shall be sufficient to hold the insulation firmly to the duct surface and the insulation shall be held with speed clips. Pins shall be clipped after installation. All joints shall be sealed with a minimum 3-inch vapor barrier tape. The final outer covering shall be a rewetable, incombustable, 100 percent fiberglass lagging. The finish covering shall be neatly pasted in place with joint taping as required. All pasting of lagging shall be done with manufacturer's recommended adhesive. The insulation shall be Owens Corning Type 705, Johns Manville, or equal. The lagging fabric shall be Alpha Associates, Alpha-matrix 3451-RW, J.P. Stevens, or equal.

B. The CONTRACTOR shall replace insulation damaged or removed by modification to existing ductwork. The insulation shall be new and all joints between new and existing insulation shall be make water-tight.

PART 3 EXECUTION:

3.1 INSTALLATION OF INSULATION:

A. General:

1. Install ductwork and piping system insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that insulation serves its intended purpose.

2. Install insulation on pipe systems subsequent to installation of heat tracing, painting, testing, and acceptance of tests.

3. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with single cut piece to complete run. Do not use cut pieces or scrapes abutting each other.

4. Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.

5. Maintain integrity of vapor-barrier jackets on pipe insulation, and protect to prevent puncture or other damage.

6. Cover valves, fittings, flanges and similar items in each piping system with equivalent thickness and composition of insulation as applied to adjoining pipe run. Install factory molded, precut or job fabricated units (at installer's option) except where specific form or type is indicated.

7. Extend piping insulation without interruption through wall sleeves, hanger sleeves and similar piping penetrations, except where otherwise indicated.

B. Pre-formed fiberglass pipe insulation:

1. Pipe insulation shall be cut to proper length as required, installed around the pipe, and sealed into position.

2. All butt joints shall be finished with butt strips and sealants.

3. All fitting covers shall be sealed with sealant, then taped in place using pressure sensitive tape.

4. All installation shall be performed in compliance with the directions of the manufacturer.

5. All fittings, valves, flanges, etc., shall be insulated with equal thickness as piping and finished with preformed jackets.

6. All designated equipment shall be insulated with 2-inch thick and finished with field fabricated jackets.

C. The configurations of install insulation and jacketing materials shall comply with the applicable recommendations of the MICA commercial and Industrial Insulation Standards (hereinafter referred to as "MICA Standard") in this specification. In case of conflict, this specification shall have precedence.

D. All materials shall be installed in accordance with the manufacturer's recommendations, including recommended surface temperatures at installation. Should a conflict arise between a manufacturer's recommendation and this specification, notify the ENGINEER.

E. Insulation shall be installed in the thicknesses and configurations specified. Some unavoidable interferences may be encountered, however, which preclude installation of the required thicknesses. In these cases, notify the ENGINEER and obtain written approval for alternative configurations before proceeding. Notching of insulation is not permitted without ENGINEER's approval.

F. Do not apply insulation to piping and equipment until leak tests and hydrostatic tests have been successfully completed as specified.

G. Do not apply insulation to flanged joints until the joints have been retightened after hydrostatic testing.

H. Provide a clearly and permanently marked pull plug of specified insulation and jacketing materials over equipment and ASME nameplates. Plugs shall be marked "EQUIPMENT NAMEPLATE" or "ASME NAMEPLATE," as applicable.

I. Provide fire-resistant drop cloths and enforce their use during surface cleaning and installation of insulation to keep materials off gratings, floors, structures, equipment, and other items not specified to be insulated.

J. CONTRACTOR shall protect all insulation materials during and after installation to prevent damage from weather, breakage, etc., until jacketing has been installed and accepted.

K. Protect moving parts of valves and other equipment to prevent dust and insulation materials form clogging the parts. Plug openings of equipment, as necessary, to prevent foreign materials from entering during surface cleaning and installation of insulation.

L. All surfaces to be insulated shall be clean and dry prior to installing insulation on them. Unless specified otherwise, clean by wiping and brushing, as necessary, to remove loose foreign matter, grease, etc. Solvents may be used upon notification of the ENGINEER and enforcement of appropriate precautions.

3.2 INSULATION AND JACKETING OF PIPE:

A. Insulate all piping where indicated.

B. Install preformed pipe insulation sections as follows (refer to MICA Standards):

1. All joints shall be tightly butted.
2. Stagger all joints in double-layered insulation as follows:

a. Longitudinal joints in half sections: approximately 90° around pipe circumference.

b. Longitudinal joints in quad sections: approximately 45° around pipe circumference.

c. Circumferential joints: Mandatory 12-18 inches along pipe axis, where possible; 6 inches minimum.

C. Secure preformed pipe insulation sections with wire and bands as follows:

1. Use specified wire and bands of the following minimum sizes:

Insulation Outside Diameter (In.)	Inner or Outer Insulation Layer	Wire or Brands	Wire Gauge	Band Width	Band Thickness
12 or less	Inner Outer	Either Bands	16 --	3/8 3/8	0.015 0.015
12 to 17	Inner Outer	Either Bands	14 --	3/8 3/8	0.020 0.020
Greater than 17	Either	Bands	--	1/2	0.020
Outside Diameter (In.)	**Insulation Wire or Bands**		**Wire Gauge**	**Band Width (In.)**	**Band Thickness (In.)**
12 or less 12 to 17 Greater than 17	Wire Wire Bands		16 14 --	-- -- 1/2	-- -- 0.020

2. Draw bands and wires tight to securely butt longitudinal joints and to imbed them in the insulation. Take care to minimize cutting of insulation.

3. Secure bands with clamps. Twist wire. Maintain tightness of bands and wires while securing them.

4. Cut off excess ends of wires and bands and imbed the clamps and wire twists in the insulation, taking care to minimize cutting of insulation. Be sure insulation is tightly secured.

D. Point all joints, cracks, and depressions, except expansion joints, with insulating cement, as necessary, to provide a smooth finished surface. Allow cement to dry thoroughly. Repeat process, as needed, to repair any shrink cracks, depressions, etc.

E. Install insulation on pipe bends, valves, fittings, flanges, and in-line specials as follows:

1. For piping 2-1/2 inches in nominal size and larger, use preformed pipe, preformed fitting, and block insulation materials to form the following types of insulating covers, as applicable (refer to MICA Standards):

a. Preformed valve and fitting insulation shall be installed, where applicable, with joints tightly butted.

b. Field or factory-fabricated valve/tee insulation, constructed of specified preformed pipe or fitting insulation and/or block insulation, may be used.

c. Built-up and beveled in-line flange insulation may be used.

2. Preformed fitting and pipe insulation and block insulation shall be applied in sufficient layer thicknesses so that the final total thickness

is as least as thick as required by the applicable insulation class.

3. Secure insulation as specified above.

4. Point all joints, cracks, and depressions with insulating cement to provide a smooth finish surface and to smoothly blend insulation into adjacent pipe insulation, where applicable.

5. For piping 2 inches in nominal size and smaller, preformed pipe and fitting insulation and block insulation as specified above shall be used.

6. Install removable and reusable insulation on orifice flanges, conical strainers, valve bonnets, and other locations where access to piping, valves, or in-line specials may be required for maintenance, tightening of flanges, etc. as follows:

   a. Panes and sections shall be constructed of block insulation fastened to and reinforced with, metal jacketing sections. Aluminum plate, flat bar, angle, etc., may also be used for reinforcement.

   b. The total insulation thickness shall be the minimum insulation thickness specified for the applicable insulation class.

   c. Covers shall be constructed to facility removal and reinstallation of the entire assembly with ease and without damage to either the insulation or jacketing.

   d. Cut-outs for pipe, pump shafts, etc., penetrating the equipment covered shall be cut so that no gap exists between the cover and the penetrating piece larger than:

Penetrating Item	Maximum Allowable Gap (in.)
Pipe Jacketing	1/8
Pump Shaft	1/4
Other	Contact Engineer

F. Jacketing

1. Install specified jacketing on all piping insulation.

2. Prepare outdoor piping insulation by applying a protective layer of mastic or vinyl tape to the outside surfaces. Irregularly shaped surfaces at valves, fitting, etc., may be coated with two applications of epoxy paint in lieu of the mastic or vinyl tape.

3. Install jacketing over the insulation to provide a tight protective cover as follows:

   a. Longitudinal jacketing joints shall be installed with an overlapping crimped edge. The overlap shall be a minimum

of 2 inches for indoor application and a minimum of 3 inches for outdoor application. The crimped edge shall be installed on the underside of horizontal piping with the overlapping edge about 30 from the bottom horizontal tangent of the jacketing and facing down. The overlap area on vertical runs of piping shall be located on the side of the pipe least visible to normal walkways and aisles.

b. Circumferential jacketing joints shall be overlapped 2 inches on indoor insulation and 3 inches on outdoor insulation.

c. The area of circumferential overlap between two adjacent jacketing sections shall be located at least 4 inches from any butt or expansion joint in the outside layer of insulation covered.

d. Factory- or field-fabricated aluminum insulation covers may be used on all pipe bends, fitting, flanges, valves, etc. Factory-fabricated (one-piece, two-piece, or sectional) covers are mandatory where proper fit-up is possible. All joints between section or with adjoining pipe insulation shall be overlapped a minimum of 2 inches for indoor application and a minimum of 3 inches for outdoor application, unless precluded by standard fabrications. Advise the ENGINEER where the required overlap cannot be achieved.

e. Jacketing shall be installed on vertical piping so that upper sections overlap lower sections. Install stainless steel "S" clips on all horizontal laps. Located clips at approximate 90° intervals around piping where installed jacketing is 24 inches or less in diameter. Locate clips at approximately 45° intervals for larger diameters of installed jacketing.

4. Secure jacketing with 0.020-inch thick metal stainless steel or aluminum bands on maximum centers of 12 inches as follows:

a. Install a band on each side of a circumferential joint within 3 inches of the overlap area. Do not install bands in overlap area.

b. Use 1/2-inch wide bands for installed jacket diameters up to and including 30 inches.

c. Use 3/4-inch wide bands for installed jacket diameters exceeding 30 inches.

5. Install aluminum flashing and rainhoods on pipe hanger rods which support outdoor insulated piping.

3.3 PROTECTION AND REPLACEMENT

A. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.

B. Protection: Insulation installer shall advise CONTRACTOR of required protection for insulation work during remainder of construction period, to avoid damage and deterioration.

3.4 SPARE PARTS: Deliver spare parts to OWNER's warehouse on-site.

END OF SECTION

SECTION 16000

GENERAL REQUIREMENTS FOR ELECTRICAL WORK

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. General requirements for electrical work. This includes quality standards and system testing.

1.2 REFERENCES:

A. The 2017 National Electrical Code (NFPA 70).

B. Local Amendments to the 2017 National Electrical Code.

C. The Life Safety Code (NFPA 101).

D. Americans With Disabilities Act (Public Law 101-336).

E. The International Building Code.

1.3 SUBMITTALS:

A. Submittals shall be provided in accordance with Section 01300. The submittals shall be identified by the specified equipment number and specification section.

B. Submit results of the testing services as specified herein.

1.4 QUALITY ASSURANCE:

A. All work shall be furnished, installed, and connected in accordance with the National Electrical Code, these specifications, and the drawings. All materials used in this work shall be new and shall bear the inspection label of Underwriter's Laboratories, Inc.

B. Installation shall be supervised by an electrician licensed as a "Master Electrician."

C. Field work shall be under the continuous supervision of a licensed "Journeyman or Master Electrician."

D. Licensing as a "Master" or "Journeyman" electrician shall mean to hold a current certification or license to that effect issued by the State of Texas. Additionally, if the local authority having jurisdiction requires a local license, the Contractor shall maintain licensed electricians that meet the requirements of the local authority. Submit copies of current licenses or certificates for persons employed on the work. Notify Engineer and remove from the work (within 10 days) any persons for whom a license or certificate is suspended, revoked, or is otherwise rendered void by the issuing agency.

E. The drawings and specifications are complementary. What is shown on one is binding whether shown or specified in the other or not. Failure to check both the drawings and the specifications will not be grounds for a change order if additional equipment or material is required to be provided by the Contractor after the Engineer reviews, or deficiencies are identified during testing, either in the Factory or the field.

1.5 EQUIPMENT ACCESSIBILITY:

A. All equipment requiring access for monitoring, controlling other equipment, or servicing shall be accessible. Motor starters and other control equipment shall be installed at a height that will allow an operator to view or control the equipment without stooping or without requiring a platform, stool, or raised floor to view or control the equipment. Generally, motor starters, panels, and similar equipment shall be installed with the top of the enclosure at approximately 5'-6" above floor level. Control stations, and other small enclosures that require normal access, shall be installed with the top of the enclosure at approximately 48-inches above floor level.

B. Equipment that is not considered accessible by the Engineer or Owner shall be relocated by the Contractor, at the request of the Engineer or Owner, at no additional cost to the Owner.

1.6 STORAGE OF MATERIALS AND EQUIPMENT:

Materials and equipment shall be stored so as to protect the materials and equipment during storage. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Equipment and materials to be located indoors shall be stored indoors. Instrumentation shall be stored indoors.

PART 2 PRODUCTS

2.1 COATING SYSTEM:

A. GENERAL:

Where specified, electrical equipment in Division 16 shall be painted by the manufacturer as specified below.

B. FINISH:

Unless otherwise required to be stainless steel, equipment shall be treated with zinc phosphate, bonderized or otherwise given a rust-preventative treatment. Equipment shall be primed, painted with enamel and baked. Minimum dry film thickness shall be 3 mils.

C. COLOR:

Exterior color shall be ANSI 61, gray. Interior shall be painted white. Nonmetallic electrical enclosures and equipment shall be the manufacturer's standard gray or beige color.

2.2 TERMINAL BLOCKS:

Unless otherwise specified, terminal blocks shall be screw terminal, heavy duty, rated at 600V AC. Minimum capacity for control service is 5 amps. Terminals shall be provided with integral marking strips which shall be permanently identified as shown on the shop drawings or required for installation.

2.3 MISCELLANEOUS METAL:

A. Miscellaneous metal installed in conjunction with electrical or instrumentation work shall be hot-dipped galvanized or stainless steel as specified or indicated on the drawings. Painted steel is not acceptable.

B. Materials included in this specification group includes, but is not limited to bars, rods, sheet, plate, channel, or other metal shapes used to, or incorporated in support frames, brackets, mounting plates, etc. Unless otherwise specified, steel parts shall be hot-dipped galvanized after fabrication. Pre-galvanized material used for fabrication shall have all nicks, dings, or other imperfections in the coating repaired. No welding is allowed on pre-galvanized materials. If fabrications require welding after galvanizing, the part or parts shall be regalvanized after welding.

C. Materials used in wet, damp, or corrosive locations, and all locations where chemical are stored or handled, such as a Chemical Building or room, shall be stainless steel.

D. Bolts, nuts, screws, washers, or similar ancillary materials used shall be 316 stainless steel for exterior areas, areas below grade, indoor wet, damp, or corrosive locations. Carbon steel with galvanized or cadmium-plated finish may be used in dry, indoor areas.

E. All anchor bolts that are installed in floors shall be 316 stainless steel.

PART 3 EXECUTION

3.1 GENERAL:

A. Drawings are generally diagrammatic and show the arrangement and location of fixtures, equipment, and conduit. Not all conduit, wire, and cable are shown on the Engineers drawings. The Electrical Contractor shall provide all that is necessary for a complete and functional system. The Electrical Contractor shall carefully investigate the structural and finish conditions affecting his work and arrange his work accordingly.

B. Any discrepancy between the Contract Documents and the existing conditions or any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, the Electrical Contractor shall report to the Engineer in accordance with the Standard Conditions of the Contract.

C. Where exact locations are required by equipment for stubbing-up and terminating conduit concealed in floor slabs, the Electrical Subcontractor shall

request shop drawings, equipment location drawings, foundation drawings, and any other data required by him to locate the concealed conduit before the floor slab is poured. Additional penetrations/openings not shown on the drawings shall not be made without preapproval by the Engineer.

D. Materials, equipment, or labor not indicated, but which can be reasonably inferred to be necessary for a complete installation shall be provided. Drawings and Specifications do not undertake to indicate every item of material, equipment, or labor required to produce a complete and properly operating installation.

E. The right by the Owner and Engineer is reserved to make reasonable changes in locations of equipment indicated on drawings prior to rough-in without increase in contract cost.

F. The Contractor shall not reduce the size or number of conduit runs indicated on the drawings without the written approval of the Engineer.

G. Locate pull boxes, panelboards, control pushbuttons, terminal cabinets, safety switches, and such other apparatus that may require periodic maintenance, operation, or inspection, so that they are easily accessible. If such items are shown on the plans in locations which are found to be inaccessible, the Engineer shall be advised of the situation before work is advanced to the point where extra costs will be involved.

H. All additional circuit connections to panelboards shall be preapproved by the Engineer.

I. Any work installed contrary to Contract Drawings shall be subject to change as directed by the Engineer, and no extra compensation will be allowed for making these changes.

J. The location of equipment fixture outlets, and similar devices shown on the Drawings are approximate only. Do not scale drawings. Obtain layout dimensions for equipment from Architectural plans unless indicated on electrical plans.

3.2 RACEWAY INSTALLATION:

Use the following raceway materials for raceways in the identified applications.

A. Rigid PVC: Buried Raceways.

B. Rigid Steel: Outdoors and Indoors.

C. Flex: Provide a length of liquid tight flexible metal conduit between fixed rigid conduit and connected equipment such as motors, instruments, or switching devices. Flexible section shall not be shorter than 12 inches and no longer than 42 inches.

3.3 TESTING:

A. GENERAL:

Prior to energizing the electrical circuits, the following tests shall be performed. Unless otherwise specified, a 1000 volt megohmmeter shall be used for resistance measurements. Record and submit test results using form at the back of this Section.

B. INSULATION RESISTANCE MEASUREMENTS:

Test all energized electrical components including conductors for circuits 120V volts and higher. Conductors and devices with less than 50 megohms resistance to ground or between conductors or phases shall be removed and replaced. All conductors in a raceway shall be removed if a conductor in that raceway fails the insulation resistance test. The conductors shall not be reused.

C. MOTOR TESTS:

All motors shall have their insulation resistance measured before they are connected. Insulation resistance values less than 10 megohms are not acceptable. Verify that motors are connected to rotate in the correct direction. Verification may be accomplished by momentarily energizing the motor, provided the Contractor confirms that neither the motor nor the driven equipment will be damaged by reverse operation. Measure the full load current on each phase with the motor running at maximum operating load.

D. FUNCTIONAL CHECKOUT:

Protective devices shall be adjusted and operative during the testing period. Prior to start-up of each piece of equipment or system, perform a functional checkout on control circuits. The checkout shall consist of energizing each control circuit and operating each control, alarm, or malfunction device, and each interlock in turn to verify that the specified action occurs. This may be performed with the motor connected or disconnected, providing that no harm will be done to the equipment.

3.4 AS-BUILT DRAWINGS:

At the end of the project, provide one set of "red-lined" as-built drawings to the Engineer. As-built drawings shall show all addenda, change orders, or other modifications made by the contractor or directed by the Engineer/Owner. Drawings shall be complete and shall be accurate. Manholes and other in-ground structures shall be dimensioned from a known structure. Modifications to control schematics shall be marked on the drawings. Final payment will not be made until as-built drawings are accepted by the Engineer.

END OF SECTION

SECTION 16110

RACEWAYS AND FITTINGS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. The work shall include furnishing and installing all rigid steel and flexible metallic conduit, electrical metallic tubing, polyvinyl chloride conduit, wireways, pull and junction boxes and outlet boxes, together with all supporting devices and other accessories required.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all materials, under provisions of Section 01300.

PART 2 PRODUCTS

2.1 CONDUITS:

A. Galvanized Rigid Steel Conduit (GRC): Rigid, threaded, thick-wall; galvanized inside and outside or galvanized outside with a protective coating inside; UL listed and labeled according to Standard UL6; conforming to ANSI Standard C80.1.

B. PVC-Coated Galvanized Rigid Steel Conduit: Hot dip galvanized inside and out with hot galvanized threads. 40 mil polyvinyl chloride exterior with 2 mil urethane interior. UL listed and labeled according to Standard UL6; conforming to ETL Verified PVC-001.

C. Liquidtight Flexible Metal Conduit: Spirally wound with hot dip galvanized steel strips as for flexible metal conduit; with polyvinyl chloride cover extruded over the exterior to make conduit liquidtight. UL listed for grounding.

D. Rigid Nonmetallic Conduit: Rigid nonmetallic conduit shall be NEMA TC2, type EPC-40 or EPC-80 PVC high impact, polyvinyl chloride (PVC). Fittings used with PVC conduit shall be PVC solvent weld type. Nonmetallic conduits shall be UL listed for their respective applications. Minimum size shall be 3/4-inch.

1. Buried: Schedule 40.

2.2 CONDUIT FITTINGS:

A. Couplings, condulets, and Terminations for GRC: Factory made steel threaded condulets and couplings; gasketed, bushing at all boxes and cabinets, with locknuts inside and outside box or cabinet. Fittings shall be cast steel with threaded connections.

B. Couplings, condulets, and Terminations for PVC-Coated Galvanized Rigid Steel Conduit: Factory made condulets and couplings. All condulets, couplings, and other fittings shall be factory fabricated and shall meet the same standards as

PVC-Coated Galvanized Rigid Steel Conduit.

C. Couplings and Terminations for Liquid Tight Flexible Metal Conduit: T&B 5271 Series adapters at connections between flexible and rigid conduit; T&B 5331 Series nylon insulated throat steel connectors at box or cabinet terminations.

D. Couplings and Terminations for Rigid Nonmetallic Conduit (PVC): PVC shall be solvent weld by male thread adapter, Schedule 40 or Schedule 80 as required. Other fittings shall be solvent weld connections.

2.3 WIREWAYS:

A. Interior Use: UL listed; enamel finished; sizes shown or required; hinged covers; complete with: all fittings, couplings, hangers and accessories; Universal Hoffman or equivalent. Wireway shall be positioned such that the cover opens downward.

B. Exterior Use: UL Listed; hot-dip galvanized finish; sizes indicated or required; removable front cover which is gasketed; weatherproof rainhood.

2.4 OUTLET BOXES:

A. UL listed of sizes and types specified.

B. Sheet Steel Boxes: Sheet panel not lighter than No. 14 gauge, galvanized after fabrication; Raco or Steel City.

C. Cast Metal Boxes: Cast iron or cast alloy with threaded hubs; Crouse-Hinds, Appleton, or O.Z./Gedney.

2.5 PULL BOXES AND JUNCTION BOXES:

A. Sheet steel, galvanized inside and outside, with galvanized covers.

B. Small Boxes: For boxes where the volume required is not over 100 cubic inches, use standard outlet boxes.

C. Larger Boxes: For boxes where the volume is over 100 cubic inches, use cabinets as specified for panelboard cabinets with covers of same gauge as boxes, secured with corrosion resistant bolts or screws.

PART 3 EXECUTION

3.1 INSTALLATION OF RACEWAYS:

A. All wiring of every description shall be run in conduit unless noted or specified otherwise. Conduits may be run exposed in machinery and electrical rooms and unfinished areas. All other conduits shall be run concealed unless otherwise noted. All exposed runs shall be installed parallel and plumb to the surface of the building or structure in a neat and orderly manner.

B. Types: All conduits installed outdoors or indoors shall be GRC conduits.

C. Conduits installed below grade, in slabs, or buried in earth shall be PVC.

D. Sizes: Size and install raceways so that conductors may be drawn in without injury or excessive strain. Make field bends with approved bending devices. Do not install bends or offsets in which conduit is crushed, deformed or otherwise injured. Sizes of conduits shown on the drawings are minimum sizes to be installed. Size conduits per applicable electrical code.

E. Connections: Use lengths of liquid tight flexible metal conduit, not less than 12" long at final connections to all motors, controls, and other devices subject to movement because of vibration or mechanical adjustment. Do not install liquidtight flexible metal conduit to other devices or between panelboards or enclosures unless specifically shown on the drawings or approved by the Engineer.

F. Around Heat Producing Equipment: Wherever possible, avoid installing raceways directly above or in close proximity to heaters and other like objects operating at high temperatures.

G. Damp or Wet Locations: In damp or wet locations make every effort to avoid installing raceways in a manner which will create moisture traps. Where they must be so installed, seal both ends of raceways with an approved sealing compound to prevent "breathing" and moisture condensation within the raceways.

H. Joining Rigid Conduits: Join with threaded couplings. Ream out all conduit ends after threading. Secure rigid conduits at panel boxes, junction boxes, pull boxes, switchboards, support boxes, or sheet metal outlet boxes by galvanized locknuts, inside and outside, with insulating bushing inside. Unthreaded set screw type couplings or connectors are not acceptable in rigid conduit systems. No running threads shall be used in conduit systems.

I. Install blank knock out plugs in all unused openings in boxes, enclosures, or panels.

3.2 SEALING CONDUITS:

A. Damp or Wet Locations: In damp or wet locations make every effort to avoid installing raceways in a manner which will create moisture traps. Where they must be so installed, seal both ends of raceways with an approved sealing compound to prevent "breathing" and moisture condensation within the raceways.

B. Protection of Raceways: Seal ends of all raceways with blank discs ("pennies"), push pennies or other approved closers during construction. Do not pull any conductors into raceways until all plastering and concrete finishing in the vicinity is completed. Swab out all raceways before pulling in conductors.

3.3 INSTALLATION OF PVC CONDUIT:

A. Transition from below grade PVC to above grade rigid steel or PVC coated rigid steel shall be before conduit rises out of ground. On conduits larger than 2 inches, use rigid steel elbow. Tape wrap the portion of rigid steel or PVC coated rigid steel conduit in the ground as specified in Section 16115.

B. PVC conduit shall not be installed above grade.

3.4 SPARE OR EMPTY CONDUITS:

A. Provide in every spare or empty raceway, not containing conductors to be installed by this Contractor, a suitable pull line to facilitate future installation of wiring. Lines shall be free from splices and shall have ample exposed length at each end.

B. All lines shall be nylon or polyethylene cord with a tensile strength not less than 200 pounds.

C. Identify each end of each line with a stainless steel tag bearing complete information as to the purpose of the raceway and the location of its other end.

D. All spare conduits, not terminated in an enclosure, shall be terminated using a conduit cap or plug.

3.5 CONDUIT SUPPORTS:

A. Support material installed outdoors or in wet or damp locations shall be stainless steel, malleable iron, or hot-dipped galvanized.

B. All supports that come in contact with the floor, roof, or where water may stand or accumulate, whether indoors or outdoors, shall be stainless steel.

C. All anchor bolts shall be stainless steel.

D. All supports that are located in pipe trenches shall be stainless steel.

E. Support Spacing: Use minimum spacing as directed by National Electrical Code, but space hangers more closely where required by conditions.

F. Vertical Conduit Risers: Support vertical conduits at each floor by means of riser clamps or U-bolts, clamping them to a steel channel bridging the opening in the floor.

G. Individual Conduits: Support conduits running vertically or horizontally with galvanized malleable iron one hole clamps with backing plates and spacers, or as indicated on the drawings. Carry individually supported horizontal conduits 1-1/4" and larger on B-Line hangers. Use no perforated strap iron as hanger material.

H. All galvanized material cut during installation shall have the cut ends painted with a zinc rich paint.

3.6 INSTALLATION OF OUTLET BOXES:

A. Usage: Provide at each outlet or device of whatever character a metal outlet box in which conduits shall terminate.

B. Boxes for Exposed Work: Cast metal boxes.

C. Boxes for Outdoors: Cast metal boxes with gasketed covers.

3.7 INSTALLATION OF PULL AND JUNCTION BOXES:

A. Sizing: Size all pull and junction boxes in accordance with NEC, using larger sizes than required by code where job conditions so indicate.

B. Mounting: Fasten all boxes securely to the building construction, independent of conduit systems. On concealed conduit systems where boxes are not otherwise accessible, set box covers flush with finished surfaces for access.

C. Identification of Pull and Junction Boxes: Each pull and junction box shall be labeled with indelible ink to indicate the wiring contained inside the box. The label shall indicate the panel and circuit number of the wiring contained. The cover plates of boxes serving emergency circuits shall be painted red. Boxes servicing other systems shall be indicated by name.

END OF SECTION

SECTION 16115

UNDERGROUND ELECTRICAL DUCT AND CONDUIT

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Underground electrical duct and direct burial conduit, together with all other accessories required.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all materials, under provisions of Section 01300.

PART 2 GENERAL

2.1 UNDERGROUND DUCTS:

A. Schedule 40, heavy wall, high impact rigid virgin polyvinyl chloride (PVC) conduit and fittings, conforming to NEMA Publications TC2 and TC3 and UL listed; Carlon or equivalent.

2.2 CONDUITS:

A. Underground PVC Conduit: Schedule 40, heavy wall, high impact rigid virgin PRECAST polyvinyl chloride (PVC) conduit and fittings, conforming to NEMA Publications TC2 and TC3 and UL listed for direct burial use; Carlon or equivalent.

B. Rigid Steel Conduit: As specified under Raceways and Fittings, Section 16110.

C. PVC-Coated Galvanized Rigid Steel Conduit: As specified under Raceways and Fittings, Section 16110.

PART 3 GENERAL

3.1 GENERAL:

A. After the affected electrical work has been installed, tested, and approved, backfill all excavations with suitable material. Include the cutting of all sidewalks, streets, and other pavement and repairing the openings in them to return the surface to approximately its original condition.

3.2 EXCAVATIONS:

A. Perform all excavations of every description of whatever substances encountered and to the depths required for installation of the work under this Division.

B. During excavation, stockpile material suitable for backfilling in an orderly manner a sufficient distance from the banks of the trenches to prevent slides or cave-ins. Remove all excavated material not required or suitable for backfill, or waste as directed. Control grading to prevent surface water from flowing into excavations and remove any accumulated water by pumping.

C. Use open cut grading and make trenches of the necessary width for proper installation of the lines with banks as nearly vertical as possible.

D. Grade the bottom of trenches accurately to provide uniform bearing and support for conduit or duct on undisturbed soil at every point along its entire length.

E. Except at locations where excavation of rock from the bottoms of trenches is required, take care not to excavate below the depths required. Where rock excavation is required, remove the rock to a minimum overdepth of 4 inches below the trench depths specified. Backfill the overdepth rock excavation and excess trench excavation to the proper level with sand prior to the installation of conduit or ducts. Whenever wet or otherwise unstable soil that is incapable of properly supporting conduits or ducts is encountered in the trench bottom, remove such soil to a depth required and backfill the trench to trench bottom grade with sand or other suitable material.

3.3 BACKFILLING:

A. Carefully backfill trenches with earth, sandy clay, sand and gravel, or other approved material free from large clods of earth or stone, deposited in thoroughly and carefully compacted 6-inch layers. Do not use blasted rock, broken concrete or pavement, or large boulders as backfill material. Settling the backfill with water will be permissible and will be required when so directed. Re-open any trenches improperly filled or where settlement occurs to the depth required for proper compaction the refill, mound over and smooth off.

B. Backfill open trenches across roadways or other areas to be paved as specified above except that the entire depth of trench shall be backfilled in 6-inch layers, each layer moistened and compacted to a density of not less than 95 percent Standard Proctor in such manner as to permit the rolling and compaction of the filled trench together with the adjoining earth to provide the required bearing valve and permit paving of the area immediately after backfilling is completed. Along all other portions of the trenches, grade the ground to a reasonable uniformity and leave the mounding over the trenches in a uniform and neat condition.

C. All trenches that settle shall be refilled by the contractor.

3.4 UNDERGROUND PVC CONDUIT INSTALLATION:

A. Install at least 18 inches below finished grade unless indicated otherwise. Assemble and install raceways in accordance with manufacturer's instructions. Make joints with couplings and solvent cement. Fabricate bends of 30 degrees or more with factory-made elbows, or make field bends with proper heating equipment. Bends showing signs of overheating or flattening are unacceptable. Ream ends of all conduits before joining.

B. "Snake" PVC conduit in trench, from side to side, with a complete cycle every 40 feet to allow for expansion and contraction. Maintain this configuration during backfilling.

C. Where conduit turns up out of earth, or floor slabs, change from PVC to rigid galvanized steel conduit below grade and outside of such structures. Make similar change from PVC to rigid galvanized steel conduit at connections to underground pull or junction boxes. Wrap all steel conduits and fittings buried in earth as specified elsewhere herein.

D. Do not extend any PVC conduit above grade.

E. Install 6 inch wide detectable electrical warning tape above conduits.

3.5 UNDERGROUND RIGID STEEL CONDUIT INSTALLATION:

A. All rigid galvanized steel conduit exposed to earth shall be wrapped with 3M Company 0.020 inch thick No. 51 "Scotchrap" vinyl plastic tape, half lapped to give double thickness wrap. Remove all oil, grease and dirt from conduit with a suitable solvent, and clean and dry conduit before wrapping. If conduit is pre-wrapped in the shop and then cut and joined on the job, wrap all joints on the job, overlapping pipe wrapping 3" on both sides of joints.

B. All PVC coated rigid steel conduit connected to below grade PVC conduit shall be wrapped with 3M Company 0.020 inch thick No. 51 "Scotchrap" vinyl plastic tape, half lapped to give double thickness wrap, between the PVC coating and the PVC conduit to cover any steel conduit exposed. Remove all oil, grease and dirt from metal with a suitable solvent, and clean and dry conduit before wrapping.

3.6 SPARE OR EMPTY CONDUITS:

A. Provide in every spare or empty raceway, not containing conductors to be installed by this Contractor, a suitable pull line to facilitate future installation of wiring. Lines shall be free from splices and shall have ample exposed length at each end.

B. All lines shall be nylon or polyethylene cord with a tensile strength not less than 200 pounds.

C. Identify each end of each line with a stainless steel tag bearing complete information as to the purpose of the raceway and the location of its other end.

D. All spare conduits, not terminated in an enclosure, shall be terminated using a conduit cap or plug.

END OF SECTION

SECTION 16120

CONDUCTORS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Conductors, together with all splices, connections, and identification, including pulling devices.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all materials, under provisions of Section 01300.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Building wire, power and control cable:

a. Alphawire.
b. General Cable.
c. Okonite Company.
d. Southwire Company.

2. Control Cable:

a. Alphawire.
b. General Cable.
c. Okonite Company.

3. Instrumentation cable:

a. Alphawire.
b. Belden Inc.
c. General Cable.

2.2 CONDUCTORS (600 VOLTS AND UNDER):

A. Type: Soft drawn, annealed copper, UL listed, rated at 600 volts, continuous without weld, splice or joint, uniform cross-section, free from flaws, scale and other imperfections; Okonite, Triangle, or Simplex. No. 8 and larger shall be stranded; No. 10 and smaller shall be solid.

B. Insulation: Branch circuits shall have type THHN/THWN or XHHW insulation unless the type is specifically designated or specified. Service feeders shall be type THHN/THWN or XHHW. Feeder circuits shall be Type THHN/THWN or XHHW.

C. All conductors installed underground or in areas where exposed to damp or wet locations shall be rated THWN or XHHW.

D. Circuits Subjected to High Temperatures: Type XHHW 90 C conductors for wiring in proximity to boilers, and for motors and devices subject to high temperature because of high ambient temperature or convection or radiant heat.

E. Lighting Fixture Conductors: Type and size approved by the NEC for the purpose.

2.3 CONTROL CABLE:

A. Reference: UL 83, UL 1277, ICEA S-61-402 (NEMA WC5).

B. Multiconductor cable.

C. Conductor: No. 14 AWG minimum, 7 or 19 strands, concentric-lay, uncoated copper. Maximum operating temperature 90° C.

D. UL listed for use in cable trays.

E. Conductor Insulation: Type THHN/THWN.

F. Shield: None.

G. Cable assembly jacket: Black flame retardant PVC UL 1277, Table 10.17, applied over tape wrapped cable core, rated 600 volts.

H. Conductor color coding shall conform to ICEA Method 1, Table E-2.

I. Factory Tests: Insulated conductors shall conform to the requirements of UL 83 for Type THHN/THWN. Assembly jacket shall meet the requirements of UL 1277. Cable shall conform to the flame test requirements of UL 1277 for Type TC power and control tray cable.

2.4 INSTRUMENT CABLE

A. Reference: UL 2250, UL 1277.

B. The assembly shall be rated 600 volts, 90° C.

C. The assembly shall be UL listed as sunlight resistant, for cable tray use, and shall meet the requirements for types CL2 and CL3 cable.

D. Conductor: No 16 AWG minimum, 7 strand, concentric-lay, uncoated copper.

E. Insulation: Polyvinyl chloride. Not less than 15 mils average thickness (13 mils minimum thickness), UL 62, Type TFFN.

F. Lay: Twisted pair or triad with 1-1/2 to 2-1/2 inch lay.

G. Shield: Each pair or triad and cable assemble shall have combination aluminum-polyester helically applied tape and 7 strand AWG minimum size, tinned copper drain wire, shield applied to achieve 100 percent cover over insulated conductor. Shield tape on pair and/or triad assemblies shall be applied in such a way as to give total shield isolation from all other pair or triad shields.

H. Cable assembly: Black flame retardant polyvinyl chloride, UL 1277 applied over tape wrapped cable core.

I. Conductor Identification: Single pair: One conductor black, one conductor white. Single triad: One conductor black, one conductor white, and one conductor red.

J. Factory Tests: Insulated conductors shall conform to the requirements of UL 62 for Type TFFN. Assembly jacket shall conform to the requirements of UL 1277. Cable shall meet the vertical-tray flame test requirements of UL 1277.

2.5 JOINTS AND SPLICES:

A. Stranded Copper Conductors: UL approved tin-plated, copper compression connectors, Thomas & Betts, Panduit, or Burndy. All connectors shall be of proper sizes to match conductor sizes. All compression connectors shall be applied with properly sized dies and tools. Split-bolt connectors or other mechanical connectors are not acceptable.

B. Do not splice control or instrument cables. Instrument or control cables shall only be terminated at devices or on terminal blocks. Conductors may be terminated without compression connector on terminal blocks with appropriate mechanical type terminals. Conductors terminated at terminal blocks with screw terminals shall be terminated with insulated, tin-plated copper locking fork terminals.

C. Solid Copper Conductors: UL approved electrical spring connectors of "Scotchlock", Ideal, T&B, or approved equivalent. All connectors shall be of proper sizes to match conductor sizes. Split bolt connectors are not acceptable.

D. Terminations at 600 volt and lower motors shall use properly sized tin-plated, copper compression connectors on each motor lead and incoming power supply. Connectors shall be bolted together with zinc plated bolt, nut, flat washer, and lock washer. Scotchfil shall be applied to round out the connection and the entire connection shall be wrapped with Scotch 88.

2.6 COLOR CODING:

A. Use standardized color-coding of conductors throughout. All color coding shall be continuous for the entire length of the conductors, and shall be permanent and readily distinguished after installation. In cases where they specified colors of insulated wire and cable are unavailable, such conductors shall be color-coded, as specified above, by means of Brady, or plastic tape at all pull boxes, support boxes, outlet boxes, panelboards, and other terminal and splicing points. Heat shrink sleeves for tight fit.

B. For No. 6 AWG and smaller conductors, color coding shall be provided by using conductors with continuous color imbedded in the insulation. For all conductors larger than No. 6, Scotch 35 marking tape, or equivalent may be used to color code the cable. Where marking tape is used, the cable shall be identified at every accessible location. Provide a minimum of 2 inches of tape at each location.

C. Neutral conductors shall be white or natural gray. Grounding conductors shall be green or green with one or more yellow stripes.

D. Conductors shall be black, red and white for lines 1, 2 and neutral respectively in the 240/120 volt system.

E. Color coding for multi conductor control circuits shall conform to ICEA Method 1, Table E-2.

PART 3 EXECUTION

3.1 CONTINUITY:

A. All conductors shall be continuous between points of termination.

B. Splices between points of termination are not acceptable unless specifically approved.

C. Splices in boxes permissible in 120-volt lighting and receptacle circuits only.

3.2 WIRE PULLING:

A. Provide suitable installation equipment for pulling conductors into raceways or conduits. Use ropes of polyethylene, nylon or other suitable material to pull in conductors. Attach pulling lines to conductors by means of woven basket grips or by pulling eyes attached directly to conductors. Grips and pulling eyes shall be Kellems or equivalent. All conductors to be installed in a single conduit shall be pulled in together. Pull no conductors into conduits until all work of a nature which may cause injury to conductors is completed. Use cable pulling compound where necessary.

B. Cable Lubricants: All cable lubricants shall be UL listed, and shall be certified by their manufacturer to be non-injurious to the insulation on which they are used.

3.3 WIRE INSTALLATION (600 VOLTS AND UNDER):

A. Feeders: Run all feeders their entire length in continuous pieces without joints or splices, insofar as practicable. Make joints in branch circuits only where circuits divide as shown on drawings. Such joints shall consist of one through circuit to which shall be spliced the tap circuit.

B. All circuits installed in manholes shall be multi-conductor type.

C. Branch Circuits: Not more than one power or lighting circuit shall be installed in a single conduit, except that one 3-wire circuit or one 4-wire circuit consisting of 2 different phase wires and a common neutral or 3 different phase wires and a common neutral may be installed in a single conduit. This provision shall not prohibit the installation in a single conduit of all conductors of a circuit with three and four-way switching.

D. Sizes: No wire shall be smaller than No. 12 except for control circuits.

E. Joints and Splices: Only receptacle and lighting circuits will be allowed to be spliced. Make joints and splices in solid copper conductors only where necessary and only at outlet boxes and pull boxes. All joints shall be mechanically and electrically secure.

F. Wire and cable shall not be pulled tight against bushings nor pressed heavily against enclosures.

G. Bundling Conductors: Bundle all conductors in panelboards, cabinets and the like using nylon straps made for the purpose. Bundle conductors larger than No. 10 in individual circuits. Bundle smaller conductors in larger groups. Straps shall be Panduit, Thomas and Betts, or equivalent.

H. After wire and cable have been installed and connected, conduit ends shall be sealed with a non-hardening sealing compound (Duxseal or equal), forced into conduits to a minimum depth equal to the conduit diameter. This shall apply for all conduits, including spares, entering any structures or electrical enclosures from underground, or from wet/corrosive areas. Seal conduit at both ends of the conduit.

I. Ground the drain wire of shielded instrumentation cables at one (1) end only. Grounding location shall be at the load (e.g., control panel), not at the source (e.g., field mounted instrument).

3.4 CABLE IDENTIFICATION:

A. Identity Tags: Non-ferrous; stamped to clearly identify each circuit. Securely fasten tags to all cables, feeders and power circuits in pull boxes, lighting, power and distribution panelboards, motor control centers, control panels, etc.

3.5 CONNECTIONS AND TERMINATIONS:

A. Cut conductor off square, trim insulation back the correct distance and prepare the conductor strands for termination as specified. Apply the proper lug or splice connector, making certain that the conductor strands are inserted full length of the barrel.

END OF SECTION

SECTION 16140

WIRING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Suitable outlet boxes, with the wiring devices indicated, coverplates, etc. All shall be properly connected to conductors so as to be operable.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all materials, under provisions of Section 01300.

PART 2 PRODUCTS

2.1 MATERIALS:

A. Acceptable Manufacturers: The catalog numbers listed herein are generally of Hubbell manufacture. Equivalent devices of Arrow-Hart, Pass and Seymour, or Leviton are acceptable.

B. Classification: All wiring devices shall be "Specification Grade", and shall be UL listed.

C. Colors: All devices shall have an ivory finish where mounted in walls finished in light colors and a brown finish where mounted in walls finished in dark colors.

2.2 WALL SWITCHES:

A. Provide the following 120/277 volt switches:

Device	Hubbell Catalog No.
Single pole wall switch:	1221
Three-way wall switch:	1223
Four-way wall switch:	1224

2.3 RECEPTACLES:

A. Receptacle, 20-ampere, 125-volt, 2-pole, 3-wire grounding duplex: Hubbell No. 5362.

B. Receptacle, 20-ampere, 125-volt, 2-pole, 3-wire Grounding Duplex with Self-contained Ground Fault Circuit Interrupter: Hubbell No. GF 5362 (NEMA 5-20R).

C. Other receptacles as indicated on the drawings.

2.4 OTHER DEVICES:

A. Weatherproof Receptacles: Receptacles indicated to be installed outdoors shall be installed in an FD box with a weatherproof cover that meets the requirements of NEC Article 406.9(B)(2)(a). Cover shall be cast metal equal to Intermatic, Incorporated. Simplex or duplex, vertical or horizontal as indicated or required.

B. Switches indicated to be installed outdoors shall be provided with a malleable iron FD box with a Crouse Hinds DS-185 cover.

C. Provide coverplates for all wiring devices, telephone, signal outlets and other kindred devices.

D. Provide galvanized or cast cover for surface mounted boxes.

PART 3 EXECUTION

3.1 CIRCUIT IDENTIFICATION:

A. At each wiring device, install a label on the inside of the coverplate which shall identify the panel and circuit number to which the device is finally connected. The labels shall be made on the job with indentation-type Dynamo adhesive tape. Attach the label to the plate with contact cement or other suitable adhesive material. In lieu of a label, the panel and circuit number may be neatly marked on the inside of the coverplate with an indelible pencil.

3.2 MOUNTING HEIGHTS:

A. Where mounting heights are indicated on the drawings, the device shall be installed with the centerline of the device at the indicated height.

END OF SECTION

SECTION 16170

CIRCUIT AND MOTOR DISCONNECTS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. This Section specifies circuit and motor disconnect switches for general use.

1.2 SUBMITTALS:

A. Provide complete catalog data and drawings on all items of equipment, under provisions of Section 01300. Include all submittal data in the operation and maintenance manuals.

PART 2 PRODUCTS

2.1 DISCONNECT SWITCHES:

A. Unless otherwise noted or required, all disconnect switches shall be UL listed and shall meet the latest edition of NEMA Standard KS1 for Type HD heavy duty switches. Unless indicated otherwise on the drawings, switches shall be unfused; quick make, quick break; in NEMA 3R enclosures if installed outdoors, or in wet locations; elsewhere in NEMA 4X, stainless steel, general purpose enclosures unless special enclosures are required. All motor circuit switches shall be horsepower rated.

B. Switches shall be of General Electric, Eaton, or Square D manufacture, equivalent to General Electric Type TH quick make, quick break switches.

C. Where space does not permit use of the above specified switches, such as within weatherproof fan housing, etc., use suitable horsepower rated tumbler switches as unfused disconnects; General Electric Type RB or equivalent.

D. Additional disconnect switches may be identified on the drawings. If so identified, provide the type called for on the drawings.

PART 3 EXECUTION

Not used.

END OF SECTION

SECTION 16195

ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. This Section specifies furnishing and installing identification signs on all electrical devices.

PART 2 PRODUCTS

2.1 NAMEPLATES:

A. Identify electrical equipment by attaching engraved nameplates constructed from laminated phenolic plastic, at least 1/16" thick, 2-ply, with black surfaces and white core. Engraving shall be condensed gothic, appropriately spaced. Nomenclature on the label shall include the name of the item or equipment served utilizing the equipment names shown on the drawings.

B. Nameplate lettering size shall be as follows:

1. ½" Minimum Height Letters:

Service Disconnects.

a. Secondary feeder breakers in distribution equipment with designation as required by the load served.

b. Special equipment housed in cabinets, as indicated on the drawings, or outside of door.

c. Panelboards, switchboards, as designated on the drawings, on outside of door.

2. 1/4" Minimum Height Letters:

a. Disconnects and starters for motors or fixed appliances.
b. Items listed in the “Equipment Schedule” on drawings.

3. 1/8" Minimum Height Letters:

a. Engraved black filled letters on devices plates for switches, dimmer controls, and receptacles where item controlled is not visible from switch, or as indicated on the drawings.

b. Lighting control relays.

c. Remote lighting control equipment

PART 3 EXECUTION

3.1 EQUIPMENT:

A. Install nameplates on electrical equipment. Equipment to be labeled shall include but not be limited to the following:

1. Panelboards.

3.2 CONTROL DEVICES:

A. Install nameplates on all electrical control devices to indicate the device served. Label electrical control devices regardless of proximity to the equipment served. Electrical control devices to be labeled shall include but not be limited to the following.

1. Contactors.
2. Motor starters.
3. Disconnect switches.

3.3 ATTACHMENT:

A. Nameplates attached to the exterior of the enclosure shall be attached with self-tapping screws. Devices attached to the back side of panel fronts and on the interior of panels shall be attached with adhesive. Adhesive shall be waterproof and heat resisting up to 250 degrees Fahrenheit.

END OF SECTION

SECTION 16400

ELECTRICAL SERVICES

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. The complete electrical service from the power company service point to the service entrance equipment, including all electric utility required modifications, whether primary or secondary to extend or provide electric service to new elevated storage tank.

B. All costs associated with providing electrical service to the new facilities shall be included in the contractor's bid price, whether due to equipment or services provided by the electric utility or the Contractor. Contractor shall coordinate with the local electric and telephone utilities to determine all costs and requirements associated with providing service to the new facilities. Failure by the Contractor to fully investigate all aspects of the requirements for electrical and telephone service prior to submitting a bid shall not be grounds for a change order.

C. The electric utility is Oncor and the local contact is Gerri Coleman, Oncor PMDS/WTX, at 432-620-6216.

1.2 SUBMITTALS:

A. Submit for review catalog data and drawings for all equipment proposed for use under this Section, under provisions of Section 01300.

1.3 NEW SERVICES:

A. Contractor shall arrange and pay for the installation of new electrical services as indicated. This shall include making contact with the electric utility representative. All outages required during the project construction shall be coordinated by the contractor. Electrical metering equipment shall be provided and installed by the electrical utility. Meter bases and all other equipment indicated on the drawings or required by the electric utility shall be provided and installed by the contractor.

PART 2 PRODUCTS

2.1 UNDERGROUND DUCTS:

A. As specified in Section 16115.

2.2 UNDERGROUND PLASTIC CONDUIT:

A. As specified in Section 16115.

2.3 METERING:

A. All metering for Power Company billing will be done by metering equipment furnished and installed by the Power Company.

B. Contractor shall provide meter bases, enclosures, and other equipment as required by the electric utility.

2.4 SYSTEMS OF WIRING:

A. Electrical Service: Combined 240/120 volts, 1-phase, 3 wire, 60 Hz. service for lighting and power.

2.5 LOAD BALANCING:

A. The contractor shall balance electrical loads between the various phases. When the facilities are under use at their heaviest loading periods, tests shall be run on the "hot" conductors in each feeder to a panel and any unbalances shall be corrected to a point that no conductor load shall be more than 5 percent high or low (maximum unbalance of 10 percent) in amperes. Submit reports of load balancing.

PART 3 EXECUTION

3.1 EXCAVATION AND BACKFILLING:

A. As specified under RACEWAYS AND FITTINGS.

3.2 UNDERGROUND DUCTS INSTALLATION:

A. Install as specified under UNDERGROUND ELECTRICAL DUCTS.

3.3 UNDERGROUND PLASTIC CONDUIT INSTALLATION:

A. Install as specified under UNDERGROUND ELECTRICAL DUCTS.

END OF SECTION

SECTION 16450

GROUNDING

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Grounding systems as specified and in accordance with the National Electrical Code.

B. See Section 13211 for lightning protection requirements for the Elevated Storage Tank.

1.2 SUBMITTALS:

A. Submit manufacturer's data on all products, under provisions of Section 01300.

1.3 QUALITY ASSURANCE:

A. Comply with applicable sections of Article 250 of the NEC and local amendments.

B. Provide products specified in the Section that are listed and labeled by a nationally recognized testing laboratory.

C. Install products that comply with UL 467, "Grounding and Bonding Equipment."

PART 2 PRODUCTS

2.1 GROUNDING AND BONDING PRODUCTS:

A. Install types indicated and of sizes and ratings to comply with NEC. Where types, sizes, ratings, and quantities indicated are in excess of NEC requirements, the more stringent requirements and the greater size, rating, and quantity indications shall govern.

B. Material: Copper. Aluminum material is not acceptable for use in any location.

2.2 WIRE AND CABLE CONDUCTORS:

A. Equipment Grounding Conductor: Green insulated. Minimum size No. 12 AWG.

B. Ground Grid or Grounding Electrode Conductor: Class B, concentric stranded.

1. Bare Copper conductors: Conform to the following:

a. Solid Conductors: ASTM B-3.
b. Stranded Conductors: ASTM B-8.
c. Tinned Conductors: ASTM B-33.

2.3 MISCELLANEOUS CONDUCTORS:

A. Ground Bus: Bare annealed copper bars of rectangular cross section.

B. Braided Bonding Jumpers: Copper tape, braided No. 30 gage bare copper wire, terminated with copper ferrules.

C. Bonding Strap Conductor/Connectors: Soft copper, 0.05 inch thick and 2 inches wide, except as indicated.

2.4 CONNECTOR PRODUCTS:

A. Listed and labeled as grounding connectors for the materials used.

B. Connector Material: Copper or bronze.

C. Pressure Connectors: High conductivity plated units.

D. Bolted Clamps: Heavy duty units listed for the application.

E. Exothermic Welded Connections: Provided in kit form and selected for the specific types, sized, and combinations of conductors and other items to be connected.

2.5 GROUNDING ELECTRODES:

A. Copper clad steel ¾"X10' with high-strength steel core and electrolytic-grade copper outer sheath, molten welded to core.

B. Wherever the ground rod crosses the ground grid it shall be connected.

2.6 GROUNDING BUS BARS:

A. Grounding bus shall be a tin-plated copper bus bar, 12" long, 2" wide, ¼" thick, Erico TGBA12L06PT, or equal.

B. Install bus bars as indicated on the drawings. The bus bar shall be grounded to the ground grid. All equipment shall be grounded to the bus bar with copper ground conductor.

PART 3 EXECUTION

3.1 SERVICE AND EQUIPMENT GROUNDING:

A. Provide adequate and permanent service neutral and equipment grounding in accordance with the National Electrical Code, and subject to the following additional requirements.

B. Connect the service ground and equipment ground to a common point within the metallic enclosure containing the main service disconnecting means. From the common point of connection of the service ground and equipment ground, run in conduit a combined service and equipment grounding conductor without

joints or splices to the grounding grid as shown. Grounding grid shall be constructed of copperclad steel ground rods with buried grounding conductors as indicated on the drawings.

C. Size grounding conductors in accordance with National Electrical Code Tables 250.66 and 250.122 or as indicated.

D. The building structural steel frame shall be grounded to the building service grounding electrode, using the conductor size specified in National Electrical Code Section 250.66.

E. Provide additional connections as may be required by the local authority. Contractor shall contact the local authority prior to bidding. Any additional connections that may be required by the local authority shall be provided by the Contractor at no increase in the bid price.

3.2 GROUNDING RACEWAYS:

A. Assure the electrical continuity of all metallic raceways systems, pulling up all conduits and/or locknuts wrench tight. Where expansion joints or telescoping joints occur, provide bonding jumpers. Where flexible metallic conduit is employed, provide a green-insulated grounding jumper installed in the flexible conduit. Install a separate green-insulated conductor in each conduit.

B. Provide grounding bushings on all service and feeder raceways terminating within switchboards, motor control centers, panel boards, cabinets, and all other enclosures. Provide grounding conductors from such bushings to the frame of the enclosure and to the ground bus or equipment grounding strap. Size grounding conductors in accordance with NEC Table 250.122

3.3 EQUIPMENT GROUNDING CONDUCTORS:

A. Provide a separate, green-insulated equipment copper grounding conductor, with insulation of the same rating as phase conductors, for each feeder and for each branch circuit indicated. Install the grounding conductor in the same raceway with the related phase and neutral conductors, and connect the grounding conductor to pull boxes or outlet boxes at intervals of 100 feet or less. Where paralleled conductors in separate raceways occur, provide a grounding conductor in each raceway. Connect all grounding conductors to bare grounding bars in panel boards, and to ground buses in service equipment to the end that there will be an uninterrupted grounding circuit from the point of a ground fault back to the point of connection of the equipment ground and system neutral. Size all of these grounding conductors per NEC Table 250.122.

3.4 UNDERGROUND CONNECTIONS:

A. All underground connections shall be made using exothermic weld connections.

END OF SECTION

SECTION 16470

PANEL BOARDS

PART 1 GENERAL

1.1 SECTION INCLUDES:

A. Electrical panel boards for general use.

1.2 SUBMITTALS:

A. Provide complete catalog data and drawings on all items of equipment, under provisions of Section 01300. Include all submittal data in the Operation and Maintenance Manuals.

B. Submit shop drawings of each panel board for review before commencing fabrication; drawings shall indicate number, size, interrupting rating and type of circuit protective devices; dimensions, gauges and type of construction of cabinets; size and material of main bus and lugs; and any other pertinent information necessary to determine compliance with the drawings and specifications.

1.3 QUALITY CONTROL:

A. All panel boards shall be listed by Underwriters' Laboratories, Inc., and the building main panel shall be listed as suitable for "Service Entrance Equipment."

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Panel boards manufactured by Square D, General Electric, Siemens, or Eaton.

2.2 SURGE PROTECTIVE DEVICE:

Surge protective devices may be installed as part of the panelboard. Refer to Specification Section 16675.

2.3 PANEL BOARDS:

A. Panel board Cabinets: Furnish and install cabinets to serve the various panel boards, of sizes as required to house the panel boards. Provide NEMA rated enclosure as indicated on the drawings.

B. Service Equipment Approval: Listed for use as service equipment for panelboards having main service disconnects.

C. Panelboards indicated to be provided with a NEMA 12/3R enclosure shall be rated NEMA 3R/5/12, surface mounted, welded enclosure with no knockouts, drip shield, hinged door, seamless foam gasket, ¼ turn three-point door latch, and external pad locking handle.

D. Cabinet Construction: Rigidly constructed of sheet steel of gauges conforming to Underwriters' Laboratories, Inc., requirements; corners overlapped or welded; edges turned over to receive trim.

E. Cabinet Fronts: Cut from single sheet of not less than No. 12 gauge cold rolled sheet steel; fastened in place by adjustable trim clamps which will allow plumbing; same size as the cabinet box if surface mounted; size to overlap the box a minimum of 3/4" on all sizes if flush mounted.

F. Each panel board shall be provided with a cover and a hinged door. Each door shall be provided with a substantial flush, cylinder tumbler lock and catch. On doors more than 48" high, provide a combination three point catch and lock with T-handle. Provide each lock with two keys, with all locks keyed alike.

G. Bus Requirements:

1. Bus Material: Copper.

2. Main and Neutral Lugs: Mechanical.

3. Neutral: Ampacity and material equal to bus. Panelboards shall be provided with insulated neutral bars with grounding screw for field grounding to enclosure.

4. Equipment Ground Bus: Provide each panel board with a separate equipment grounding bus bar bonded to the panel board cabinet. Where indicated on the drawings, provide panel boards with an isolated grounding bus bar insulated from the panel board cabinet.

H. Additional requirements for subfeed breakers, lugs, or other accessories as indicated on the drawings.

I. Where a circuit protective device is scheduled as a "spare", provide the device complete for operation. Where such a device is scheduled as a "space" or "space only", provide proper space and all necessary connectors for future installation of the size of device scheduled. Where a breaker or switch is scheduled to serve a "future" load, provide the device complete for operation.

J. Panel boards shall have the number and sizes of bolted-in circuit breakers scheduled on the drawings with main circuit breakers or lugs only on the mains as scheduled.

K. All circuit breakers shall be fully rated for the current interrupting rating as indicated on the drawings, or at a minimum, as follow:

VOLTAGE RATING	INTERRUPTING RATING
120/240 Volts	10,000 Amps

L. All circuit breakers shall be quick make, quick break, trip free, thermal magnetic, indicating type unless noted otherwise. Provide all multiple pole breakers with common trip and single operating handle; handle ties between breakers are unacceptable. Branch circuit breakers shall be fully interchangeable without disturbing adjacent units.

M. Connect all circuit interrupting devices with sequence phasing.

N. Where a feeder serves more than one panel, first entering one panel and then proceeding through a side gutter to other panels, install the feeder full size in a continuous piece without joint or splice through the side gutter of the panels to serve the succeeding panels. Make the gutters on that side and on the top at least 4" greater than normal (more if necessary) to accommodate the wiring and make the tap from the feeder to the panels with suitable bolted pressure T-cable top connectors. Under no circumstances use feed-through lugs on a panel bus with the current drawn by a panel being carried through the buses of the preceding panel.

O. Finish: Panels shall be provided with galvanized back boxes; all exposed metal, including fronts, primed and finished in gray lacquer.

P. Mount all panel boards in cabinets as specified hereinbefore, arranged for flush or surface mounting as indicated on drawings.

Q. Provide each panel board with a neatly typewritten directory of circuits. Install the directory in a cardholder on the inside of the panel board cabinet. Cover directory with transparent sheet plastic.

R. Provide each panel board with a factory engraved nameplate which shall identify the panel board name and voltage.

PART 3 EXECUTION

3.1 Install panel boards in accordance with manufacturer's instructions and as specified or shown.

3.2 Test all elements of panel board with 1000-volt insulation resistance tester before energizing. Insulation resistance less than 50 megaohms is unacceptable.

END OF SECTION

SECTION 16502

ELEVATED TANK LIGHTING

PART 1 GENERAL

1.1 SUMMARY:

A. This section includes the requirements for the Contractor to provide a design, layout, drawings, specifications, and installation of the elevated tank lighting system. This shall include, but not be limited to, the luminaire selection and layout, pole height and location, and all labor and material. All work required for the successful implementation of the elevated tank lighting system shall be provided whether specified herein or not.

B. Equipment selection, pole heights, and pole locations are shown on the drawings for general arrangement considerations. Contractor shall verify the lighting fixtures specified, and location of the poles and pole heights indicated. If necessary to provide a lighting system that meets the requirements of the specifications, the contractor shall recommend alternative heights and locations for the poles, within the confinements of the indicated property limits.

C. The design of the elevated tank is a performance requirement and, as a result, the elevated storage tank drawings shown are provided as a representation of what will be provided. The Contractor shall use the elevated storage tank drawings submitted by the elevated storage tank contractor, and approved by the Engineer, in the design of the elevated storage tank lighting system. The Contractor shall not use the elevation drawings shown on the project drawings.

1.2 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 REFERENCES:

A. National Fire Protection Association (NFPA)

1. NFPA 70 – National Electrical Code (NEC).
2. Illuminating Engineering Society of North America (IESNA).

1.4 DEFINITIONS:

A. CCT: Correlated color temperature.

B. CRI: Color-rendering index.

C. Driver: Electronics components that couple to Light engine to convert power from line voltage AC to light engine operating mA output and voltage.

D. LED: Light Emitting Diode.

E. LER: Luminaire efficacy rating.

F. Light Engine: One or more LEDs coupled to a circuit board with or without on board optics.

G. Lumen: Measured output of lamp and luminaire, or both.

H. Luminaire: Complete lighting fixture, including remote driver housing if provided.

1.5 QUALITY ASSURANCE:

A. Electrical components, devices, and accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to the authority having jurisdiction, and the engineer, and marked for its intended use.

B. Comply with NFPA 70.

C. LED fixtures shall comply with the following:

1. Suitable for ambient temperatures -40°C to 35°C.

2. UL 1598A wet location.

3. LED light engines shall be rated greater than 100,000 hours at 25°C, L70. Electronic driver shall have a life rated 100,000 hours at 25°C ambient.

4. UL Standard 8750 "Light Emitting Diode Equipment for Use in Lighting Products", IES Standard LM-79 "Electrical and Photometric Measurements of Solid-State Lighting Products", IES Standard LM-80 "Measuring Lumen Maintenance of LED Light Sources", and IES Standard TM-21 "Projecting Long Term Lumen Maintenance of LED Light Sources".

5. ANSI C78.377 "Specifications for the Chromaticity of Solid State Lighting Products".

6. Fixtures shall be Energy Start or DesignLights Consortium "DLC" labeled/qualified.

D. Manufacturers Qualifications: Firms experienced in design of elevated tank lighting systems and have a record of successful in-service performance.

1.6 SUBMITTALS:

A. Layout drawings showing the proposed light pole location and pole heights.

B. Lighting Design Performance Report – Submit the following:

1. Computer generated photometric analysis of the lighting installation. Submittal shall include the following requirements:

a. Provide horizontal illuminance measurements.
b. Provide vertical illuminance measurements.

C. Manufacturer's information on each lighting fixture used.

D. Outline drawings of fixtures indicating dimensions and principal features.

E. Manufacturer's information on poles, including wind loading.

F. Electrical ratings and photometric data.

G. Lighting Fixture Supports.

1.7 DESIGN REQUIREMENTS:

A. Elevated storage tank lighting shall be based on the IESNA recommendations for Facades.

B. Tank lighting shall be designed such that the focus of the light is the tank bowl. Lighting on the tank pedestal shall be minimized.

C. Pole location shall be based on using four poles, one at each quadrant, unless otherwise indicated.

D. Maximum foot-candle illumination across the surface of the bowl shall be 10 fc. Minimum foot-candle illumination across the surface of the bowl shall be 5 fc. Surface tone shall be considered in determining final foot-candle level.

E. Maximum to minimum uniformity ratio shall be 2:1. Average maximum to minimum uniformity ratio shall be 1.5:1.

1.8 WARRANTY:

A. For LED fixtures, lamps, drivers, and components, provide a complete warranty for parts and labor for a minimum of five years from the date of Substantial Completion.

PART 2 PRODUCTS

2.1 LUMINAIRES

A. LED fixtures shall comply with the following:

1. Suitable for ambient temperatures -40°C to 35°C.

2. UL 1598A wet location.

3. LED light engines shall be rated greater than 100,000 hours at 25°C, L70. Electronic driver shall have a life rated 100,000 hours at 25°C ambient.

4. UL Standard 8750 “Light Emitting Diode Equipment for Use in Lighting Products”, IES Standard LM-79 “Electrical and Photometric Measurements of Solid-State Lighting Products”, IES Standard LM-80 “Measuring Lumen Maintenance of LED Light Sources”, and IES Standard TM-21 “Projecting Long Term Lumen Maintenance of LED Light Sources”.

5. ANSI C78.377 “Specifications for the Chromaticity of Solid State Lighting Products”.

6. Fixtures shall be Energy Start or DesignLights Consortium “DLC” labeled/qualified.

B. Luminaires shall be provided with surge protection device per ANSI C136.2 level of protection.

C. Luminaires shall be as indicated on the drawings, or approved equal.

2.2 SUPPORTS:

A. All supports shall be provided as required to secure the fixtures to the poles. Poles and supports shall be designed to withstand a 130 mile per hour wind.

B. Provide all attachments, arms, and other equipment as required on the poles to provide a complete system, as recommended by the manufacture.

PART 3 EXECUTION

3.1 DEMONSTRATION:

Contractor shall verify the actual performance of the elevated tank lighting system. Demonstration shall be provided at night. Adjustments to the fixture aiming shall be made as requested by the Owner.

END OF SECTION

SECTION 16675

TRANSIENT VOLTAGE SURGE SUPPRESSION

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY:

A Section includes field-mounted SPDs for low-voltage (<1000 V) power distribution and control equipment.

1.3 DEFINITIONS

A. VPR: Voltage Protection Rating.

B. SPD: Surge Protective Device(s)

C. I(n): Nominal Discharge Current

1.4 SUBMITTALS:

A. Product Data: For each type of product indicated. Include rated capacities, operating weights, electrical characteristics, furnished specialties, and accessories.

B. Qualification Data: For qualified testing agency.

C. Product Certificates: For SPDs from manufacturer.

D. Operation and Maintenance Data: For SPDs to include operation, and maintenance manuals.

E. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE:

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a testing agency, and marked for intended location and application.

B. The unit shall be UL 1449 Listed and CUL Approved as a Surge Protective Device and UL 1283 Listed as an Electromagnetic Interference Filter.

C. Comply with IEEE C62.41.2 and test devices according to IEEE C62.45.

D. Comply with NFPA 70.

E. PROJECT CONDITIONS:

1. Service Conditions: Rate SPDs for continuous operation under the following conditions unless otherwise indicated:

a. Maximum Continuous Operating Voltage (MCOV) of not less than 115% for 277/480V and 125% for 120/208V nominal RMS operating system voltage.

b. Operating Temperature: 30 to 150 deg F.

c. Humidity: 0 to 95 percent, non-condensing.

d. Altitude: Less than 12,000 feet above sea level.

1.6 COORDINATION:

Coordinate location of field-mounted SPDs to allow adequate clearances for maintenance.

1.7 WARRANTY:

Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge suppressors that fails in materials or workmanship within specified warranty period.

Warranty Period: 10 years from date of Substantial Completion.

1.8 EXTRA MATERIALS:

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

B. Replaceable Protection Modules: one of each size and type installed.

PART 2 PRODUCTS

2.1 MANUFACTURER:

A. Square D.

B. Eaton.

C. Siemens.

D. MVC, Inc. (800) 583-4773

E. Approved Equal.

2.2 SERVICE ENTRANCE SUPPRESSORS:

A. Surge Protective Devices shall be:

1. ANSI/UL 1449 Listed.

2. Modular design (with field-replaceable modules).

3. Fuses, rated at 200-kA interrupting capacity.

4. Minimum ANSI/UL 1449-2006 withstand (In) rating to be 20kA per mode.

5. Tested with the ANSI/IEEE Category CHigh exposure waveform (20kV-1.2/50µs, 10kA-8/20µs).

6. Pulse life test: Capable of protecting against and surviving 20,000 ANSI/IEEE Category CHigh transients without failure or degradation of clamping voltage by more than 10%.

7. Bolted compression lugs for internal wiring.

8. Coordinated thermal and surge current fusing.

9. Redundant suppression circuits.

10. Replaceable modules, 1 per phase minimum.

11. LED indicator lights for power and protection status.

12. Audible alarm, with silencing switch, to indicate when protection has failed.

13. Form-C contacts rated at 2 A and 24-V ac minimum, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.

14. Six-digit transient-event counter set to totalize transient surges.

B. Peak Single-Impulse Surge Current Ratings to be selected by environment:

Category/Type	Application	Per Phase	Per Mode
C Type 2	Service Entrance	240 kA	120 kA
B Type 2	High Exposure Locations (Distribution Equipment)	160 kA	80 A

C. The ASNI/UL 1449 voltage protection rating (VPR) in grounded wye circuits, the SPDs shall not exceed the following:

Modes	208Y/120	480Y/277	600Y/347
L-N,L-G, N-G	800	1200	1500
L-L	1200	2000	2500

D. The ANSI/UL 1449 VPR for 240/120 V, 3-wire or 4-wire circuits with high leg shall not exceed the following:

Modes	240/120
L-N,L-G, N-G	1200/800

2.3 PANELBOARD SUPPRESSORS:

A. Surge Protective Devices shall be:

1. ANSI/UL 1449 Listed.

2. Modular design (with field-replaceable modules).

3. Fuses, rated at 200-kA interrupting capacity.

4. Minimum ANSI/UL 1449-2006 withstand (In) rating to be 20kA per mode.

5. Tested with the ANSI/IEEE Category CHigh exposure waveform (20kV-1.2/50µs, 10kA-8/20µs).

6. Pulse life test: Capable of protecting against and surviving 20,000 ANSI/IEEE Category CHigh transients without failure or degradation of clamping voltage by more than 10%.

7. Bolted compression lugs for internal wiring.

8. Coordinated thermal and surge current fusing.

9. Redundant suppression circuits.

10. Replaceable modules, 1 per phase minimum.

11. LED indicator lights for power and protection status.

12. Audible alarm, with silencing switch, to indicate when protection has failed.

13. Form-C contacts rated at 2 A and 24-V ac minimum, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.

14. Six-digit transient-event counter set to totalize transient surges.

B. Peak Single-Impulse Surge Current Rating:

Category/Type	Application	Per Phase	Per Mode
B Type 2	High Exposure Locations(Distribution Equipment)	160 kA	80 kA
B Type 2	Branch Locations	120 kA	A

C. The ASNI/UL 1449 voltage protection rating (VPR) in grounded wye circuits, the SPDs shall not exceed the following:

Modes	208Y/120	480Y/277	600Y/347
L-N,L-G, N-G	800	1200	1500
L-L	1200	2000	2500

D. The ANSI /UL 1449 VPR for 240/120 V, 3-wire or 4-wire circuits with high leg shall not exceed the following:

Modes	240/120
L-N,L-G, N-G	1200/800

2.4 ENCLOSURES:

A. Indoor Enclosures: NEMA 250, Type 1.

B. Outdoor Enclosures: NEMA 250 Type 4X.

PART 3 EXECUTION

3.1 INSTALLATION:

A. Install SPDs at the service entrance on the load side, with ground lead bonded to service entrance ground.

B. Install SPDs for panelboards and auxiliary panels with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

C. Provide a 60 Amp circuit breaker as a dedicated disconnecting means for SPD unless otherwise indicated.

D. The SPDs ground shall be connected to the power system ground.

3.2 FIELD QUALITY CONTROL:

A. Ensure that interiors are free of foreign materials and dirt.

B. Check and test switches, pushbuttons, meters for proper operation.

C. Check and test indicating lights for proper operation and color.

D. Perform manufacturer's on site field test procedures.

3.3 STARTUP SERVICE:

A. Do not perform insulation resistance (MEGGER) tests of the distribution wiring equipment with the SPDs installed. Disconnect all wires, including neutral, before conducting insulation resistance tests, and reconnect immediately after the testing is over.

B. Test the unit status by pressing the buttons below the Phase LED on the diagnostic panel. The LED will turn from Green to Red while the button is pressed. The LED will return to Green upon release of the Phase button.

END OF SECTION

APPENDIX 1

Geotechnical Investigation

Enprotec / Hibbs & Todd

April 24, 2019

Mr. Carl A. Craigo, P.E.
Interim Utilities Director
City of Midland
PO Box 1152
Midland, Texas 79702

Re: Geotechnical Investigation
NE Water System Improvements
Elevated Storage Tank
Highway 349
Midland, Texas

Dear Mr. Craigo:

In accordance with your instructions, we have conducted a Geotechnical Investigation for the above referenced project. The conclusions and recommendations of this investigation are to be found in the attached report.

We trust that this will provide the information you have requested. We are also available should geotechnical or materials testing services be desired during construction. If there are any further questions, please do not hesitate to call.

Sincerely,

Enprotec / Hibbs & Todd, Inc.

24 APR 19

STATE OF TEXAS
GARY SCOTT YUNGBLUT
85640
LICENSED
PROFESSIONAL ENGINEER

G. Scott Yungblut, P.E.
Geotechnical Engineer

Enclosure
18-7227

GEOTECHNICAL INVESTIGATION
NE WATER SYSTEM IMPROVEMENTS
ELEVATED STORAGE TANK
HIGHWAY 349
MIDLAND, TEXAS

TABLE OF CONTENTS

Page

INTRODUCTION
General 1
Scope 1
Limitations 1

SITE DESCRIPTION
Site Location & Topography 1

DESCRIPTION OF WORK
Field Investigation 2
Laboratory Testing 3
Engineering Analysis 3

SUBSURFACE MATERIALS AND CONDITIONS
Site Geology 3
Site Stratigraphy 3
Groundwater 4

FOUNDATION DESIGN RECOMMENDATIONS
Elevated Storage Tank Foundation 4

FOUNDATION CONSTRUCTION RECOMMENDATIONS
Foundation Excavation 5
Foundation Backfill 5

FOUNDATION CONSTRUCTION CONSIDERATIONS
Excavation Safety 5
Excavation Difficulties 6
General 6
Concrete 6

APPENDIX A - Boring Location Plan
APPENDIX B - Summary of Classification Tests
APPENDIX C - Boring Logs

GEOTECHNICAL INVESTIGATION
NE WATER SYSTEM IMPROVEMENTS
ELEVATED STORAGE TANK
HIGHWAY 349
MIDLAND, TEXAS

INTRODUCTION

GENERAL: This investigation was authorized by Ms. Laura Wilson, P.E., Utilities Director for the City of Midland, Texas (City) at the time the project was initiated. The purpose of this investigation is to provide foundation design information along with construction recommendations for the proposed Elevated Storage Tank to be located in northeastern Midland, Texas.

The design capacity of the 155 foot tall Elevated Storage Tank is 2 Million Gallons. The anticipated pedestal diameter is 40 feet. The anticipated loads including structure weight, water, and snow loads were not available at the time of the subsurface exploration.

SCOPE: The scope of the exploration and analysis to be performed by Enprotec/Hibbs & Todd, Inc. (eHT) included a site reconnaissance, the subsurface exploration, field and laboratory testing, and an engineering analysis and evaluation to provide design recommendations for the foundation along with construction recommendations for the proposed elevated storage tank. Details and results of the investigation are discussed in the following sections of this report.

LIMITATIONS: The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made after being prepared in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology. No other warranties are implied or expressed.

SITE DESCRIPTION

SITE LOCATION & TOPOGRAPHY: The proposed elevated tank site is located on the east side of Highway 349 northeastern Midland, Texas. At the time of the subsurface exploration the site covered with sparse native grasses and a few small mesquite trees. The area of the proposed tank appeared relatively flat.

DESCRIPTION OF WORK

FIELD INVESTIGATION: Drilling and soil sampling activities were performed at select locations of the site on March 4, 2019. Three test borings were drilled to a depth of about 50 feet below the existing ground surface elevation at the locations shown on Figure 1 in Appendix A. The location of the elevated storage tank was provided by Mr. Joe Mangrem, PE, Project Manager for eHT.

The test borings were drilled utilizing a truck-mounted Failing rotary drilling rig. The test borings were advanced utilizing dry sampling methods and/or rotary air drilling techniques which allow for accurate groundwater observations. Drilling and sampling activities were performed in general accordance with referenced ASTM and/or TxDOT procedures or other accepted methods.

Soil formations were sampled using a 3 inch diameter Shelby-type steel tube sampler (ASTM D 1587) and/or a 2 inch split barrel sampler (ASTM D 1586). Undisturbed soil samples were subjected to calibrated pocket penetrometer tests (Qp) to assist in evaluating the shear strength of the cohesive soils. Quantitative indications of foundation strata shear strength were obtained using the 2 inch split barrel sampler and widely published empirical correlations. The reports of the field tests are reported on the Logs of Borings in Appendix C.

The borings were visually logged in the field, and all recovered samples were placed in core boxes for delivery to the laboratory. Push-tube, split-spoon, and auger grab samples were placed in polyethylene plastic bags to minimize moisture changes. Samples will be retained for 60 days from the date of this report. The samples will then be discarded unless notified in writing by the client requesting the samples be retained.

The borings were observed for groundwater at each test location, during and following the completion of the boring. These observations are shown on the Logs of Borings and discussed in a later section of this report. The borings were backfilled with on-site materials upon completion of the field work. Logs of Borings were subsequently prepared, along with a legend titled EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS and GENERAL NOTES. The legend and general notes show typical soil and rock classifications, drilling symbols, weathering descriptions, and soil structure characteristics.

LABORATORY TESTING: Select materials recovered in the borings were tested in the laboratory and classified based on the laboratory test results. Laboratory testing was conducted in general accordance with ASTM procedures and standards. Atterberg Limits (ASTM D 4318) and Minus 200-Mesh Sieve Tests (ASTM D 1140) were performed on selected soil samples in order to classify and establish index properties and grain size characteristics of the soils. Appendix B summarizes the results of these classification tests. The soil classifications are based on the Unified Soil Classification System (USCS).

ENGINEERING ANALYSIS: An engineering analysis was conducted on the information obtained from the field and laboratory investigations and from design information provided by Mr. Mangrem. If revisions to the plans for the proposed project, or if deviations from the subsurface conditions presented in this report are encountered during construction, we should be notified to determine if changes in our recommendations are required.

SUBSURFACE MATERIALS AND CONDITIONS

SITE GEOLOGY: As shown on the Hobbs Sheet of the Geologic Atlas of Texas, the site is located in an area where Quaternary Age deposits of Windblown Sand Deposits are present at or near the ground surface. The Alluvium in the project area generally consists of silty, calcareous fine to medium grained quartz with calcareous caliche.

SITE STRATIGRAPHY: A detailed description of the site stratigraphy is provided on the Logs of Borings. Generally, the subsurface conditions at the site may be characterized as follows:

Dense to very dense clayey sand with gravel and calcareous nodules (caliche) with interbedded thin limestone seams below 10 feet were present from the surface to a depth of about 28 to 31 feet. Sandstones were encountered beneath the caliche which extended to at least a depth of 50 feet, the termination depth of the test borings.

GROUNDWATER: Groundwater was not encountered within the test borings during or at completion of drilling activities. An accurate depiction of the groundwater depth would require leaving the test borings open for an extended period of time due to the moderately impermeable soils. Based upon the soil moisture contents the groundwater table was considered to exist at depths greater than 50 feet below current grades at the time of the subsurface exploration, although shallower perched water may exist. The water table may fluctuate seasonally and during periods of heavy rainfall. Filtered sump pumps placed in the bottom of excavations are expected to be suitable for water removal above the water table.

FOUNDATION DESIGN RECOMMENDATIONS

ELEVATED STORAGE TANK FOUNDATION: The elevated storage tank may be supported by a mat or raft type foundation. The foundation may be designed for a maximum net allowable bearing pressure of 10.0 kips per square foot (ksf), based upon dead load plus design live load considerations. The foundation should bear a minimum 12 feet below existing grades in the caliche with interbedded limestone seams. The net allowable bearing capacity value provided includes a safety factor of 3 against a general shear failure in the supporting soils. The site soils fall into Site Classification B for ground motion. Settlement is anticipated to be on the order of 2 inches with a differential settlement of less than ½ inch. The raft or mat foundation should be designed by a structural engineer experienced in design of elevated storage tank foundations. The International Building Code allows an increase of one-third for temporary transient loads when using the alternate load combinations that include wind or earthquake loads.

A compacted unit weight of approximately 130 pounds per cubic foot (pcf) for excavated soils used as backfill material above the foundation can be used for purposes of evaluating resistance to the forces acting on the structure.

FOUNDATION CONSTRUCTION RECOMMENDATIONS

FOUNDATION EXCAVATION: Excavations should be observed by the geotechnical consultant to make sure that the proper bearing material has been reached in accordance with the recommendations given herein. It is recommended that a mud mat be placed as soon as possible following foundation excavation. The excavations should be checked for size and observed to make sure that all loose material has been removed prior to concrete placement. The mud mat should be placed to prevent deterioration of the bearing surface. The mud mat will protect the bearing surface, maintain more uniform moisture in the subgrade, facilitate dewatering of excavations if required, and provide a working surface for placement of formwork and reinforcing steel. Prompt placement of the concrete following foundation preparation is strongly recommended.

FOUNDATION BACKFILL: It is understood that the interior of the pedestal may be used as storage by the City. Following construction of the pedestal, the interior may be backfilled with the excavated caliche with limestone. The backfill should be compacted to a minimum 95 percent Standard Proctor (ASTM D 698) at not less than 2 percent below optimum moisture content. Compacted lift thicknesses should not exceed 6 inches

FOUNDATION CONSTRUCTION CONSIDERATIONS

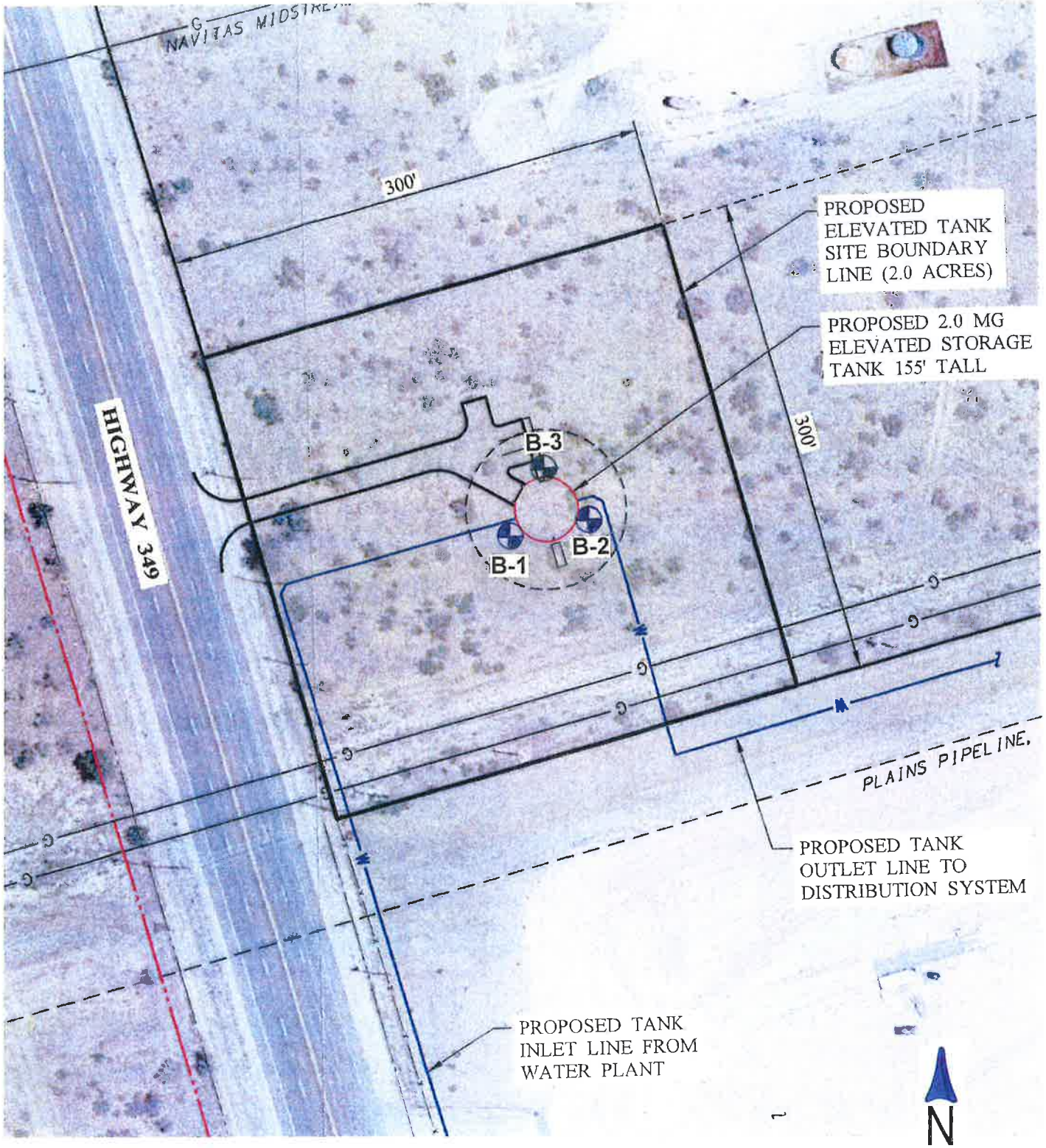
EXCAVATION SAFETY: All excavations should be in accordance with local and federal (OSHA) regulations and the trench safety plan. If instability problems occur, stability within the excavations should be maintained by flattening or widening slope sidewalls. In addition, the on-site soils are susceptible to erosion and disturbance by flowing water and construction traffic. If these soils are disturbed by construction traffic and excessive moisture they may become unstable. The site should therefore be graded to prevent water from ponding near the new foundation and running into excavations.

EXCAVATION DIFFICULTIES: Dense to very dense caliche with interbedded limestone seams was encountered 5 to 7 feet below existing grade at the test boring locations. Based upon these observations, it is recommended that pre-bid test pits be performed by the prospective project contractor prior to contract bidding so that a determination as to the degree of excavation difficulties throughout the site can be evaluated and the most economical means of excavation determined. Dependent upon the depth of excavation, specialized excavation equipment may be necessary. Furthermore, excavation bank stability problems may be encountered since the existing caliche exhibited variable degrees of weathering. In this event, shallow excavations may be sloped or widened in the anticipation of bank stability problems, with deeper excavations possibly requiring more elaborate external support means for stability. All excavations should be performed in accordance with OSHA requirements, which will be the responsibility of the project contractor.

GENERAL: Many problems can be avoided or solved in the field if proper inspection and testing services are provided. eHT should be retained to perform testing and inspection services sufficient to verify compliance with our recommendations. It is recommended that the site preparation and foundation construction be monitored by a geotechnical engineer or his representative. The following are recommended minimum sampling and testing frequencies.

CONCRETE: At least 1 slump, air content (if required) and temperature test, and at least 1 set of 3 concrete cylinders should be molded for each type of concrete per 50 cubic yards or fraction thereof placed in a day. Each set of cylinders should be tested for compressive strength with 1 of the cylinders tested at 7 days and 2 of the cylinders tested at 28 days.

APPENDIX A



NOT TO SCALE

BORING LOCATION PLAN

FIGURE 1
NE WATER SYSTEM IMPROVEMENTS
ELEVATED STORAGE TANK
HIGHWAY 349
MIDLAND, TEXAS

PACKET 10.2311 December 15, 2020

Project No.: 18-7227 Date: March 2019

APPENDIX B

NE WATER SYSTEM IMPROVEMENTS
ELEVATED WATER STORAGE TANK
MIDLAND, TEXAS

SUMMARY OF CLASSIFICATION TESTS

Boring No.	Depth (ft)	Liquid Limit %	Plasticity Index	% Passing #200 Mesh Sieve	Water Content %	USCS	Description
B-1	3½-5'	18	7	16	3.5	SC	Tan Clayey Sand with gravel and calcareous nodules
B-2	5-8½'	18	8	34	1.2	SC	Tan Clayey Sand with gravel and calcareous nodules
B-3	3½-5'	----	non-plastic	14	1.9	SM	Tan Clayey Sand with gravel and calcareous nodules

APPENDIX C

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE ELEVATED STORAGE TANK** Date: 03/04/2019

Location: **HIGHWAY 349** Type: AIR ROTARY Boring No.: **B-1**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)
		ST	BROWN CLAYEY SAND				4.5+
		AU					
5		SS		50/2"			
		AU	TAN CLAYEY SAND WITH GRAVEL AND CALCAREOUS NODULES				
		SS		58/7"			
10							
5		SS		50/4"			
20		SS	TAN CLAYEY SAND WITH CALCAREOUS NODULES AND INTERMITTENT LIMESTONE LAYERS	50/6"			
5		SS		50/5"	*		
30		SS		50/5"			
5		SS	- GRAY SHALE SEAM	50/3"			
			TAN SANDSTONE WITH INTERMITTENT SAND SEAMS				
40		SS		50/5"			
5		SS		50/4"			
			BROWN SANDSTONE WITH INTERMITTENT SAND SEAMS				
50		SS		50/1"			

TOTAL DEPTH OF BORING 50 FEET

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE ELEVATED STORAGE TANK** Date: 03/04/2019

Location: **HIGHWAY 349** Type: AIR ROTARY Boring No.: **B-2**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
0		ST	BROWN CLAYEY SAND				4.5+	
5		SS		50/3"				
10		TCP	- TRACE THIN LIMESTONE SEAMS BELOW 11 FEET		50 = 2	50 = 1/2"		
5		TCP	TAN CLAYEY SAND WITH GRAVEL AND CALCAREOUS NODULES		50 = 1/4"	50 = 0		
20		TCP			50 = 0	50 = 0		
5		TCP			50 = 5"	50 = 3"		
30		TCP			50 = 1/4"	50 = 0		
5		TCP	TAN SANDSTONE WITH INTERMITTENT SAND SEAMS		50 = 1/2"	50 = 0		
40		TCP			50 = 1/2"	50 = 0		
5		TCP	BROWN SANDSTONE WITH INTERMITTENT SAND SEAMS		50 = 1/4"	50 = 0		
50		TCP			50 = 1/4"	50 = 0		

TOTAL DEPTH OF BORING 50 FEET

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
(325) 698-5560
Abilene, Texas 79601
Firm Registration No. 1151

LOG OF BORING

Project: **NE ELEVATED STORAGE TANK** Date: 03/04/2019

Location: **HIGHWAY 349** Type: AIR ROTARY Boring No.: **B-3**

DEPTH IN FEET	SYMBOL	SAMPLE	MATERIAL DESCRIPTION	N-BLOWS PER FOOT	TEXAS CONE PENETROMETER 1st 6"	TEXAS CONE PENETROMETER 2nd 6"	Qp (tsf)	DEPTH SCALE
		ST	BROWN CLAYEY SAND				4.5+	
5		SS		50/3"				
10		TCP	- TRACE INTERMITTENT LIMESTONE SEAMS BELOW 10 FEET		50 = 1/4"	50 = 0		
5		TCP	TAN CLAYEY SAND WITH GRAVEL AND CALCAREOUS NODULES		50 = 0	50 = 0		
20		TCP			50 = 1/4"	50 = 0		
5		TCP			50 = 1/4"	50 = 0		
30		TCP			50 = 1/2"	50 = 0		
5		TCP	TAN SANDSTONE WITH INTERMITTENT SAND SEAMS		50 = 0	50 = 0		
40		TCP			50 = 0	50 = 0		
5		TCP	BROWN SANDSTONE WITH INTERMITTENT SAND SEAMS		50 = 1/2"	50 = 0		
50		TCP			50 = 0	50 = 0		

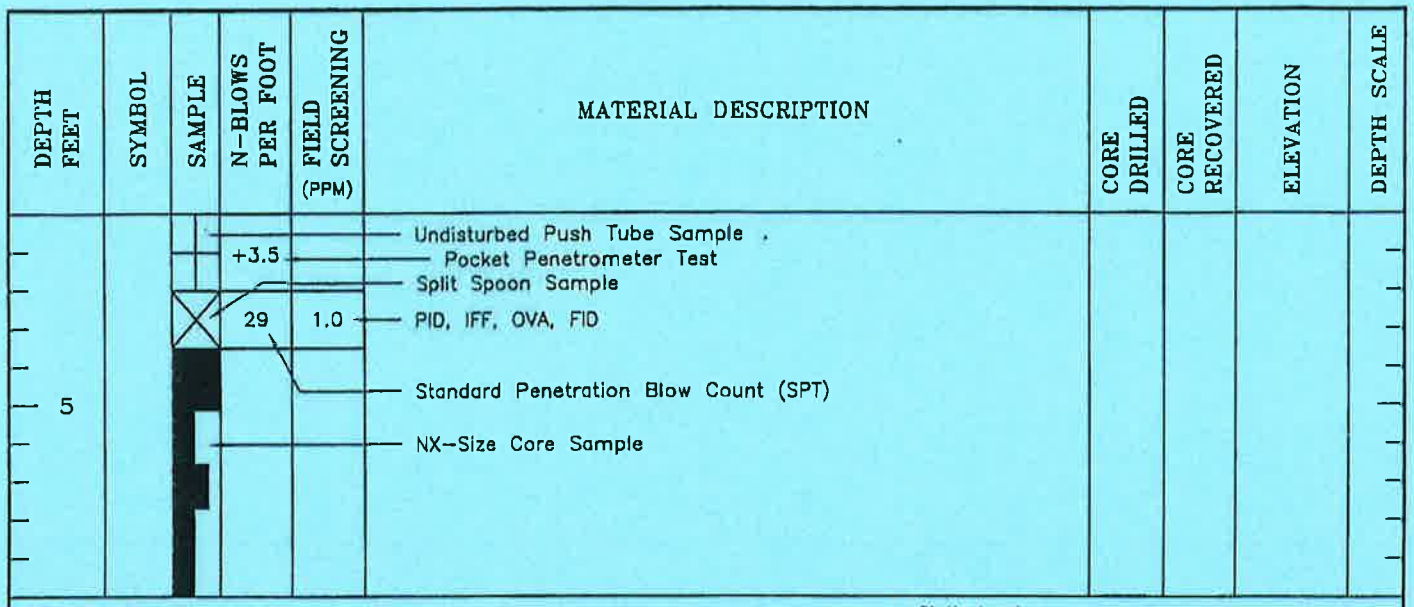
TOTAL DEPTH OF BORING 50 FEET

NOTE

NO GROUNDWATER WAS PRESENT DURING OR AT COMPLETION OF DRILLING ACTIVITIES.

ENPROTEC, INC.

EXPLANATION OF SYMBOLS AND TERMS USED ON BORING LOGS



Water Encountered — Water Level Encountered During Drilling

Static Level (date) — Stabilized Water Level

UNIFIED SOIL CLASSIFICATION DESCRIPTION OF SYMBOLS AND DIVISIONS

- Well-Graded Gravels, Gravel Sand Mixtures (GW)
- Poorly-Graded Gravels, Gravel Sand Mixtures (GP)
- Silty Gravel, Gravel Sand-Silt Mixtures (GM)
- Clayey Gravels, Gravel-Sand-Clay Mixtures (GC)
- Well-Graded Sands, Gravelly Sands (SW)
- Poorly-Graded Sands, Gravelly Sands (SP)
- Silty Sands, Poorly-Graded, Sand-Silt Mixtures (SM)
- Clayey Sands, Poorly-Graded, Sand-Clay Mixtures (SC)
- Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands (ML)
- Inorganic Clays of Low to Medium Plasticity Gravelly, Sandy or Silty Clays, Lean Clays (CL)
- Organic Silts and Organic Silty Clays of Low Plasticity (OL)
- Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils (MH)
- Inorganic Clays of High Plasticity, Fat Clays (CH)
- Organic Clays of Medium to High Plasticity, Organic Silts (OH)
- Caliche and Other Impervious Layer (HP)

BEDROCK SYMBOLS

- Conglomerate (CGL)
- Sandstone (SS)
- Limestone (LS)
- Shale (Sh)
- Weathered Shale (WS)
- Sandy Shale (SSh)
- Shaley Limestone (Sh LS)
- Dolomite (DOL)

MISCELLANEOUS SYMBOLS

- Asphaltic Concrete (HMAC)
- Cement Grout (CMT)
- Bentonite (BENT)

The LOG of BORING is a representation of the subsurface material at specific boring location and within the depth explored. The transition between strata may be gradual and variations in material types and depths between borings can be expected. Water level observations represent those conditions at the time of exploration and may vary with time and location of site.

SOIL COLOR CLASSIFICATION
Determined by
MUNSELL SOIL COLOR CHARTS
1990 EDITION REVISED

GENERAL NOTES

SAMPLE IDENTIFICATION

Soil Samples are visually classified in general accordance with the Unified Soil Classification System (ASTM D2487 or D 2488)

DRILLING AND SAMPLING SYMBOLS

ST:	Shelby Tube - 3" O.D., except where noted
SS:	Split-Spoon
THD:	THD Cone Penetrometer
AU:	Auger Sample
DB:	Diamond Bit
CB:	Carbide Bit
WS:	Wash Sample

SOIL PROPERTY SYMBOLS

N:	Standard "N" penetration: Blows per foot, or fraction thereof, of a 140 pound hammer 30 inches on a split-spoon
Qp:	Calibrated Penetrometer Resistence, TSF
Qu:	Unconfined Compression Strength, TSF
LL:	Liquid Limit, %
PI:	Plasticity Index

SOIL STRENGTH CHARACTERISTICS

NON-COHESIVE (GRANULAR) SOILS

RELATIVE DENSITY	BLOWS PER FOOT(N)
Very Loose	0-4
Loose	5-10
Firm	11-30
Dense	31-50
Very Dense	51 +

COHESIVE (CLAYEY) SOILS

COMPARATIVE CONSISTENCY	BLOWS PER FOOT(N)	UNCONFINED COMPRESSIVE STRENGTH (Qu)
Very Soft	0-2	0 - 0.25
Soft	3-4	0.25 - 0.50
Medium Stiff	5-8	0.50 - 1.00
Stiff	9-15	1.00 - 2.00
Very Stiff	16-30	2.00 - 4.00
Hard	31 +	4.00 +

SOIL CHARACTERISTICS

PARTICLE SIZE

Boulders	8 in. +	Coarse Sand	5mm-0.6 mm	Silt	0.074mm-.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074 mm		

DEGREE OF EXPANSIVE POTENTIAL	PI
Low	0-15
Moderate	15-25
High	25 +

DEGREE OF PLASTICITY	PI
None to Slight	0-4
Slight	5-10
Moderate	11-30
High	31 +

Enprotec / Hibbs & Todd, Inc., 402 Cedar Street, Abilene, Texas 79601

TABULATION OF BIDS FOR: Northeast Water System Improvements Bid Package B, City of Midland, Texas

BIDS RECEIVED: 11/18/2020

PE Firm Registration No. 1151

PACKAGE B - GENERAL				CB&I Storage Tank Solutions, LLC		Phoenix Fabricators & Erectors, LLC		Landmark Structures I, LP	
Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	LS	Mobilization, Bonds & Insurance	$ 244,951.00	$ 244,951.00	$ 100,000.00	$ 100,000.00	$ 245,000.00	$ 245,000.00
2	1	LS	Stormwater Pollution Prevention Plan	$ 16,900.00	$ 16,900.00	$ 15,000.00	$ 15,000.00	$ 2,000.00	$ 2,000.00
3	1	LS	Traffic Control Plan	$ 2,500.00	$ 2,500.00	$ 8,000.00	$ 8,000.00	$ 2,000.00	$ 2,000.00
4	200	LF	Trench and Excavation Safety Plan	$ 5.00	$ 1,000.00	$ 15.00	$ 3,000.00	$ 5.00	$ 1,000.00
5	1	LS	Owner's Allowance for SCADA System Integrator Contract	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00
6	1	LS	Owner's Allowance for Work Directed by Owner	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00	$ 250,000.00
			GENERAL SUB-TOTAL		**$ 565,351.00**		**$ 426,000.00**		**$ 550,000.00**

PACKAGE B - BASE				CB&I Storage Tank Solutions, LLC		Phoenix Fabricators & Erectors, LLC		Landmark Structures I, LP	
Item No.	Quantity	Unit	Item	Unit Cost	Amount	Unit Cost	Amount	Unit Cost	Amount
1	1	LS	Elevated Storage Tank	$ 4,433,649.00	$ 4,433,649.00	$ 4,650,500.00	$ 4,650,500.00	$ 4,581,000.00	$ 4,581,000.00
			BASE SUB-TOTAL		**$ 4,433,649.00**		**$ 4,650,500.00**		**$ 4,581,000.00**

GENERAL SUB-TOTAL	**$ 565,351.00**	**$ 426,000.00**	**$ 550,000.00**
BASE SUB-TOTAL	**$ 4,433,649.00**	**$ 4,650,500.00**	**$ 4,581,000.00**
GENERAL + BASE TOTAL	**$ 4,999,000.00**	**$ 5,076,500.00**	**$ 5,131,000.00**

PACKAGE B - PROPOSAL TIME	Phoenix Fabricators & Erectors, LLC	Landmark Structures I, LP	CB&I Storage Tank Solutions, LLC
DESCRIPTION	DAYS	DAYS	DAYS
Total number of calendar days to substantially complete the Work	480	480	480

City Council Meeting

Item Number: 11

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION AWARDING A CONTRACT TO RED DEER CONSTRUCTION, LLC FOR THE WEST WADLEY AVENUE WASTEWATER LINE EXTENSION PROJECT FOR A COST OF $1,341,052.50; APPROVING CONTINGENCIES IN THE AMOUNT OF $335,263.50; AND AUTHORIZING THE APPROPRIATION OF FUNDS

GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the execution of a contract for the West Wadley Avenue Wastewater Line Extension Project.

Recommended City Council Action:

Approve

Fiscal Impact:

A loan from the Water & Sewer Fund to the Sewer Impact Fee Fund is authorized in the amount of $1,422,778 to be repaid by Sewer Impact Fees as received until paid. An amount of $1,676,316 is appropriated for this project in the Sewer Impact Fee Fund. This project is included in the capital improvement plan approved with the adoption of the impact fees.

Discussion:

The Interim City Manager approved plans and specifications and authorized advertisement for bids for the West Wadley Avenue Wastewater Line Extension Project. Bid requests were issued to fifty-five (55) vendors and we received one (1) bid. Staff recommends awarding the contract to Red Deer Construction LLC. Please see the attached memo from Carl Craigo, Utilities Director, for additional information.

Therefore, please consider a resolution awarding a contract to Red Deer Construction LLC. of Midland, Texas for the West Wadley Avenue Wastewater Line Extension Project in the amount of $1,341,052.50. Staff is also requesting an additional $335,263.50 in contingences for a project total of $1,676.316.00.

Morris Williams Jr.

City Manager's Office

INTEROFFICE MEMORANDUM

TO: Erika Martinez, Purchasing Manager

FROM: Carl Craigo, PE, Utilities Director

SUBJECT: Consider a resolution awarding a construction contract for the Wadley Ave Wastewater Main Replacement to Red Deer Construction LLC & appropriating bond funds

DATE: December 15, 2020

Maverick engineering under the Engineering on call program prepared plans and specification for the Wadley Avenue Water Main Replacement Project. The project will extend the wastewater main from the golf course at Wadley drive to and across HWY 158 to the west.

The prepared plans and specifications were issued for bid on October 29, 2020 and opened on November 18, 2020. Bid notifications were sent to 56 companies and 6 contractors attended the non-mandatory pre-bid conference.

Three bids were received and opened November 18, 2020. Red Deer Contractor's bid was the only conforming bid with a bid of $1,341,053. The project cost is set at $1,676,316 which includes a 15% contingency for the project.

After review of the bids, staff recommends a resolution for approval for bid award and authorization of funds.

The bore portion across HWY 158 will be paid for by impact fees collected for wastewater expansion for a cost of $253,538.35 (4415150 40611). The remainder will be paid for out of a project fund set up from Utilities unallocated funds at a cost of $1,422,777.65.

RESOLUTION NO. _____

RESOLUTION AWARDING A CONTRACT TO RED DEER CONSTRUCTION, LLC FOR THE WEST WADLEY AVENUE WASTEWATER LINE EXTENSION PROJECT FOR A COST OF $1,341,052.50; APPROVING CONTINGENCIES IN THE AMOUNT OF $335,263.50; AND AUTHORIZING THE APPROPRIATION OF FUNDS

WHEREAS, the Interim City Manager authorized the advertisement for bids for the West Wadley Avenue Wastewater Line Extension Project; and

WHEREAS, the sole bid, submitted by Red Deer Construction, LLC, was opened on November 24, 2020, as shown on the bid documents attached hereto as Exhibit A and incorporated herein for all purposes; and

WHEREAS, the City Council finds the amount proposed by Red Deer Construction, LLC, to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to award a contract to Red Deer Construction, LLC, for the West Wadley Avenue Wastewater Line Extension Project;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, a contract with Red Deer Construction, LLC, for the West Wadley Avenue Wastewater Line Extension Project for a cost of $1,341,052.50. Said contract to be kept on file in the office of the City Secretary, referenced by the date and number of this Resolution.

SECTION TWO. That the sum of $335,263.50 for contingencies is hereby approved for said contract.

SECTION THREE. A loan from the Water & Sewer Fund to the Sewer Impact Fee Fund is authorized in the amount of $1,422,778.00 to be repaid by Sewer Impact Fees as received until paid. An amount of $1,676,316.00 is appropriated for this project in the Sewer

Impact Fee Fund. This project is included in the capital improvement plan approved with the adoption of the impact fees.

SECTION FOUR. That the City Comptroller is hereby authorized and directed to pay Red Deer Construction, LLC, pursuant to the terms of said contract from funds available in the Water & Sewer Fund upon receipt of proper invoices or statements approved by the City Manager.

SECTION FIVE. That the City Council hereby certifies that none of the Sewer Impact Fee Fund will be used or expended for an improvement or expansion not identified in the plan.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

City of Midland: West Wadley Avenue Wastewater Line Extension

City of Midland - Utlities Department; November 24,2020

BID TAB					Red Deer Construction		
Bid Item	Pay Note	Description	Quantity	Units	Unit Price	Bid Total	Actual Bid Total
1	M1	Mobilization	4	MO	$ 2,500.00	$ 10,000.00	$ 10,000.00
2	M2	Bypass Pumping	2	WK	$ 7,000.00	$ 14,000.00	$ 14,000.00
3	M3	Bore Pit	1	LS	$ 24,900.00	$ 24,900.00	$ 24,900.00
4	M4	Receiving Pit	1	LS	$ 24,900.00	$ 24,900.00	$ 24,900.00
5	M5	36" Bore For Casing Pipe	180	LF	$ 621.00	$ 111,780.00	$ 111,780.00
6	M6	36" Steel Pipe Casing (1/4" Wall Thickness)	180	LF	$ 145.00	$ 26,100.00	$ 26,100.00
7	M6	16" Steel Pipe Casing (1/4" Wall Thickness)	20	LF	$ 90.00	$ 1,800.00	$ 1,800.00
8	M7	Erosion/Sediment Control	4	MO	$ 2,700.00	$ 10,800.00	$ 10,800.00
9	M8	Traffic Control	4	MO	$ 500.00	$ 2,000.00	$ 2,000.00
10	M9	Job Site Safety	4	MO	$ 2,000.00	$ 8,000.00	$ 8,000.00
11	M10	Seeded Erosion Control Mats	11450	SY	$ 4.15	$ 47,517.50	$ 47,517.50
12	M11	Spray Watering	1	LS	$ 10,500.00	$ 10,500.00	$ 10,500.00
13	M12	Material Mark-up	N/A	%	20%	N/A	N/A
14	M13	Labor Mark-up (Regular Work Hours)	N/A	%	20%	N/A	N/A
15	M14	Equipment Rental Mark-up (Non-Standard Equipment Only)	N/A	%	20%	N/A	N/A
16	D1	Removal & Disposal of Existing Wastewater Main	120	LF	$ 16.75	$ 2,010.00	$ 2,010.00
17	D2	Removal & Disposal of Existing 48" Manhole (0'-5' Deep)	1	EA	$ 1,500.00	$ 1,500.00	$ 1,500.00
18	D3	Removal & Disposal of Existing 48" Manhole Additional Depth	15	VF	$ 275.00	$ 4,125.00	$ 4,125.00
19	D4	Removal & Disposal of Existing Unclassified Pavement	100	SY	$ 9.00	$ 900.00	$ 900.00
20	D5	Removal & Disposal of Existing Barbed-Wire Fence	400	LF	$ 10.00	$ 4,000.00	$ 4,000.00
21	WW1	18" ASTM F679 (PS 115), PVC, Wastewater Main	4700	LF	$ 121.00	$ 568,700.00	$ 568,700.00
22	WW1	8" SDR 26 ASTM D3034, PVC, Wastewater Main	140	LF	$ 35.50	$ 4,970.00	$ 4,970.00
23	WW1	8" SDR 35 ASTM D3034, PS46, PVC, Wastewater Main	240	LF	$ 34.00	$ 8,160.00	$ 8,160.00
24	WW2	48" Fiberglass Manhole & Cover (0'-5' Deep)	17	EA	$ 4,150.00	$ 70,550.00	$ 70,550.00
25	WW3	48" Fiberglass Manhole Additional Bury Depth (> 5' Deep)	240	VF	$ 500.00	$ 120,000.00	$ 120,000.00
26	WW4	8" Manhole Drop Structure (0'-5' Deep, External)	3	EA	$ 2,500.00	$ 7,500.00	$ 7,500.00
27	WW5	8" Manhole Drop Structure Additional Bury Depth (> 5' Deep,	15	VF	$ 250.00	$ 3,750.00	$ 3,750.00
28	WW6	8" Wastewater Main Plug	1	EA	$ 25.00	$ 25.00	$ 25.00
29	WW7	Open Trenching of Wastewater Main (0'-16' Deep)	1400	LF	$ 32.50	$ 45,500.00	$ 45,500.00
30	WW7	Open Trenching of Wastewater Main (16'-20' Deep)	2180	LF	$ 40.50	$ 88,290.00	$ 88,290.00
31	WW7	Open Trenching of Wastewater Main (20'-24' Deep)	1000	LF	$ 50.50	$ 50,500.00	$ 50,500.00
32	P1	2" Type D HMAC Asphalt Pavement Repair (PG70-22)	500	SY	$ 30.00	$ 15,000.00	$ 15,000.00
33	P2	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	100	GAL	$ 6.50	$ 650.00	$ 650.00
34	P3	Flowable Fill / 2-Sack Backfill	500	SY	$ 90.00	$ 45,000.00	$ 45,000.00
35	P4	6" Base Rock Pavement Repair (Flexible Base)	500	SY	$ 15.25	$ 7,625.00	$ 7,625.00
					Base Bid Total =	$ 1,341,052.50	**$ 1,341,052.50**
							$0.00

City of Midland: West Wadley Avenue Wastewater Line Extension

City of Midland - Utlities Department; November 24,2020

BID TAB					Red Deer Construction		
Bid Item	Pay Note	Description	Quantity	Units	Unit Price	Bid Total	Actual Bid Total
1	M1	Mobilization	4	MO	$ 2,500.00	$ 10,000.00	$ 10,000.00
2	M2	Bypass Pumping	2	WK	$ 7,000.00	$ 14,000.00	$ 14,000.00
3	M3	Bore Pit	1	LS	$ 24,900.00	$ 24,900.00	$ 24,900.00
4	M4	Receiving Pit	1	LS	$ 24,900.00	$ 24,900.00	$ 24,900.00
5	M5	36" Bore For Casing Pipe	180	LF	$ 621.00	$ 111,780.00	$ 111,780.00
6	M6	36" Steel Pipe Casing (1/4" Wall Thickness)	180	LF	$ 145.00	$ 26,100.00	$ 26,100.00
7	M6	16" Steel Pipe Casing (1/4" Wall Thickness)	20	LF	$ 90.00	$ 1,800.00	$ 1,800.00
8	M7	Erosion/Sediment Control	4	MO	$ 2,700.00	$ 10,800.00	$ 10,800.00
9	M8	Traffic Control	4	MO	$ 500.00	$ 2,000.00	$ 2,000.00
10	M9	Job Site Safety	4	MO	$ 2,000.00	$ 8,000.00	$ 8,000.00
11	M10	Seeded Erosion Control Mats	11450	SY	$ 4.15	$ 47,517.50	$ 47,517.50
12	M11	Spray Watering	1	LS	$ 10,500.00	$ 10,500.00	$ 10,500.00
13	M12	Material Mark-up	N/A	%	20%	N/A	N/A
14	M13	Labor Mark-up (Regular Work Hours)	N/A	%	20%	N/A	N/A
15	M14	Equipment Rental Mark-up (Non-Standard Equipment Only)	N/A	%	20%	N/A	N/A
16	D1	Removal & Disposal of Existing Wastewater Main	120	LF	$ 16.75	$ 2,010.00	$ 2,010.00
17	D2	Removal & Disposal of Existing 48" Manhole (0'-5' Deep)	1	EA	$ 1,500.00	$ 1,500.00	$ 1,500.00
18	D3	Removal & Disposal of Existing 48" Manhole Additional Depth	15	VF	$ 275.00	$ 4,125.00	$ 4,125.00
19	D4	Removal & Disposal of Existing Unclassified Pavement	100	SY	$ 9.00	$ 900.00	$ 900.00
20	D5	Removal & Disposal of Existing Barbed-Wire Fence	400	LF	$ 10.00	$ 4,000.00	$ 4,000.00
21	WW1	18" ASTM F679 (PS 115), PVC, Wastewater Main	4700	LF	$ 121.00	$ 568,700.00	$ 568,700.00
22	WW1	8" SDR 26 ASTM D3034, PVC, Wastewater Main	140	LF	$ 35.50	$ 4,970.00	$ 4,970.00
23	WW1	8" SDR 35 ASTM D3034, PS46, PVC, Wastewater Main	240	LF	$ 34.00	$ 8,160.00	$ 8,160.00
24	WW2	48" Fiberglass Manhole & Cover (0'-5' Deep)	17	EA	$ 4,150.00	$ 70,550.00	$ 70,550.00
25	WW3	48" Fiberglass Manhole Additional Bury Depth (> 5' Deep)	240	VF	$ 500.00	$ 120,000.00	$ 120,000.00
26	WW4	8" Manhole Drop Structure (0'-5' Deep, External)	3	EA	$ 2,500.00	$ 7,500.00	$ 7,500.00
27	WW5	8" Manhole Drop Structure Additional Bury Depth (> 5' Deep,	15	VF	$ 250.00	$ 3,750.00	$ 3,750.00
28	WW6	8" Wastewater Main Plug	1	EA	$ 25.00	$ 25.00	$ 25.00
29	WW7	Open Trenching of Wastewater Main (0'-16' Deep)	1400	LF	$ 32.50	$ 45,500.00	$ 45,500.00
30	WW7	Open Trenching of Wastewater Main (16'-20' Deep)	2180	LF	$ 40.50	$ 88,290.00	$ 88,290.00
31	WW7	Open Trenching of Wastewater Main (20'-24' Deep)	1000	LF	$ 50.50	$ 50,500.00	$ 50,500.00
32	P1	2" Type D HMAC Asphalt Pavement Repair (PG70-22)	500	SY	$ 30.00	$ 15,000.00	$ 15,000.00
33	P2	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	100	GAL	$ 6.50	$ 650.00	$ 650.00
34	P3	Flowable Fill / 2-Sack Backfill	500	SY	$ 90.00	$ 45,000.00	$ 45,000.00
35	P4	6" Base Rock Pavement Repair (Flexible Base)	500	SY	$ 15.25	$ 7,625.00	$ 7,625.00
					Base Bid Total =	$ 1,341,052.50	**$ 1,341,052.50**
							$0.00

SPECIFICATIONS

Project Name: West Wadley Avenue Wastewater Line Extension

MAYOR
Patrick Payton

COUNCIL MEMBERS

District 1	Scott Dufford	District 3	Jack Ladd
District 2	John Norman	District 4	Lori Blong
At-Large	Spencer Robnett	At Large	Michael Trost

UTILITIES DIRECTOR
Carl Craigo, P.E.



Prepared by City of Midland, Texas
Utilities Department

October 2020

PACKET
11.2329
December 15, 2020

NOTICE TO BIDDERS

ATTENTION: Due to the Coronavirus (COVID-19) pandemic, all bidders are encouraged to mail bid packets to one of the addresses below rather than delivering them in person in the interests of maintaining social distancing:

USPS Mailing Address:		***Physical Address for mail carriers other than USPS:***
City of Midland, Texas		**City of Midland, Texas**
Attn: City Secretary's Office	**OR**	**Attn: City Secretary's Office**
P O Box 1152		**300 North Loraine St, Suite 330**
Midland, TX 79702		**Midland, TX 79701**

If bid packets are delivered in person then bidders must drop the bid packets off at the first-floor front desk of City Hall before the bid opening deadline, and social distancing measures will be maintained for the health of all parties involved.

Sealed proposals, addressed to the Mayor and City Council of the City of Midland, Texas, for the furnishing of materials and labor together with other miscellaneous and appurtenant work will be received at the office of the City Secretary, City Hall, Midland, Texas, until 2:00 p.m. on the 11th day of November, 2020, and publicly opened and read aloud at that time.

ATTENTION: The public bid opening will in the City Council Meeting Chambers in order to ensure social distancing by the attendees due to COVID-19. Attendees must wear masks while they are inside City Hall.

The Proposed Work provides for the furnishing of materials and labor for West Wadley Avenue Wastewater Line Extension together with other miscellaneous and appurtenant work.

ATTENTION: A NON-MANDATORY PRE-BID MEETING TELECONFERENCE will be held at 2:00 p.m. on Wednesday, November 4th, 2020. There will be no in-person pre-bid meeting due to COVID-19.

TELECONFERENCE CALL IN NUMBER: (866) 528-2256
ACCESS CODE: 4450719

ATTENTION: All questions submitted before or after the Non-Mandatory Pre-Bid Meeting Teleconference must be submitted via email to the following email address:

jferguson@midlandtexas.gov

The deadline for submitting additional questions after the Non-Mandatory Pre-Bid Meeting Teleconference is Noon on Friday, November 6, 2020. Questions submitted before the Noon deadline will be included in the Addendum that will go out that same day along with all discussion items, questions, answers, and any new information resulting from the Non-Mandatory Pre-Bid Meeting Teleconference. Questions submitted after the Noon deadline will not receive any additional information and will instead only be directed to the information already provided.

Bids will be received on a unit price basis.

No Bid may be withdrawn within a period of 60 days after the date fixed for opening Bids.

“FAX” or telephone bids or modifications will not be accepted.

Bid Envelopes shall be plainly marked "Proposal for City of Midland”.

ATTENTION: Information for bidders, proposal forms, specifications, and plans may be obtained by emailing purchasing@midlandtexas.gov.

A bid bond or proposal guaranty is to accompany the bid, thereby guaranteeing the good faith of the bidder and that the bidder will enter into the written contract. The guaranty is to amount to five percent (5%) of the total bid and must be in the form of cash or certified check, issued by a bank satisfactory to the City of Midland, or bid bond. If in the form of cash or certified check, it is expressly understood and agreed that the City of Midland is given the right to retain such as liquidated damages if such bidder withdraws its bid anytime after such bid is opened and before official rejection of such bid, or if successful in securing the awarded thereof, such bidder fails to enter into the contract and furnish satisfactory performance and payment bonds. If a bid bond is submitted, it shall be executed on forms contained in these contract documents by a corporate surety authorized to do business in the State of Texas and acceptable to the City of Midland.

WAIVER OF ATTORNEY FEES

BY SUBMITTING A BID, BIDDER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY’S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE BIDDER SPECIFICALLY AGREES THAT IF THE BIDDER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE BIDDER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY’S FEES TO WHICH BIDDER MIGHT OTHERWISE BE ENTITLED.

BIDDER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE BIDDER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE BIDDER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE OWNER AND THE BIDDER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE BIDDER AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

WAIVER

BIDDER’S WAIVER:

BY SUBMITTING A BID, THE BIDDER AGREES TO WAIVE AND DOES HEREBY VOLUNTARILY AND INTENTIONALLY WAIVE, ABANDON AND RELINQUISH ANY CLAIM THE BIDDER HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY OF MIDLAND, TEXAS, AND THE CITY’S EMPLOYEES, AGENTS AND OFFICERS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FOLLOWING:

1. **THE ADMINISTRATION, EVALUATION OR RECOMMENDATION OF ANY BID;**

2. **WAIVER OR DELETION OF ANY OF THE REQUIREMENTS UNDER THE BID DOCUMENTS OR THE CONTRACT DOCUMENTS;**

3. **ACCEPTANCE OR REJECTION OF ANY BIDS; OR**

4. **AWARD OF THE CONTRACT**

BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES THAT THE BIDDER UNDERSTANDS ALL OF THE TERMS OF THE BIDDING DOCUMENTS AND CONSENTS TO THE BIDDING PROCESS AND THE POSSIBILITY OF A NEGATIVE ASSESSMENT. BY SUBMITTING A BID, THE BIDDER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE BIDDER AND THE CITY OF MIDLAND, TEXAS. THE BIDDER AGREES THAT THIS IS THE INTENTIONAL RELINQUISHMENT OF A PRESENTLY EXISTING KNOWN RIGHT. BY SIGNING THE REQUEST FOR BID AND/OR BELOW, YOUR COMPANY AGREES TO THE ABOVE WAIVER(S).

City of Midland

Amy Turner
City Secretary

Form Revised October 2020

INSTRUCTION AND INFORMATION FOR BIDDERS

1. LOCATION AND EXTENT OF WORK

The work and construction contemplated to be accomplished under this Contract is located in the City of Midland, Texas, and consists of municipal public works projects as set forth in the proposal.

The location and details for the construction and related work are shown upon a set of drawings dated October 19, 2020 and numbered from C100 (1) through C302 (17) inclusive. These drawings and plans, together with the specifications, form a part of the Contract. Where figures are shown on the drawings, they shall take precedence over scaled distances and dimensions.

2. TIME AND PLACE OF RECEIVING BIDS

All bids shall be sealed, addressed to the Mayor and City Council of the City of Midland, Texas, and will be received by the City Secretary in her office at City Hall, 300 N. Loraine Street, Midland, Texas, mailing address is P.O. Box 1152, Midland, Texas 79702, until time stated on the Advertisement for Bids.

3. PREPARATION OF BID FORM

Bids shall be submitted only on the forms provided therefore in the Contract Documents, and must not be submitted in letter form or in any other form. They shall be filled out in ink in both script and figures. The Proposal form provided in the Contract Documents sets forth in detail the various items and approximate quantities thereof contained in the Project. Bids submitted in any other form will be considered irregular and will be returned to the Bidder without receiving consideration by the Owner.

All bids must be submitted in sealed envelopes bearing on the outside the name of the Bidder, his address, and the name of the Project for which the bid is submitted. It is the sole responsibility of the Bidder to see that his bid is received in proper time. Any bid received after the scheduled closing time for receipt of bids will be returned to the Bidder unopened.

The bid must be signed in the name of the Bidder and must bear the signature in longhand of the persons duly authorized to sign the bid.

Changes in or additions to the bid form, recapitulations of the work bid upon, alternative proposals, or any other modification of the bid form which is not specifically called for in the Contract Documents may result in the Owner's rejection of the bid as not being responsive to the invitation. No oral or telephonic modification of any bid submitted will be considered and a telegraphic modification may be considered only if the postmark evidences that a confirmation of the telegram duly signed by the Bidder was placed in the mail prior to the opening of bids.

The bid submitted must not contain any erasures, interlineations or other corrections unless each such correction is suitably authenticated by affixing in the margin immediately opposite the correction the surnames of the person or persons signing the bid.

4. EXAMINATION OF SITE, DRAWINGS, ETC

Each Bidder is requested to visit the site of the proposed work and fully acquaint himself with the conditions relating to the construction and labor so that he may fully understand the facilities, difficulties and restrictions attending the execution of the work under the Contract. Bidders shall thoroughly examine and be familiar with the Plans and the Specifications. The failure or omission of any Bidder to receive or examine any form, instrument, addendum or other document or to visit the site and acquaint himself with conditions there existing shall in no way relieve any Bidder from obligations with respect to his bid or to the Contract. The submission of a bid shall be taken as prima-facie evidence of compliance with this section.

5. WITHDRAWAL OF BIDS

Any Bidder may withdraw his bid, either personally, by written request, or by telegraphic request confirmed in the manner specified above, at any time prior to the scheduled closing time for receipt of bids.

6. AGREEMENT AND BONDS

The successful Bidder will be required to furnish a Performance Bond, and a Payment Bond, in an amount equal to one hundred percent (100%) of the total Contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas, and acceptable to the City of Midland. All Bonds must be executed on forms contained in these Contract Documents. The form of Agreement which the successful Bidder, and Contractor will be required to execute is also included herewith. The form of Agreement and the form of the Bonds should be carefully examined by the Bidder.

7. INTERPRETATION OF PLANS AND DOCUMENTS

If any person contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans, Specifications, or other Contract Documents or finds discrepancies in, or omissions from the Plans or Specifications, he may submit to the Owner written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the Contract Documents will be made only by Addendum duly issued and a copy of such addendum will be mailed or delivered to each person receiving a set of such Contract Documents. The Owner will not be responsible for any other explanations or interpretations of the Contract Documents. No oral interpretations of any provision in the Contract Documents will be made to any Bidder.

8. BIDDERS INTERESTED IN MORE THAN ONE BID

No person, firm or corporation shall be allowed to make, or file more than one bid for the same work unless alternate bids are specifically called for. A person, firm or corporation that has submitted a sub-proposal to a Bidder, or that has quoted prices of materials to a Bidder is not thereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or making a prime proposal.

9. AWARD OF CONTRACT

The Owner reserves the right to reject any or all bids submitted and not make an award. The Owner also reserves the privilege of accepting any item as a separate contract or the combination of items of a contract. The Owner and Bidder agree that, if the Contract is awarded, that it will be awarded to either the lowest responsible bidder/proposer, or to the bidder/proposer who provides goods or services at the best value for the

City of Midland. In determining the best value for the City of Midland, the City of Midland may consider the criteria enumerated in Section 252.043 of the Texas Local Government Code. Further, the Owner reserves all rights granted by Section 271.027 of the Texas Local Government Code. The Owner reserves the right to award the bid to the lowest responsible bidder.

10. OPENING OF BIDS

Bidders are invited to be present at the opening of the Proposals. All Proposals shall be made and received with the understanding that the Bidder accepts the terms and conditions contained in the Contract Documents.

11. COMPARISON OF BIDS

All bids will be compared on the basis of the Proposal.

12. BID GUARANTY

A Certified Check, Bank Money Order, issued by a bank satisfactory to the Owner, or a Bidder's Bond on the form provided and approved by the City Attorney, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the Owner, must accompany the Bidder's Proposal, as a guaranty that the Bidder will enter into a Contract and execute the required Performance Bond and Guaranty in the forms provided within fifteen (15) days after notice of award of Contract to him. Bids or Proposals without the required Bid Guaranty will not be considered. All Proposals shall remain in effect for a period of thirty (30) days after date of bid opening.

13. CONTRACT DOCUMENTS

The complete Contract Documents may include the following: (1) Notice to Bidders, (2) Instructions and Information for Bidders, (3) Proposal, (4) Experience Record, (5) Bid Bond, (6) Contract Agreement, (7) Performance Bond, (8) Payment Bond, (9) Insurance Certificate, (10) General Conditions, (11) Special Conditions, (12) Detailed Specifications all of which are bound together, and/or (13) Certificate of Payment. The Contract Documents shall also include Drawings or Detailed Plans for the proposed work. A complete set of the Contract Documents and the detailed plans are on file in the Office of the City Secretary.

14. TIME ELEMENT

The work to be done under this Contract shall be commenced within fifteen (15) days from the date of the notice from the City to the Contractor to commence work. The Contractor shall commence performance of the Contract on the date stated in the City's notice to the Contractor to proceed and shall complete the performance of the Contract without delay.

15. PAYMENTS

Payments to the Contractor will be based upon the prices stated in the proposal and upon basis of the work performed as determined by the Engineer. The Engineer's determination shall be considered as final unless changes are authorized by the City in writing which shall affect the work. Upon issuance of the Certificate of Completion, the Engineer shall proceed to take final measurements and prepare a final statement of the value of all work performed and materials furnished under the terms of the agreement and shall certify same to the Owner who shall pay to the Contractor on or after the 30th day, and before the 35th day, after the date of the

Certificate of Completion, the balance due the Contractor under the terms of this agreement, provided he has fully performed his contractual obligations under the terms of this Contract, and said payment shall become due in any event upon said performance by the Contractor. Notwithstanding any provision of these Contract documents to the contrary, it is expressly understood and agreed by the parties hereto that neither the Certificate of Acceptance, nor the final or any other payment hereunder, nor any partial or total occupancy or possession of the project by the Owner, shall relieve the Contractor of his responsibility for completion of the entire project in a good workmanlike manner and in full compliance with the plans and specifications and the fulfillment of any warranties which may be required in the Contract documents.

Revised October 2020

NOTICE TO BIDDERS

IF THIS PURCHASE REQUIRES A CONTRACT, THE ATTACHED **CONTRACT AND INSURANCE REQUIREMENTS ARE NON-NEGOTIABLE**. MODIFICATIONS BY BIDDER/CONTRACTOR OF ANY MATERIAL TERM(S) TO THE CONTRACT DOCUMENTS WILL BE DEEMED A NON-RESPONSIVE BID. NON-RESPONSIVE BIDS WILL BE REJECTED. BIDDER/CONTRACTOR MUST BE WILLING TO SIGN THE CONTRACT AS IS AND WITHOUT MODIFICATIONS, PROVIDE PROPERLY EXECUTED BONDS (IF APPLICABLE) AND PROVIDE INSURANCE SPECIFICALLY AS REQUIRED WITHIN THE CONTRACT DOCUMENTS **WITHIN 21 DAYS** OF THE DATE OF THE TRANSMITTAL LETTER.

IF THE SELECTED BIDDER/CONTRACTOR CANNOT MEET THE ABOVE REQUIREMENTS, THEN **THE CITY RESERVES THE RIGHT TO AWARD THIS PURCHASE TO ANOTHER BIDDER**.

IMPORTANT NOTICE – IF THE CONTRACT DOCUMENTS REQUIRE WORKER'S COMPENSATION INSURANCE, BIDDER/CONTRACTOR MUST CARRY WORKER'S COMPENSATION INSURANCE TO BE ELIGIBLE FOR THIS CONTRACT. IF YOU CANNOT PROVIDE WORKER'S COMPENSATION INSURANCE AS REQUIRED BY STATE OF TEXAS STATUTE, WE RESPECTFULLY REQUEST THAT YOU "NO BID" THIS WORK.

COMPLIANCE: Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006,

please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

ANY VENDOR WHO FAILS TO COMPLY WITH THE TERMS OF THE AWARD **MAY BE DECLARED AN IRRESPONSIBLE VENDOR**. BIDS SUBMITTED BY SAID VENDOR SHALL NOT BE CONSIDERED AGAIN FOR A MINIMUM PERIOD OF SIX MONTHS AS DETERMINED BY THE CITY MANAGER.

IMPORTANT NOTICE

Conflict Of Interest Reporting Requirements

Compliance with LOCAL GOVERNMENT CODE TITLE 5. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES SUBTITLE C. MATTERS AFFECTING PUBLIC OFFICERS AND EMPLOYEES OF MORE THAN ONE TYPE OF LOCAL GOVERNMENT CHAPTER 176. DISCLOSURE OF CERTAIN RELATIONSHIPS WITH LOCAL GOVERNMENT OFFICERS; PROVIDING PUBLIC ACCESS TO CERTAIN INFORMATION.

Form CIQ: This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. This questionnaire shall be filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code. A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

Bidders are responsible for filing Conflict of Interest form "CIQ" in accordance with the above referenced statute. Failure to do so is a class C Misdemeanor. Contracts or Purchase Orders awarded to a vendor that has violated this law is subject to termination at such time that the violation is discovered with no recourse to the City of Midland. The bidder will be subsequently removed from the bidders list for a minimum of one year.

When there is no known conflict of interest as defined by the statute, it is not necessary to file/submit the Form CIQ. The form must be submitted if a conflict is subsequently discovered.

By submitting a response to this request, vendor represents that it complies with the requirements of Chapter 176 of the Texas Local Government Code.

For a current list of the local government officers go to: http://www.midlandtexas.gov/

Upon completion of the form, sign and submit with bid or mail to:

City of Midland
Attn: City Secretary
PO Box 1152
Midland, Texas 79702

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

Red Deer Construction LLC

2 ☒ **Check this box if you are filing an update to a previously filed questionnaire.** (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information is being disclosed.**

N/A

Name of Officer

4 **Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.**

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes ☒ No

5 **Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.**

N/A

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 PACKET 11.2340

Signature of vendor doing business with the governmental entity

~~11/16/2020~~ ~~December 15,~~ 2020

Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

(A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;

(B) a transaction conducted at a price and subject to terms available to the public; or

(C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

***

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds $2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than $100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.

CITY OF MIDLAND

Consideration of Location of Bidder's Principal Place of Business
For Bids of $50,000 up to $100,000 for Services and $500,000 for Commodities
Affidavit of Eligibility

Pursuant to Texas Local Government Code 271.9051, in purchasing real property, personal property that is not affixed to real property, or services, if the City receives one or more bids from a bidder whose principal place of business is in the City of Midland and whose bid is within five percent (5%) of the lowest bid price received by the City from a bidder who is not a resident of the City of Midland, the City may enter into a contract with:

(1) the lowest bidder; or

(2) the bidder whose principal place of business is in the City of Midland if the City Council determines, in writing, that the local bidder offers the City the best combination of contract price and additional economic development opportunities for the City of Midland created by the contract award, including the employment of residents of the City of Midland and increased tax revenues to the City of Midland.

In order to receive consideration, bidders must submit this affidavit to:

Erika Martinez
Purchasing Manager
City of Midland
300 N. Loraine St.,
PO BOX 1152
Midland, TX 79702-1152

Complete all areas below. Incomplete affidavits may be rejected.

Local Business Name: Red Deer Construction LLC

Local Address (must be within the City limits): 401 S. Colorado Midland, TX 79701

1. Is the above address the principal place of business for the business named above? ☒ Yes ☐ No
2. How many residents of the City of Midland are employed at the above business location? 20
3. Year your business was established in the City of Midland: 2013
4. If you collect sales tax for ANY class of customer, provide the following Reseller information:

   Reseller Permit Number: ~~175~~ 32050555351

   Company Name and Address (as it appears on permit):

   Red Deer Construction LLC
   PO Box 51473
   Midland, TX 79710

5. Does your business have more than one office in the State of Texas? ☐ Yes ☒ No
   If Yes, identify the office location considered as the point-of sale for the purpose of sales tax calculation:

6. Was the local business required to pay business and/or real property tax for the most recent tax year?

   ☒ Yes ☐ No

   If Yes, did the local business pay any of this tax to the City of Midland? ☒ Yes ☐ No

Under penalty of perjury, the undersigned states that the foregoing statements are true and correct. It is further acknowledged that any person, firm, corporation or entity intentionally submitting false information to the City in an attempt to qualify for eligibility shall be prohibited from bidding on City of Midland products and services for a period of one (1) year.

Authorized Signature: [signature] Date: 11/16/2020

Printed Name and Title: Daniel Chandler III - President

REDDEER-01 BCAMPBELL

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 9/30/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Boley-Featherston Insurance 701 Lamar Street Wichita Falls, TX 76301	CONTACT NAME: PHONE (A/C, No, Ext): (940) 723-7111 FAX (A/C, No): (940) 723-7531 E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : FCCI Insurance Company	10178
INSURED Red Deer Construction, LLC P.O. Box 51473 Midland, TX 79710	INSURER B : Evanston Insurance Company	35378
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY X PRO-JECT LOC OTHER: $1,000 deductible PD per claim			CPP100061669	10/1/2020	10/1/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY SCHEDULED AUTOS HIRED AUTOS ONLY NON-OWNED AUTOS ONLY			CA100061670	10/1/2020	10/1/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10,000			UMB100061671	10/1/2020	10/1/2021	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WC0100061672	10/1/2020	10/1/2021	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
B	Excess Liability			MKLV4EUE100356	10/2/2020	10/1/2021	Each Occurrence	5,000,000
A	Limited Pollution			CPP100061669	10/1/2020	10/1/2021	Work Sites	100,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

City of Midland
PO Box 1152
Midland, TX 79702-1152

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

PACKET 11.2344 December 15, 2020

© 1988-2015 ACORD CORPORATION. All rights reserved.
The ACORD name and logo are registered marks of ACORD

TECHNICAL SPECIFICATIONS

FOR: West Wadley Avenue Wastewater Line Extension

All construction for this project must conform to the City of Midland "STANDARD SPECIFICATIONS" issued by the Engineering Services Department which are herein made a part of these specifications by reference.

The bidder/contractor is to pay particular attention to the following items in the "STANDARD SPECIFICATIONS" for this project.

1) Preparation of Right of Way
2) Excavation, Embankment and Preparation of Subgrade
3) Concrete Curb and Gutter, Sidewalks, Driveways, Valley Gutters, Center Drains and Rip Rap
4) Concrete Structures
5) Flexible Base, Caliche
6) Bituminous Prime
7) Bituminous Tack
8) Hot Mix Asphaltic Concrete
9) Double Course Asphalt Surface Treatment
10) Preparation of Asphaltic Concrete Surface for Overlay or Seal Coat
11) Seal Coat
12) Asphalt –Rubber Seal Coat
13) Polymer Modified Slurry
14) PVC Pipe Casings
15) Water Line Specifications
16) Gravity Flow Sewers for Waste Water and Storm Water

The "STANDARD SPECIFICATIONS" are available from the Department of Engineering Services, City Hall, 300 North Loraine Street, Suite 510, Midland, Texas.

GENERAL CONDITIONS AND PROVISIONS

1. DEFINITIONS

The following terms as used in this contract shall be defined and interpreted as follows:

(a) "Contract" or "This Contract" or "Agreement": The particular Contract executed by the Contractor and the Owner of which these general conditions are integral parts.

(b) "Contractor": The person, firm or corporation to whom this Contract is awarded by the Owner and who is a party thereto.

(c) "Owner", "City", or pronouns instead: The entity that is a party to this Contract, contracting under the official name of the City of Midland, Texas or the City Council of the City of Midland.

(d) The words "as directed", "as required", "as permitted", "acceptable to", "satisfactory", and the words of like import, shall mean that the direction, requirement or permission of the Engineer is intended.

(e) "Engineer": The word "Engineer" used in these specifications or in this Contract means the duly authorized representative or agent of the Owner supervising the performance of the Contract and representing the Owner in his Contractual relations and negotiations with the Contractor during the period of construction. The Engineer will be represented by assistants and inspectors authorized to act for him. On all questions concerning the acceptability of material or equipment, the classifications of material, the execution of the work, conflicting interest of Contractors performing related work and the determination of costs, the decision of the Engineer shall be final, but shall not relieve the Contractor of his responsibility for completion of the entire work in a good and workmanlike manner and in full compliance with the plans and specifications.

Inspectors are required to see that all the provisions of the Contract specifications are faithfully adhered to. Any inspector may, if authorized by the Engineer, stop the work entirely if there is not sufficient quantity of suitable and approved material on the ground to carry it on properly, or for any other good and sufficient cause. Any work done in the absence of an inspector may be ordered opened up for thorough examination, and must be rebuilt or replaced at the Contractors sole expense if found to be deficient or not in accordance with the plans and specifications. But no approval by an inspector shall be construed as an acceptance of defective or improper work or material, which must be rebuilt or properly replaced whenever discovered. Inspectors have not the power to give orders or directions under any possible circumstances, except as herein defined and provided, and on authority of the Engineer

(f) "Subcontractor": Any person, firm or corporation other than an employee of the contractor, supplying, for and under agreement either with the Contractor or any subcontractor of the Contractor, labor or material, or both, at the site of the project in connection with this Contract.

(g) "Project": The structure or improvement to be constructed in whole or in part through the performance of this Contract.

(h) "Work on the Project": Such work as is performed or ordinarily would be performed at the site of the project.

(i) "Surety": Any firm or corporation executing a Surety Bond or Bonds payable to the Owner securing the performance of the Contract either in whole or in part.

(j) Whenever certain articles are specifically mentioned, by brand name or name of the manufacturer, such materials shall be taken as standard and guide for quality, operation, capacity, etc. The term "or equal" shall mean that articles of equal characteristics as required, but of different brand or manufacturer, may be substituted and accepted, subject in all instances to the approval of the Engineer.

(k) "Special Provisions", "Special Conditions", "Project Specific Specification" or "Job Specific Specifications" are included as amendment of and/or additions to the General Conditions and/or Standard Specifications for the particular project in which they are included and will take precedence over the General Conditions and Standard Specifications only in so far as the amendments and/or additions. All other provisions in the General Conditions and/or Standard Specifications will not be affected.

(l) "Drawings" "Contract Drawings", "Plans" "Detail Drawings" "Detail Sheets" or "Plans and Details" refers to the set of drawings which show the details for the construction and related work anticipated on this project and upon which bids are being solicited.

2. CONFLICT OF PROVISIONS

Unless it is specifically provided otherwise, any provision in any other part of this Contract which may be in conflict or inconsistent with any provision in the General Conditions and Provisions shall be void to the extent only of such conflict or inconsistency.

3. DUTIES AND RESPONSIBILITIES OF THE CONTRACTOR

The Contractor shall have charge of and shall be responsible for the entire work under this Contract until its completion and acceptance by the city. A competent superintendent, foreman or other representative, invested with sufficient authority to conduct the work properly, shall be maintained on the work at all times.

It is expressly agreed and understood that no decision of the Engineer or any certificate issued nor payment made to the Contractor nor partial or entire use or occupancy of the work by the Owner, shall be an acceptance of any work or materials not in accordance with this Contract, nor constitute a waiver of the Contractor's responsibility to perform the entire work in a good and workmanlike manner and in accordance with the plans and specifications.

4. TIME ELEMENT

The work shall be commenced and finished within the time set out in the Form of Contract.

The time of completion of this Contract is an essential element and consideration. Since, therefore, time is of the essence thereof, and in the event of delay in the completion of the entire work required hereunder beyond the period prescribed, or beyond the period for which time may be extended by authority of the Owner for good cause shown, the Owner shall be paid damages for such delay. Inasmuch as the amount of such damages is difficult to ascertain, it is hereby stipulated and agreed that such damages shall be liquidated and the Owner shall be paid damages at the rate as set forth in the Special Provisions, said damages to be paid to the Owner for each and every day that the Contractor be in default in completing the entire work required under this Contract. The Owner shall have the right to deduct such amounts from any monies due, or which may become due, under

this Contract. In the event that no amount for such damages is shown in the Special Provisions of these specifications, it is agreed that the amount of damages shall be Five Hundred dollars ($500.00) per day.

If during the progress of the work weather conditions, or other circumstances beyond the control of the Contractor should prevail to the extent that the work cannot be prosecuted and completed within the time specified in the Contract, the Contractor shall file with the Engineer within one week of the occurrence of such delay a request for a credit on the time of completion. Unless the Contractor files such request, the liquidated damages specified above will be enforced.

5. PAYMENT TO CONTRACTOR

ESTIMATED QUANTITIES:

This Contract, including the specifications, plans and estimate, is intended to show clearly all work to be done and material to be furnished hereunder. Where the estimated quantities are shown for the various classes of work to be done and material to be furnished under this Contract, they are approximate and are to be used only as a basis for estimating the probable cost of the work and for comparing the proposals offered for the work. It is understood and agreed that the actual amount of work to be done and material to be furnished under this Contract may differ somewhat from these estimates, and that where the basis for payment under this Contract is the unit price method, payment shall be for the actual amount of such work done and the material furnished.

Where payment is based on the unit price method, the Contractor agrees that he will make no claim for damages, anticipated profits or otherwise on account of any differences which may be found between the quantities of work actually done, the material actually furnished under this Contract and the estimated quantities contemplated and contained in the proposal provided, however, that in case the actual quantity of any major item should become as much as twenty percent (20%) more than, or twenty percent (20%) less than the estimated or contemplated quantity for such items, then either party of this agreement, upon demand, shall be entitled to a revised consideration upon the portion of the work above or below twenty percent (20%) of the estimated quantity.

A "Major Item" shall be construed to be any individual item incurred in the proposal that has a total cost equal to or greater than five percent (5%) of the total Contract cost, computed on the basis of the proposal quantities and the Contract unit price.

Any revised consideration is to be determined by agreement between the parties, otherwise by the terms of this Contract, as provided under "Extra Work".

PAYMENT; RETAINAGE:

On or before the 1st day of each month the Contractor shall prepare an itemized statement showing the total value of the work completed by the Contractor up to and including the 25th day of the preceding month; said statement shall also include the value of all sound materials delivered on the site of the work that are to be fabricated into the work. NO ESTIMATE WILL BE MADE ON UNCOMPLETED PORTIONS OF THE WORK.

After all work is completed by Contractor, including all Change Orders altering the original scope and amount of the contract are completed, and the City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, the City may thereafter issue payment to Contractor in the amount of the contract and all Change Orders. The City shall be the final judge of when the

work is completed by Contractor. The City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to the City's requirements.

The City may make periodic payments to Contractor; provided, however, such periodic payments may only be made pursuant to this section, and only after all work and all Change Orders are completed by Contractor and approved by the City. The approval shall be in the City's sole discretion. Requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the City or the City's representative, the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

FINAL COMPLETION AND ACCEPTANCE:

Within ten (10) days after the Contractor has given the Engineer written notice that the work has been completed, or substantially completed, the Engineer and the Owner shall inspect the work and within said time, if the work be found to be completed or substantially completed in accordance with the Contract documents, the Engineer shall issue to the Owner and the Contractor his Certificate of Completion.

FINAL PAYMENT:

Upon the issuance of the Certificate of Completion, the Engineer shall proceed to make final measurements and prepare final statement of the value of all work performed and materials furnished under the terms of the Contract and shall certify same to the Owner, who shall pay to the Contractor the balance due the Contractor under the terms of this Contract, provided he has fully performed his obligations under the terms of this Contract. Notwithstanding any provision of these Contract Documents to the contrary, it is expressly understood and agreed by the parties hereto that neither the certificate of acceptance, nor the final or any other payment hereunder, nor any partial or total occupancy or possession of the project by the Owner, shall relieve the Contractor of his responsibility for completion of the entire project in a good and workmanlike manner and a full compliance with the plans and specifications and the fulfillment of any warranties which may be required in the Contract Documents.

6. OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS AND MAKE APPLICATION THEREOF

In addition to the amount which the Owner may otherwise retain under the Contract, the Owner may withhold a sufficient amount or amounts of any payment or payment otherwise due to the Contractor, as in this judgment may be necessary to cover:

(a) Payments which may be past due and payable for just claims against the Contractor or any subcontractor for labor or materials furnished for the performance of this Contract.

(b) For defective work not remedied.

(c) For failure of the Contractor to make proper payments to his subcontractors.

7. CERTIFICATE OF PAYMENT

Contractor shall, prior to issuance of final payment pursuant to the terms herein stated, provide proof satisfactory to the owner that all debts, bills and expenses incurred by the Contractor, his agents, employees or subcontractors employed by him, for labor, wages, materials and other purposes, in the furtherance of this

project, have been paid and satisfied in full. Satisfactory proof shall consist of an executed Certificate of Payment.

8. EXTRA, ADDITIONAL OR OMITTED WORK PAYMENT

The Owner, upon proper action by its governing body, may require changes in this Contract, or additions to, or deductions from the work to be performed or the materials to be furnished pursuant to this Contract. No employee, agent or representative of the Owner, with the exception of the governing body authorized to award this Contract, has any power to approve any change in this Contract and it is the responsibility of the Contractor before proceeding with any change to satisfy himself that the change has been properly authorized on behalf of the Owner. No charge for any extra work or other change in the Contract will be allowed unless the extra work or change has been authorized in writing by the Owner, or its duly authorized representative, and the price therefore is stated in such written authority.

Adjustments, if any, in the amounts to be paid the Contractor where such adjustments are made by reason of additions to or deductions from the quantities of units or items bid upon in the proposal schedules, shall be paid for in accordance with the provisions of the Specifications, at the unit and/or lump sum prices bid in such proposal schedules.

Adjustments, if any, in the amounts to be paid the Contractor where such adjustments are made by reason of additions of items not appearing in the proposal schedules, or addition of work of such a nature that unit and/or lumps sum prices contained in the proposal schedules cannot reasonably or equitably be applied to provide proper payment therefore, the payment to the Contractor for such work shall be determined by one or more of the following methods:

(a) By an acceptable lump sum proposal from the Contractor.

(b) By unit prices contained in the Contractor's proposal and incorporated in the Contract or fixed by subsequent agreement between the Owner and the Contractor.

(c) By a cost method pursuant to which the Contractor shall be paid the costs of the change or addition. He shall be required to keep and present in such form as the Owner may direct, a correct account of the cost of the change or addition, together with all vouchers therefore. The cost may include an allowance for overhead and profit not to exceed fifteen percent (15%) of the net cost.

In computing the cost, there shall be considered reasonable and proper net expenditures for labor, materials, power tools and equipment, pro rata charges for foremen, deductions for social security, old age and unemployment benefits and workmen's compensation insurance and surety bond premium. In computing cost of machinery and equipment involved in additional work, the amount to be paid shall be not more than one hundred percent (100%) of the latest schedule of "Equipment Ownership Expense" adopted by Associated General Contractors of America. No overhead and profit shall be allowed on the deductions for Social Security, old age and unemployment benefits. All other expenditures shall be treated as overhead costs.

No extra work shall be performed or change made unless in pursuance of a written order from the Owner stating that the extra work or change is authorized and no claim for an addition to the Contract sum shall be valid unless so ordered; provided, however, that nothing in this Article shall excuse the Contractor from proceeding with the prosecution of the work so changed.

The Contractor shall, when required by the Owner, furnish an itemized breakdown of the quantities and prices used in computing the value of any change, addition or deduction that might be ordered.

If the Contractor should claim that any instruction, request, drawing, specification, action, condition, omission, default, or other situation obligated or may obligate the Owner to pay additional compensation to the Contract, or constitutes a waiver of any provision in the Contract, he shall notify the Owner in writing of such claim within ten (10) days from the date he has actual or constructive notice of the factual basis supporting the claim. The Contractor's failure to notify the Owner within such ten (10) days period shall be deemed a waiver and relinquishment of any such claim against the Owner. The procedure for consideration of such claims shall be as stated in this Article.

9. ASSIGNMENT OF CONTRACT

The Contractor shall not assign this Contract or any part thereof, nor any monies due or to become due thereunder without the prior written consent of the Owner. No assignment of this Contract shall be valid unless it shall contain a provision that the funds to be paid to the assignee under the assignment are subject to a prior lien for services rendered or material supplied for performance of the work called for under this Contract in favor of all persons, firms, or corporations rendering such services or supplying such materials.

10. SUBCONTRACTORS

Specialty subcontractors may be utilized for the performance of such parts of the work under this Contract as, under normal practices, are performed by Specialty subcontractors, unless the Owner determines that the Contractor has heretofore customarily performed such specialty work with his own organization and is equipped to do so, or unless the Owner determines that performance of the specialty work by Specialty subcontractors will result in increased costs or inordinate delays.

The Contractor shall not subcontract any work to be performed or any materials to be furnished in the performance of this Contract without the prior written consent of the Owner. If the Contractor shall subcontract any part of this Contract, the Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractor and of the persons either directly or indirectly employed by the subcontractor as he is for the acts and omissions of persons directly employed by himself. Nothing contained in this Contract shall create any Contractual relations between any subcontractor and the Owner. The Contractor shall ensure that the sub contractor has the insurance coverage required by this contract.

The Owner's consent to or approval of any subcontract under this Contract shall not in any way relieve the Contractor of his obligations under this Contract and no such consent or approval shall be deemed to waive any provisions of this Contract.

11. SUSPENSION OF WORK

Pending settlement of disputes on any point of controversy, the Engineer may suspend action on all or any part of the work. The Contractor shall not be entitled to any claim for loss or damage by reason of such, nor shall he be entitled to extension of time, although such extension of time may be granted by the Engineer if he deems it in the interest of the work.

12. RIGHT OF OWNER TO TERMINATE CONTRACT

If, in the opinion of the Engineer, the Contractor shall be improperly performing the work under this Contract, or shall neglect or refuse to take out or rebuild such work as shall have been rejected by the Engineer as being defective or unsuitable, or if, any time, the Engineer shall be of the opinion that the work is unnecessarily delayed and will not be finished within the prescribed time, or if the Contractor shall abandon the work, or shall neglect or refuse to comply with the instructions of the Engineer relative thereto, or shall fail in any manner to comply with the Specifications or Stipulations herein contained, the Engineer shall notify the Contractor to that effect in writing, and if the Contractor shall not within five (5) days thereafter take such measures as will, in the judgment of the Engineer, insure the satisfactory performance or construction of the work, the City may annul and cancel the Contract, in which event it shall notify the Contractor to discontinue all work under this Contract, and the Contractor shall immediately respect such notice and stop work and cease to have any rights to the possession of the ground and shall forfeit his Contract. Such annulment shall not entitle the Contractor to any claim for damages on account thereof, nor shall it affect the right of the City of Midland to recover damages on account of such failure. The City Council may thereupon advertise and re-let a new Contract for the uncompleted work without further ordinance, in the same manner as was followed in the letting of this Contract, and any excess of cost arising there from over and above what would have resulted from the prices set forth in this Contract will be charged against the Contractor and his surety or sureties hereto, who shall be liable therefore.

13. RIGHT OF CONTRACTOR TO TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of three (3) months, through no act or fault of the Contractor or of anyone employed by him, or if the City should fail to make payment to the Contractor within thirty (30) days after such payment is due, as set out in the Contract, then the Contractor may, upon seven (7) days written notice to the City and the Engineer, stop work or terminate his Contract and recover from the City payment for all work executed and for any loss sustained upon any plant or materials and reasonable profit and damages.

14. INCIDENTAL WORK

Any and all minor details of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of and included with the work for which the prices are named in the Contract Documents. The Contractor will not be entitled to any extra or additional compensation therefore, unless specifically stated otherwise.

15. PERMITS – COMPLIANCE WITH LAW

The Contractor shall, at his expense, obtain all permits and licenses necessary for the performance of this Contract, and give all necessary notices, pay all fees required by law, and comply with all laws, ordinances, rules and regulations governing the Contractor's performance of the Contract.

Portions of this contract qualify for exemption pursuant to the provisions of the Texas Limited Sales, Excise and Use Tax Act. The Contractor shall obtain a sales tax exemption certificate from the City. All labor performed on the project and all materials incorporated into the project qualify for such tax exemption. However, equipment and parts for equipment purchased to be used on the project, but are not incorporated into the project; do not qualify for said tax exemption. Contractor shall issue a resale certificate in lieu of paying such sales tax for all

materials incorporated into the project. Further Contractor shall separate the charges for materials incorporated into the project from the charges for labor.

16. INSPECTION BY OWNER

The Owner and its representatives shall at all times have access to all parts of the work and to the shops wherein the work is in preparation for the purpose of inspection, and the Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

The Owner shall have the right to reject materials and workmanship which are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. If the Contractor does not correct such rejected work within a reasonable time, fixed by written notice, the Owner may correct same and charge the expense to the Contractor. No inspector shall have the power to waive the obligation resting upon the Contractor to furnish good material or do work as herein prescribed, and any failure or omission of any inspector or the Engineer to condemn any defective material or work shall not release the Contractor from the obligation to at once tear out, remove and properly rebuild the same at any time upon discovery of the defect and upon receipt of notice of the Engineer to do so.

Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out any portion thereof, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any respect due to the fault of the Contractor or his subcontractor, he shall defray all the expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and materials necessarily involved in such examination and replacement, plus fifteen percent (15%) for overhead and profit, shall be allowed the Contractor.

Where the Specifications require work to be specifically tested or approved, it shall not be tested or covered up without timely notice to the Owner of its readiness for inspection and without the approval or consent thereto by the Owner. Should any such work be covered up without such notice, approval or consent, it must, if required by the Owner, be uncovered for examination at the Contractor's expense.

17. PATENTS

The Contractor shall hold and save the Owner and its officers, agents, servants, and employees harmless from liability of any nature or kind, including all costs and legal expenses, for or on account of, any patented or unpatented invention, process, article or appliance, manufactured for or used in the performance of the Contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract.

18. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement or arbitration, if such other Contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

The Contractor must ascertain to his own satisfaction the scope of the project and the nature of any other Contracts that have been or may be awarded by the Owner in the prosecution of the project to the end that the Contractor may perform this Contract in the light of such other Contract, if any.

Nothing herein contained shall be interpreted as granting the Contractor exclusive occupancy of the site of the project. The Contractor shall not cause any unnecessary hindrance or delay to any other Contractor working on the project. If the performance of any Contract for the project is likely to be interfered with by the simultaneous execution of some other Contract or Contracts, the Owner shall decide which Contractor shall cease work temporarily and which shall continue, or whether the work under the Contracts can be coordinated so that the Contractors may proceed simultaneously. The Owner shall not be responsible for any damages suffered or extra costs incurred by the Contractor, resulting directly or indirectly from the award or performance or attempted performance of any other Contract or Contracts on the project, or caused by any decision or omission of the Owner respective to the order of precedence in the performance of Contracts.

19. NOTICE AND SERVICE THEREOF

Any notice from one party to another under the Contract shall be in writing and shall be dated and signed by the party giving such notice or by duly authorized representative of such party. Any such notice shall not be effective for any purpose whatsoever unless served in the following manner; namely, if the notice is given to the Owner, (a) by personal delivery thereof to the individual duly authorized to direct and supervise the project of the Owner, or (b) by depositing the same in the United States Mail, enclosed in a sealed envelope, addressed to the City of Midland, 300 North Loraine Street, Midland, Texas, 79701, postage prepaid and certified; or if the notice is given to the contractor (a) by personal delivery thereof to the project superintendent or other person authorized to act for the contractor, or (b) by depositing the same in the United States Mail, enclosed in a sealed envelope, addressed to the Contractor at his regular place of business or at such other address as may have been established for the conduct of the work under this Contract, postage prepaid and certified; or (c) if the notice is given to the Surety or any other person by personal delivery to such Surety or other person, or by depositing the same in the United States Mail, enclosed in a sealed envelope addressed to such Surety or other person, at the address of such surety or other person last communicated by him to the party giving the notice, postage prepaid and certified.

20. QUALITY OF MATERIALS AND WORKMANSHIP

It is the intention of this Contract to have only first class materials and the best workmanship throughout, and the methods and appliances adopted by the Contractor must be such as will secure a satisfactory quality of work and will enable him to complete the work in the time agreed upon. If at any time such methods and appliances appear inadequate, the Engineer may order the Contractor to improve their character or increase their efficiency, and the Contractor must conform to such order; but the failure of the Engineer to order such improvement of methods or increase of efficiency will not relieve the Contractor from his obligations to perform good work or finish it in the time agreed upon. The Contractor shall submit samples or specimens of any and all materials proposed to be used in the work when required to do so by the Engineer. All materials must be of specified quality and fully equal to approved samples. All work must be done and completed in a thorough and workmanlike manner. All materials furnished and all work done must be satisfactory to the Engineer and will be subject to rigid inspection, and if not in accordance with the Specifications in the opinion of the Engineer, shall be made to conform thereto.

It is understood that except as otherwise specifically stated in the Contract, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence of temporary

construction of every nature, and all other services and facilities required for the completion of the Contract within the specified time.

21. SPECIAL METHODS

The Engineer may consent to special methods for carrying out the work in difficult cases, but the Contractor will not be relieved of responsibility for the result. The Contractor shall be responsible for the result of all work performed by him whether directed by the Engineer or not.

22. REMOVAL OR REPLACEMENT OF WORK DONE WITHOUT LINES OR GRADES

Any work done without lines or grades given by the Engineer or under his direction or without the supervision of an inspector, may be ordered removed and replaced by the Engineer at the Contractor's expense.

23. COVERING WORK

No work shall be covered until it has been examined and approved by the Engineer.

24. UNFAVORABLE WEATHER

During unfavorable weather and other adverse conditions, only such portions of the work may be done which will not be damaged thereby, unless by special means or precautions approved by the Engineer.

25. ALL WORK SUBJECT TO FINAL INSPECTION

Failure to neglect on the part of the Engineer or his inspectors to condemn or reject bad or inferior work or materials shall not be construed to imply his acceptance of such work or materials if it becomes evident at any time prior to the final acceptance of the work and the release of the Contractor.

26. PUBLIC CONVENIENCE

When materials for construction are brought on the work site they shall be neatly piled so as to cause as little obstruction to travel as possible, and so that they may be conveniently inspected.

No material or other obstruction shall be placed within five (5) feet of fire hydrants, which must at all times be readily accessible to the fire department, nor shall any material be piled within two (2) feet of any trees.

The Contractor shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the Contract and shall be responsible for the proper care and protection of all materials delivered and work performed until completion, and final acceptance by the Owner.

The Contractor shall provide such heat, covering and enclosures as are necessary to protect all work and materials against damage by weather conditions.

The Contractor shall take adequate precautions to protect existing sidewalks, curbs, pavement, utilities, adjoining property, and structures, and avoid damage thereto, and he shall at his own expense completely repair any damage thereto caused by his operations.

If required by the Engineer, the Contractor shall shore up, brace, underpin, and protect as may be necessary, all foundations, and other parts of all existing structures adjacent and adjoining the site of the Project, which are in any way affected by the excavations or other operations connected with the completion of the work under this Contract. Whenever any notice is required to be given by the Owner or the Contractor to any adjoining or adjacent landowner or other party before commencement of any work under this Contract, such notice shall be given by the Contractor. The Contractor shall indemnify the Owner and save it harmless from any damages on account of settlement or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

During the progress of the work the convenience of the public and of the residents along streets must be provided as far as practicable. Convenient access to driveways, houses and buildings along streets must be maintained whenever possible.

Temporary approaches and crossings of streets and sidewalks must be provided and kept in good condition whenever practicable.

The Contractor shall provide and maintain such fences, barriers, "Street Closed" signs, red lights and watchmen as may be necessary to prevent avoidable accidents to residents and to the public.

The Contractor alone shall be held responsible for all injuries to persons, and for all damages to property of the City or others, caused by or resulting from the negligence of himself, his employees or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. He must restore all injured public or private property to a condition as good as it was when he entered upon the work, purchasing new materials to replace all that which is injured or destroyed during the course of the work.

In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner is authorized to act at his discretion to prevent such threatened loss or injury and he shall so act.

27. TRAFFIC CONTROL

It is the policy of the City of Midland to keep at least two travel lanes open to traffic at all times and where possible to have three travel lanes between 7:30 a.m. and 9:00 a.m. and 4 p.m. and 6 p.m. (Two (2) lanes in the direction of peak travel).

At least 48 hours before beginning work the contractor shall present a traffic control and/or barricade plan prepared as per the approved Barricading Standards to the Traffic Engineering Division for review and approval. When approved and barricades are in place, they shall be inspected by the Traffic Engineering Division prior to beginning work.

Traffic control signs, such as stop signs, yield signs, etc., are placed in various intersections for the safety and protection of the traveling public. The contractor shall not move, alter or damage said signs for any reason. If said signs must be removed for construction purposes, contractor shall notify the City of Midland, Traffic Division Operations Superintendent at least 48 hours (not including weekends) before construction activities are scheduled to begin. All construction barricading, warning signs, and other construction traffic control devices shall be in place and shall be in accordance with the Texas Manual on Uniform Traffic Control Devices and approved Barricading Standards included in plans before traffic signs can be removed. The contractor shall notify the Traffic Division Operations Superintendent at least 72 hours (not including weekends) before

scheduled removal of construction barricades, warning signs, and traffic control devices. But in all cases the contractor shall not remove said barricades, warning signs, and traffic control devices until the City of Midland's Traffic Department has replaced stop signs, yield signs, etc., in their proper location. The Contractor shall notify Traffic Engineering Division at least 24 hours in advance of any Traffic Signal modification due to construction (i.e. eliminating left turn phases). Notice shall also be given to the Traffic Engineering Division at least 24 hours prior to removing barricades at signalized intersections.

28. PROTECTION OF NEW WORK

All new work shall be carefully protected by the Contractor, and any work injured from any cause before the completion of the whole project must be rebuilt by the Contractor at his own expense.

29. MONUMENTS OR STAKES

The Contractor must carefully protect from disturbance or injury all monuments, stakes and bench marks, of City County, State or Federal Government and shall not excavate nearer than five (5) feet to any of them without the permission of the Engineer, or until they have been removed, witnessed or otherwise disposed of by the Engineer.

30. USE OF COMPLETED PORTIONS

The City shall have the right to take possession of and use any completed or partially completed portions of the work notwithstanding the time for completing the entire work on such portions may not have expired; but such taking possession and use shall not be deemed an acceptance of any work not completed in accordance with the Contract Documents. If such prior use increases the cost of, or delays the work, the Contractor shall be entitled to such extra compensation or extension of time, or both as the Engineer may determine.

The Owner, in taking possession of completed portions, shall agree to accept the decision of the Engineer on matters relating to responsibility for damages that may occur to any portions of the work during the period of possession preceding acceptance and final payment.

31. USE OF PREMISES

The Contractor shall confine his apparatus, storage of materials and construction operations to such limits as may be directed by the Owner, and shall not unreasonably encumber the premises with his materials.

The Contractor shall enforce any instructions of the Owner regarding advertising, fires, danger signals, barricades and smoking, and shall require all persons employed on the work to comply with all building, post or institutional regulations while on the premises.

32. SAFETY RESTRICTIONS

The following procedures will be followed regarding the subject item on this contract:

A warning sign painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

Equipment that may be operated within ten feet of high voltage lines shall have an insulating cage type of guard about the boom or arm, except back hoes or dippers, and insulator links on the lift hook connections.

When necessary to work within six feet of high voltage electric lines, notification shall be given to the power company who will erect temporary mechanical barriers, de – energize the line, or raise or lower the line. The notifying department

The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

No person shall work within six feet of high voltage line without precautions having been taken and protection provided as outlined in Paragraph (3) above.

33. INSURANCE REQUIREMENTS AND WORKERS COMPENSATION

INSURANCE REQUIREMENTS

Contractor shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
— Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
— Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit -
	Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on an occurrence basis. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Business Automobile Liability insurance provided by Contractor shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the

work that is the subject of this Contract. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Workers' Compensation coverage provided by Contractor shall inure to the benefit of employees injured during the course and scope of their employment by Contractor pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of the City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of the City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name the City as an additional insured on a claims occurred basis. City shall be provided the notice by Contractor's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Contractor shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Contractor shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of the City. The City shall not be required to provide any insurance whatsoever pursuant to this Contract.

The Contractor certifies that the certificate of insurance provided as required herein complies with the requirements of Senate Bill 425, passed during the 82nd regular session of the Texas Legislature, and effective January 1, 2012. The Contractor shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of the Contractor.

34. INDEMNIFICATION

INDEMNITY: THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE OWNER AND ALL OF THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE CONTRACTOR, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS

CONTRACT, AND CONTRACTOR WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE OWNER AND ALL OF THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE OWNER, THE OWNER'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH THE CONTRACTOR OR THE CONTRACTOR'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND CONTRACTOR WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

THE CONTRACTOR AGREES THAT HE WILL INDEMNIFY AND SAVE THE OWNER HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS, ALL SUPPLIES, INCLUDING COMMISSARY INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN OWNER SO DESIRES, THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. THE CONTRACTOR, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS THE OWNER AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ARISING FROM ANY ACT OF THE CONTRACTOR OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OWNER OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

35. RELEASE

NOTWITHSTANDING ANY OTHER PROVISION, CONTRACTOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES OWNER, OWNER'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH CONTRACTOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR OWNER'S NEGLIGENCE.

36. INDEPENDENT CONTRACTOR

It is expressly understood and agreed that Contractor shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the Owner; that Contractor shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondent superior shall not apply as between Owner and Contractor, its officers, agents, employees, contractors and subcontractors; and

that nothing herein shall be construed as creating a partnership or joint enterprise between Owner and Contractor. No person performing any of the work and services described hereunder by Contractor shall be considered an officer, agent, servant or employee of the Owner. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Contractor shall be an independent contractor under this Contract and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The Owner does not have the power to direct the order in which the work is done. The Owner shall not have the right to control the means, methods or details of the Contractor's work. Contractor shall assume exclusive responsibility for the work. Contractor is entirely free to do the work in its own way.

37. QUALIFICATIONS FOR EMPLOYMENT

Preference shall be given to qualified local residents in the employment of laborers and mechanics for work on the Project under this Contract. No person under the age of sixteen (16) years shall be employed on the project under this Contract. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health or safety of others shall be employed on the Project under this Contract: Provided, that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. No person currently serving sentence in a penal or correctional institution and no inmate of an institution for mentally defective shall be employed on the project under this contract.

38. PAYROLLS OF CONTRACTOR AND SUBCONTRACTORS

The Contractor and each of his subcontractors shall prepare payrolls for the workers on the Project. Not later than the seventh (7th) day following the payment of wages, the Contractor shall transmit to the Owner, if requested, a certified legible copy and two confirmed copies of such payroll.

Such copies of payrolls shall be accompanied by substantial proof that all bills for services rendered and materials supplied have been duly paid and by such other data as the Owner may require.

39. POSTING WAGE RATES

The Contractor shall post at appropriate conspicuous points at the site of the Project a schedule showing the wage rates for the various classes of laborers and mechanics to be engaged in work on the Project under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

40. PAYMENT OF EMPLOYEES

The Contractor shall post at appropriate conspicuous points at the site of the Project a schedule showing the wage rates for the various classes of laborers and mechanics to be engaged in work on the Project under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

41. WAGE UNDERPAYMENT AND ADJUSTMENTS

The Contractor agrees that, in case of underpayment of wages to any worker on the project under this Contract by the Contractor or any subcontractor, the Owner shall withhold from the Contractor out of payments due, an amount sufficient to pay such worker the difference between the wages required to be paid under this Contract and the wages actually paid such worker for the total number of hours worked and that the Owner may disburse such amount so withheld by it for and on account of the Contractor to the employee to whom such amount is due. The Contractor further agrees that the amounts to be withheld pursuant to this Article may be in addition to other amounts that may be retained by the Owner pursuant to other provisions of this Contract.

42. COMPUTATION OF WAGES ON 8 – HOUR DAY

The wages of each laborer and mechanic engaged in work on the project under this Contract shall be computed on a basis of eight (8) hours per day, eight (8) hours continuous employment except for lunch periods, constituting a day's work.

Legal holiday work shall be paid for at the regular governing per diem wage rates.

Work in excess of 40 hours per week shall be paid for at 1 ½ times the basic rate of pay.

43. OVERTIME WORK AND WORK ON SUNDAYS AND LEGAL HOLIDAYS

The Contractor will not be permitted to work on Sundays or legal holidays except in an emergency and then only upon written permission of the Engineer.

Any work necessary to be performed after regular working hours and when permitted on Sundays or legal holidays, shall be performed without additional expense to the Owner.

No work on any Contract item will be permitted before daylight or later than one hour after sundown.

44. CONTRACT SECURITY

The Contractor shall furnish a performance bond and payment bond in an amount equal to one hundred percent (l00%) of the amount of the Contract as security for the faithful performance of the Contract, including the payment of all persons performing labor on the project and furnishing of materials in connection with this Contract. All Bonds must be executed in five (5) original counterparts by a corporate surety authorized to do business in the State of Texas. Bonds executed by individuals or any other than recognized and authorized corporate surety companies will not be acceptable.

45. DELAYS

The Contractor shall receive no compensation for delays or hindrances to the work, except when, in the judgment of the Engineer, direct or unavoidable extra cost to the Contractor is caused by such hindrances or delays. When such extra compensation is claimed, a written statement thereof shall be presented by the Contractor, as provided in Paragraph 18 hereof. Such claim, if found correct, will be approved, and the decision of the Engineer whether extra cost has been incurred and the amount thereof, shall be final. If delays are caused by specific orders to stop work, given by the Engineer, or by the performance of extra work, or by unforeseen causes beyond the control of the Contractor, or by the failure of the Owner to provide materials or necessary instructions for carrying on the work, or to provide the necessary right-of-way or site for installation,

then delay will entitle the Contractor to an equivalent extension of time. Application for extension of time must be approved by the Owner and, shall not release the Sureties from their obligations, which shall remain in full force until the discharge of the Contract.

LATE COMPLETION; LIQUIDATED DAMAGES:

It is hereby understood and mutually agreed, by and between Contractor and the City, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "Notice to Proceed." Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between Contractor and the City, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

In the event Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the City, then Contractor and Contractor's surety, if any, shall be liable for and does hereby agree, as a part consideration for the awarding of this contract, to pay to the City $500.00, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that Contractor shall be in default after the time stipulated in the contract for completing the work. Further, the City shall have the right to cancel this contract for such delay. In the event the City cancels this contract pursuant to the terms of this section, the City shall pay to Contractor only those monies deemed appropriate by the City, in its sole discretion, to compensate Contractor for any work actually performed, less any liquidated damages Contractor owes the City.

The said amount is fixed and agreed upon by and between Contractor and the City because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the City would in such event sustain, and said amount is agreed to be the amount of damages which the City would sustain and said amount shall be retained from time to time by the City from current periodical estimates.

It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that Contractor shall not be charged with liquidated damages or any excess cost when the City determines, in its sole discretion, that Contractor is without fault and Contractor's reasons for the time extension are acceptable to the City. Provided, further, that Contractor shall not be charged with liquidated damages of any excess cost when the delay in completion of the work is due:

a. To any preference, priority or allocation order duly issued by the Government;

b. To unforeseeable cause beyond the control and without the fault or negligence of Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the City, acts of another contractor in the performance of a contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

c. To any delays of subcontractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article.

Provided, further, that Contractor shall, within ten (10) calendar days from the beginning of such delay, unless the City shall, in its sole discretion grant a further period of time prior to the date of final settlement of the contract, notify the City, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify Contractor within a reasonable time of its decision in the matter.

CONTRACTOR AGREES THAT THE PAYMENT OF SUCH LIQUIDATED DAMAGES MAY BE RECOVERED BY THE CITY FROM RETAINAGE HELD BY THE CITY. NOTWITHSTANDING ANY OTHER PROVISION HEREOF, CONTRACTOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER ARISING FROM THE CITY WITHHOLDING PAYMENT FROM CONTRACTOR AS LIQUIDATED DAMAGES FOR CONTRACTOR'S FAILURE TO COMPLETE THE WORK WITHIN THE TIME SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE.

CONTRACTOR SHALL RECEIVE NO FINANCIAL COMPENSATION FOR DELAY OR HINDRANCE TO THE WORK. IN NO EVENT SHALL THE CITY BE LIABLE TO CONTRACTOR OR ANY SUBCONTRACTOR OR SUPPLIER, ANY OTHER PERSON OR ANY SURETY FOR OR ANY EMPLOYEE OR AGENT OF ANY OF THEM, FOR ANY DAMAGES ARISING OUT OF OR ASSOCIATED WITH ANY DELAY OR HINDRANCE TO THE WORK, REGARDLESS OF THE SOURCE OF THE DELAY OR HINDRANCE, INCLUDING EVENTS OF FORCE MAJEURE, AND EVEN IF SUCH DELAY OR HINDRANCE RESULTS FROM, ARISES OUT OF OR IS DUE, IN WHOLE OR IN PART, TO THE NEGLIGENCE OF THE CITY. CONTRACTOR'S SOLE REMEDY IN ANY SUCH CASE SHALL BE AN EXTENSION OF TIME.

46. ERRORS AND OMISSIONS

The Contractor will not be permitted to take advantage of any error or omission in these specifications. Suitable instructions will be given by the Engineer when such error or omission is discovered.

47. SPECIFICATIONS AND DRAWINGS

The Contractor shall keep on the work a copy of the Specifications and Drawings, and shall at all times give the Engineer access thereto. Any drawings or plans listed in the detailed specifications shall be regarded as part thereof and of the Contract. Anything mentioned in these specifications and not mentioned or shown in the drawings, or shown in the drawings and not mentioned in these specifications, shall be done as though shown or mentioned in both. The Engineer will furnish from time to time, such detailed drawings, plans, profiles and information as he may consider necessary for the Contractor's guidance.

In the event of any discrepancy between the plans and these specifications, the decisions of the Engineer will be decisive thereon. The written dimensions on the plans are to be taken as correct, but the Contractor is required to check carefully all dimensions before beginning work thereon. Should any errors or omissions be discovered, the Engineer's attention shall be called to the same, and the proper corrections made. All notes on the plans shall be carefully observed by the Contractor and are a part of the Contract.

48. CONSTRUCTION STAKING

The Engineer will furnish a complete set of plans and profiles and set control stakes at fifty foot (50') intervals along the entire length of the project and at such control points he deems necessary for proper execution of the work. The Contractor will thereafter be required to lay out the work accurately and furnish at his own expense, all lines, levels, and dimensions necessary to the proper and correct execution of the entire work and be responsible for any errors resulting from his own work.

The Contractor shall give the Engineer at least 36 hours notice in writing before requiring stakes to be set on any new portion of the work, and he shall state clearly in such notice the exact locality or localities where such stakes are needed for immediate use.

The Contractor must satisfy himself, before commencing work, as to the meaning or correctness of all stakes or marks, and no claim will be entertained by the Owner for or on account of any alleged inaccuracies, or for the alterations subsequently rendered necessary on account of such alleged inaccuracies unless the Contractor notifies the Engineer thereof in writing before commencing to work thereon.

The Contractor will at all times conduct the work in such a manner as to prevent damage to construction stakes set by the Engineer. When construction stakes are damaged to such extent that they must be reset, as a result of carelessness or negligence on the part of the Contractor or his workmen, the costs thereof shall be kept by the Engineer and shall be deducted from the moneys due or to become due the Contractor under the terms of his contract.

Benchmark and survey stakes shall be preserved by the Contractor, and in case of their destruction or removal by him or his employees, they will be replaced by the Engineer at the Contractor's expense.

49. SANITATION

The Contractor shall provide suitable drinking water receptacles or containers equipped with dust-tight covers and spigots or faucets. A supply of sanitary paper drinking cups shall be kept on hand for general use near the drinking water containers. The use of common drinking cups or tin cups will not be permitted.

The Contractor shall furnish "Porta-Johns" or other approved sanitary facilities for use by all workers on the Project. Such facilities shall be placed and kept in close proximity of the site where work is being performed. Such facilities shall be properly serviced and maintained.

The Engineer may establish such other sanitary rules and regulations as may seem necessary and desirable to the safe prosecution of the work, such rules and regulations to apply to all forces employed under this Contract, and if, the Contractor fails to observe and enforce these rules, the Engineer may enforce them at the expense of the Contractor.

50. WATER FOR CONSTRUCTION

The Contractor may obtain all water necessary for construction purposes from the Municipal Waterworks System at the regular customer service rate, but the Contractor must make all necessary arrangements with the Director of Utilities for necessary connections and meters. The Contractor must make his own provisions and provide such equipment as is necessary for conveying water from point of service to point of use. No extra compensation will be allowed and the Contractor shall anticipate the expense connected herewith and absorb said expense in the prices bid for the various bid items.

51. SEQUENCE AND SPEED OF WORK

The Engineer shall direct the order and sequence of the work. If at any time before the commencement or during the progress of the work, the materials and appliances used appear to the Engineer as insufficient and improper for securing the quality of work required or the required rate of progress, he may order the Contractor to increase their efficiency or to improve their character and the Contractor shall conform to such order. The

failure of the Engineer to demand any increase of such efficiency or improvement shall not release the Contractor from his obligations to secure the quality of work or the rate of progress specified.

52. INSPECTION AND TESTING OF MATERIAL

The sampling and testing of materials used or proposed to be used in the construction of this project will be made by the Engineer, his designated representative or certified testing laboratory personnel in accordance with methods prescribed by the American Society of Testing Materials and/or the American Association of State Highway Officials, with subsequent approved revisions made prior to the date of the Proposal. The selection of the method of test shall be designated by the Engineer. The Contractor shall bear the cost of all tests required before a material or a method is approved for use on the job, unless the Owner specifically agrees to bear the cost of these tests.

All tests required by the Owner after materials and/or methods have been approved and after they have been incorporated or used in the job will be paid for by the Owner, except if the Owner's tests reveal non-conformance with the specifications, subsequent tests on that part of the work required to determine if the replaced or reworked material meets the specifications, will be paid for by the Contractor. The City will pay only one time for any required testing.

The following is a summary of test required for the approval of materials or methods:

Material	**Test**
Subgrade	Maximum density, optimum moisture
Caliche Base:	Maximum density, optimum moisture, hardness, gradation, liquid limit, plasticity index, Texas Triaxial Classification
Aggregates for hot-mix:	Gradation, unit weight, abrasion, soundness, liquid limit, plasticity index, density
Asphalt, emulsions and tars:	Certified plant test and certificates of compliance with each shipment
Hot- Mix asphaltic concrete:	Design mix, swell test, stripping test
Portland cement concrete pavement:	Design mix with test cylinders

Any materials shipped by the Contractor from the factory prior to having satisfactorily passed such testing and inspection by the Owner's representative or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated in the work.

The Owner may, at its discretion, approve materials and/or methods for use on this project without testing when they are from sources previously tested and approved for City of Midland projects.

53. CONSTRUCTION SCHEDULE

It shall be the responsibility of the Contractor to furnish the Construction Engineer prior to construction a schedule out – lining the anticipated time each phase of construction will begin and be completed, including sufficient time being allowed for clean – up.

54. PROFILES AND ELEVATIONS

Profiles and elevations of the ground are shown on the plans hereto attached. These profiles and elevations are believed to be reasonably correct, but are not guaranteed to be absolutely so, and are represented only as an approximation. Elevations are referred to datum given by the Engineer.

55. CLEANUP

During the progress of the work, the Contractor shall maintain the work area in a reasonably clean and safe condition. Dirt, debris, excess excavation and other objectionable materials shall be removed from the site and disposed of on a daily basis.

After completion of all the work contemplated to be done in accordance with the detailed plans and these specifications, the premises and area along the entire line of the work shall be thoroughly cleaned up and all remaining structural materials, excess or surplus excavation and debris of any nature shall be removed and disposed of in a satisfactory manner and as directed by the Engineer. The site of all work shall appear neat and finished. All portions of the project when completed shall be ready for use or occupancy.

No compensation or payment shall be made for any cleanup work. The price for such cleanup work shall be absorbed in the items covered in the proposal.

56. GUARANTEE

The contractor shall and hereby does guarantee: (1) all work performed by him directly and all work performed by his subcontractors; (2) that all material specified; and (3) that any defect due to improper workmanship or material discovered and made known to him within one year (1) f the date of final acceptance of the improvements shall be repaired, replaced, corrected or otherwise made good by him without additional expense to the Owner. The Contractor shall, in case of work performed by his subcontractors and where guarantees are required, secure guarantees from said subcontractors and deliver copies of same to the Engineer upon completion of the work.

57. WAIVER OF ATTORNEY FEES:

BY EXECUTING THIS CONTRACT, CONTRACTOR AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE CONTRACTOR SPECIFICALLY AGREES THAT IF THE CONTRACTOR BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE CONTRACTOR AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH CONTRACTOR MIGHT OTHERWISE BE ENTITLED.

CONTRACTOR AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE CONTRACTOR ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE CONTRACTOR FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN

THE OWNER AND THE CONTRACTOR. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE CONTRACTOR AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

58. GOVERNING LAW AND VENUE

This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way that would direct application of the laws of another jurisdiction.

59. SOVEREIGN IMMUNITY

By executing this Contract, the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

60. NO THIRD – PARTY BENEFICIARY

The City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

61. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES

As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this agreement, Contractor or his legal representative, shall give the City Manager or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one hundred and twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which the Contractor will settle, the physical and mailing addresses of Contractor at the time and date the claim was presented and the physical and mailing addresses of Contractor for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom the Contractor relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Contractor that Contractor's notice is insufficient. City reserves the right to request additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Contractor's failure to comply with the requirements herein shall perpetually bar Contractor's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Contractor agrees that the requirements of this entire Agreement are reasonable.

62. ASSIGNMENT

Contractor shall not, either directly or indirectly, assign all or any part of this contract or any interest, right or privilege herein, without the prior written consent of the owner. The issue on whether or not to grant consent to an assignment is in the sole discretion of the owner.

63. FEDERAL WAGE REQUIREMENTS

If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

64. PROMPT PAY ACT

The owner and contractor agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

Updated September 2014

SPECIAL PROVISIONS

ATTENTION: All Bidders are directed to pay special attention to the NOTICE TO BIDDERS section of the bid packet. The Coronavirus (COVID-19) pandemic has resulted in several changes to the City of Midland's normal bid process, and bidders have sole responsibility for complying with the current bid process requirements. Bidders also have sole responsibility for verifying that any bid submitted is completed correctly and includes all of the required documentation, including addendums.

1. SCOPE OF WORK:

Included in this Project will be the West Wadley Avenue Wastewater Line Extension project to be performed as outlined in the Plans and Specifications, which are necessary to satisfactorily complete the work.

The project will include the removal, replacement, and installation of existing and proposed wastewater infrastructure and appurtenances including all necessary mobilization, saw-cutting, pavement removal, excavation, embedment, backfill, pavement repair, concrete joint sealing, erosion control, traffic control, seeding and vegetation, watering, coordination with City of Midland staff and organizations such as OSHA, franchise utilities, etc. as needed, One Call (Texas 811) notifications for pending work, notifications of adjacent property owners as directed by City of Midland staff, and all other work to be performed as outlined in the Construction Drawings and Specifications, to satisfactorily complete the work.

The Owner reserves the right to abandon, without obligation to the Contractor, any part of the project, or the entire project, at any time before the Contractor begins any construction work authorized by the Owner.

Standard Specifications for Construction of the City of Midland will govern all construction, except as modified by these Special Provisions.

2. ORDER OF PRECEDENCE:

The Special Provisions take precedence over the General Conditions in this bid packet anywhere these two sections are not in agreement.

The Special Provisions take precedence over the City of Midland Specifications in this bid packet anywhere these two sections are not in agreement.

The Contractor is to bid the quantities in the Proposal section of the bid packet even if there is a discrepancy between the Proposal quantities and those noted or measured in the construction drawing set.

In the construction drawing set any written or noted dimension takes precedence over dimensions measured based on the drawing scale unless otherwise directed by the Engineer.

Any changes or revisions made as part of an Addendum for this project take precedence over the original bid packet and construction drawing set where the documents are in conflict.

3. EXAMINATION OF SITE:

Prospective bidders are to make a careful examination of the entire site of the project and are to make such explorations as may be necessary to determine the subsoil and/or water conditions to be encountered; improvements and obstructions which may be encountered; methods of providing ingress-egress to private as well as public property; methods of handling traffic during construction and maintenance of the entire project as well as any section thereof, protection of all existing structures both above and below ground; and how the plans fit the proposed project and especially if any discrepancies exist.

4. PAYMENT:

Payment and retainage (five percent, 5%) shall be per the General Conditions.

Payment will be made for material installed, not for material delivery.

5. SAFETY REQUIREMENTS:

It is the responsibility of the Contractor to follow and comply at all times with Occupational Safety and Health Administration (OSHA) and all other applicable safety regulations and requirements throughout the course of the project's work.

6. SAFETY RESTRICTIONS – WORK NEAR HIGH VOLTAGE LINES:

The following procedure will be followed regarding the subject item on this contract:

1) A warning sign painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

   "**WARNING – UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES"**

2) Equipment that may be operated within ten feet of high voltage lines shall have an insulation cage-type of guard about the boom or arm, except back hoes or dippers, and insulator links on the lift hook connections.

3) When necessary to work within six feet of high voltage electric lines, notification shall be given to the power company of who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

4) The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

5) No person shall work within six feet of a high voltage line without protection having been taken as outlined in Paragraph (3).

7. TRAFFIC CONTROL:

All proposed traffic control shall be approved by the City where applicable. All traffic control plans must be submitted to and approved by the Traffic Operations Division no less than two (2) business days prior to starting the construction work. Traffic control for each phase of work must be approved prior to starting that work.

Generic traffic control plans or typical details may be submitted for shoulder work on any class of roadway, or for work on local or collector streets that does not require the closure of any travel lanes (i.e., all lanes are open to traffic on striped roadways, or adequate width remains available for two-way traffic on unstriped roadways). Once a generic traffic control plan or typical detail for a certain type of setup has been approved one time, the Contractor shall only be responsible for notifying the Traffic Operations Division of the location, type of setup, and dates on which they intend to utilize the pre-approved traffic control for the duration of the contract. No additional plan submittals will be required in these cases, except that the City reserves the right to suspend this exception at its discretion. For any work not fitting the above exception, or in the event that the exception is suspended by the City, a site-specific traffic control plan will be required for each work location and time period.

1. All temporary traffic control shall be in general conformance with the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD) (latest edition as adopted by the Texas Department of Transportation), except as specifically directed by the City Engineer or City Traffic Engineer.
2. All temporary traffic control shall be designed, installed, and maintained by competent and qualified personnel with adequate experience in traffic control.
3. All temporary traffic control involving multiple lane closures or traffic shifts, full closures of collector or arterial streets, traffic control extending through a railroad crossing, or any setup reasonably determined by the City to be "complex", shall be implemented only by a contractor with specific experience and expertise in the field of traffic control (i.e., a qualified "barricade company").
4. A Traffic Control Plan (TCP) shall be submitted to the Engineering Services Department, Traffic Operations Division, in advance of any work in the right-of-way that impacts traffic. No work shall occur until an approved TCP has been returned to the Contractor.
5. A copy of the approved TCP shall be kept in the possession of the person responsible for supervising the traffic control at all times while working in the right-of-way. The approved TCP shall be presented to City staff or law enforcement upon demand at any time.
6. Depending on site conditions and the nature of the work, temporary traffic control may be approved by the City for either of the following:
    a. All Times – All traffic control, including closures, may remain in place 24 hours per day until expiration of the approved TCP.
    b. Off-Peak Only – Lane or road closures are NOT permitted from 6:00-9:00 AM and 4:00-7:00 PM on weekdays (Monday through Friday). Other traffic control not related to lane or road closures may remain in place 24 hours per day until expiration of the approved TCP.
7. The contractor setting the temporary traffic control shall be responsible for the maintenance and upkeep of all signs, barricades, and other devices, at all times.
    a. All temporary traffic control setups shall be maintained at least one time per day, including weekends and holidays.
    b. More frequent maintenance shall be performed as needed, with particular emphasis to following up after severe weather events or during times of high winds.
    c. Maintenance shall include:
        i. Verifying and correcting the location and orientation of all signs, barricades, and other devices;
        ii. Keeping signs and reflective areas of barricades and other devices clean and free of dirt buildup so as to maintain appropriate visibility and legibility; and

iii. Ensuring the proper location, orientation, and operation of arrow boards or message boards, if present.

8. Arrow boards shall be required for lane closures under the following conditions:
    a. On roadways with a posted speed limit of 55 MPH or greater, for closures lasting more than one (1) hour;
    b. On roadways with a posted speed limit of 45 MPH or greater, for closures lasting more than four (4) hours;
    c. On any roadway if lanes will remain open to traffic travelling in the same direction on both sides of a closed lane during any overnight hours (from 7:00 PM to 6:00 AM); and

At other times as shown on the approved TCP, or as otherwise directed by the City.

8. DETOURS:

The Contractor is to prosecute his work in such a manner as to create a minimum of interruption to traffic and pedestrian facilities and to the flow of vehicular and pedestrian traffic within the project area.

9. PROPERTY AND RIGHT-OF-WAY ACCESS:

Access to adjacent property must be maintained at all times unless otherwise directed by the Engineer. If the contractor will not be working in an area for a period of one week or more, special care is to be taken to address any unsafe conditions such as excavated areas or obstructions outside the worked area that could be tripping hazards, etc.

10. CONSTRUCTION SCHEDULE:

It is the responsibility of the Contractor to furnish the Construction Engineer, prior to construction, with a schedule outlining the anticipated time each phase of construction will begin and be completed, including sufficient time being allowed for clean-up.

Contractor cannot conduct any construction activity in TxDOT Right-of-Way until the City of Midland has obtained the required permit from TxDOT and provided the permit to the Contractor.

11. CONSTRUCTION STAKING:

It is the responsibility of the Contractor to provide the project construction staking at fifty foot (50') intervals along the entire length of the project as well as at such control points as the Contractor deems necessary for proper execution of the work. Construction staking is to include grading and cuts as well as horizontal alignments and construction control points. Cut sheets are to be provided to the Engineer by the Contractor for review and approval.

12. SURVEY:

The Contractor is to provide GPS survey shots for all meters replaced to the City of Midland with each completed work order submittal. Survey data is to be shot in Texas Central Zone with 1983 NAD at 1.0' accuracy or better. Survey data is to be provided in Excel csv. file format with all rounding functions turned off.

13. CONSTRUCTION MATERIALS:

The Contractor is to only provide new materials for permanent installation in any and all parts of this project, and all such materials must comply with the General Conditions, the Bid Packet Specifications, and all applicable City of Midland Standards and Specifications.

Concrete is only to be placed when the ambient temperature is between 40 degrees and 95 degrees Fahrenheit and the ambient temperature in the shade is higher than 40 degrees Fahrenheit or is 40 degrees Fahrenheit and rising.

All concrete pavement joints are to be sealed with Texas Department of Transportation (TxDOT) DMS-6310 SL-2 sealant, an American Society for Testing and Materials (ASTM) D 1190 Hot-Applied Single Component Joint Sealant, or a City of Midland approved equal. This will not apply to curb or sidewalk joints.

No construction materials are to be placed or installed during rain events unless they are necessary to resolve an emergency situation or to facilitate the project site erosion control measures.

14. EROSION CONTROL:

Erosion control is the responsibility of the Contractor and erosion control measures are to be implemented so as to prevent sediment erosion from wind, rain, and other elements from the project site. Should the Owner feel that supplementary erosion control measures are required in addition to those implemented by the Contractor then the Contractor will include additional erosion control measures within reason to the Owner's satisfaction and/or TCEQ requirements.

Reasonable erosion control measures include but are not limited to: construction entrance(s), concrete washout(s), perimeter silt fence or fiber wattle, rock rip-rap dams for concentrated runoff control, gutter and inlet protection measures such as sand bags, and stabilization of the construction area surfaces when construction work is not actively occurring by means of vegetative cover or seeded erosion control blankets.

Supplemental erosion control measures are ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes.

Site cleanup work is to be done for this project as soon as possible as per the General Conditions and will be ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes. Site cleanup is to take place throughout the project's construction as needed to maintain a clean and professional looking work area. No more than three calendar days are to elapse after completion of construction before the final roadway and right-of-way cleanup has been completed to the satisfaction of the Engineer.

15. WASTE MATERIAL:

Excess material from excavation and other construction or demolition activity will become the property of the Contractor. Excess excavation will be disposed of at locations secured by the Contractor and if necessary, approved by the Engineer. No material is to be placed on private property or City property without the approval of the Engineer and the property owner. Removal of excess material, excavation, and waste material are ancillary to the project and not paid as a separate item, unless otherwise noted in the Proposal or Pay Notes.

Excess concrete material must be washed out in a concrete washout within the project's job site area, or else any and all other concrete material washout must occur away from the job site area in the Contractor's or

concrete Supplier's own operation yards or properties. Under no circumstances are concrete trucks allowed to washout in any job site excavations, channels, public right-of-way, or on private property.

Existing fire hydrants indicated for removal as part of the project are to be returned to the City of Midland by the Contractor and remain City property. This is ancillary to the project and will not be paid as a separate item.

16. TESTING:

It is the Contractor's responsibility to perform all required testing for any and all materials and workmanship performed or installed as part of the project's work. The cost of all such testing is to be borne solely by the Contractor unless required by the Engineer for work or materials that had previously been tested and approved and had not experienced any change in condition since that time as a result of the Contractor's work or actions; or unless additional testing outside of the project scope is performed at the request of the Engineer.

Required testing includes:

Concrete Pavement For Trench Repair – A Slump Test is required only if directed by the Engineer for pavement patches that are equal to or greater than 50 cubic yards (roughly equal to an 8' wide by 340' long by 6" thick pavement section). The slump test is to be performed once for every cylinder set (3 cylinders), and no less than 1 cylinder set per day when concrete is placed. Test results are to be given to the engineer upon completion of each test. There will be no testing for curb, ramps, and sidewalks.

Asphalt Hot-Mix Pavement For Trench Repair – A Nuclear Gauge Density Test is required only if directed by the Engineer for pavement patches that are equal to or greater than 620 square yards (roughly equal to an 8' wide by 700' long pavement section). The laboratory density limits will be a minimum limit of 96%, a maximum limit of 98%, and an optimum limit of 97%. The acceptable field density limit will be a minimum limit of 93%, a maximum limit of 98%, and an optimum limit of 95%. Test results are to be given to the Engineer upon completion of each test.

Wastewater Gravity Pipes/Manholes – Perform air testing, mandrel testing, hydrostatic testing, and closed circuit televising (CCTV) for all wastewater mains and manholes.

- Air Test – Perform test as described in the City of Midland Gravity Flow Pipe Sewers And Fittings For Wastewater And Storm Water, Part 3.14, Testing Gravity Mains And Manholes.

- Mandrel Test – A successful mandrel pull is required for all wastewater pipes installed.

- Hydrostatic Testing – Perform test as described in the City of Midland Gravity Flow Pipe Sewers And Fittings For Wastewater And Stormwater Specifications, Part 3.14, Hydrostatic Testing.

- Closed Circuit Televising (CCTV) – Provide CCTV video of the wastewater mains for the full length of the wastewater system installed, including through all wastewater structures. CCTV video is not required for wastewater laterals unless directed by the Engineer.

17. COMPLIANCE:

The said Contractor further agrees to comply with all applicable provisions of the laws and building and construction codes of the City of Midland and the State of Texas, and with any regulations for the protection of

workers which may be promulgated by the Government, and will protect such work with all necessary lights, barriers, safeguards, and warnings as provided for in said specifications and the Ordinance regulations.

18. PERSONNEL:

It is the Contractor's responsibility to have a supervising representative of the Contractor on the construction site any time that construction work is taking place. The Contractor's representative must be on the Contractor's direct payroll. Sub-contractors or paid consultants will not satisfy this requirement.

It is also the Contractor's responsibility to provide the City with a reliable contact for issue escalation coordination. Such contacts would include the Contractor's site foreman, the Contractor's construction project manager, etc.

19. INTENT OF THE PROPOSAL:

The intent of the proposal is to determine the lowest responsible bidder based on the total of the quantities and unit prices. Once the lowest responsible bidder is selected, the project will be awarded based on the terms and requirements of the contract outlined in the bid packet and construction drawings.

20. CONTRACT DEADLINE:

The deadline for substantial completion of this project is _120_ calendar days total starting from the Notice to Proceed date.

Extensions of the project deadline may be requested by the Contractor for documented excepting conditions such as weather days, delays due to conflicts with existing franchise lines, etc. which are reasonably beyond the Contractor's control. Any and all deadline extensions must be submitted by the Contractor in writing to Engineer for review, and the approval or denial of the request rests solely with the Engineer.

Unless specifically granted in writing by the Engineer, there will be no suspension of project time between phases of construction.

21. WARRANTY PERIOD:

There is a one (1) year calendar warranty period on this project for all work performed or materials installed effective immediately upon acceptance of the improvements by the Owner. The warranty period will be based on the acceptance date of the project as a whole, and not any individual phases of the project.

22. BID PACKET COMPLETION ITEMS OF NOTE:

Bidders must be willing to sign the Contract as is if a bid is submitted. Revisions, alterations, deletions, additions, or any other changes of any kind by the bidder to the bid packet or other bid documents (such as the construction drawing set, addendums, etc.) will result in the bid submittal being deemed 'Non-Responsive' and the bid will not be accepted.

Bidders are reminded to make sure that the Conflict of Interest forms are completed if applicable before submitting a bid.

All bid items in the Proposal section must be completed for a bid submittal to be considered complete. Any bid item left blank or that the bidder indicates they chose to not provide a bid for will be considered incomplete, and the entire bid submittal will also be deemed incomplete, the bid submittal will be deemed 'Non-Responsive', and the bid will not be accepted. Bidders bear sole responsibility for making sure that the Proposal is complete and in accordance with the instructions provided to bidders in the bid packet.

All acknowledgement forms for all addendums that are issued during the bid process for this project must be filled out and be included with any bid submittal for that bid submittal to be considered complete. Any bid submittal lacking these completed addendum acknowledgement forms will be deemed 'Non-Responsive' and the bid will not be accepted. Bidders bear sole responsibility for making sure that they have obtained all addendums issued prior to submitting their bid.

Bidders must provide documentation as part of the bid packet submittal proving that they possess either an active Water Operator D license, an active Wastewater D license, or an active Class 1 Collections license, and the Contractor must maintain at least one of these active licenses for the entirety of the project. Any bid submittal that does not include this required documentation will be rejected as a non-responsive bid. If a Contractor allows the required license or licenses to lapse at any time during the course of the project then all work under this project will be halted and the City of Midland will have sole discretion to either allow the Contractor to renew their active licenses before resuming work or to end the project immediately.

PROPOSAL

TO: Honorable Mayor and City Council
City of Midland
Midland, Texas

Gentlemen: The undersigned bidder, having examined the drawings, specifications and contract documents, the location of the proposed work, and being fully advised as to the extent and character of the work, proposes to furnish all material, equipment, and to perform all labor and work necessary for the completion of the construction of the work described by and in accordance with the attached drawings, specifications, and contract, for the following prices, to wit:

Project Name: West Wadley Avenue Wastewater Line Extension

Base Bid: Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	4 MO	Mobilization, furnished, installed, complete and in place, for the sum of: Two thousand five hundred dollars and zero cents per month. (Pay Note M1)	$ 2500 00	$ 10,000 00
2)	2 WK	Bypass Pumping, furnished, installed, complete and in place, for the sum of: Seven thousand dollars and zero cents per week. (Pay Note M2)	$ 7000 00	$ 14,000 00
3)	1 LS	Bore Pit, furnished, installed, complete and in place, for the sum of: Twenty four thousand, nine hundred dollars and zero cents per lump sum. (Pay Note M3)	$ 24,900 00	$ 24,900 00
4)	1 LS	Receiving Pit, furnished, installed, complete and in place, for the sum of: Twenty four thousand, nine hundred dollars and zero cents per lump sum. (Pay Note M4)	$ 24,900 00	$ 24,900 00

Base Bid: Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
5)	180 LF	36" Bore For Casing Pipe, furnished, installed, complete and in place, for the sum of: Six hundred and twenty one dollars and Zero cents per linear foot. (Pay Note M5)	$ 621.00	$ 111,780.00
6)	180 LF	36" Steel Pipe Casing (1/4" Wall Thickness), furnished, installed, complete and in place, for the sum of: one hundred and fourty five dollars and Zero cents per linear foot. (Pay Note M6)	$ 145.00	$ 26,100.00
7)	20 LF	16" Steel Pipe Casing (1/4" Wall Thickness), furnished, installed, complete and in place, for the sum of: ninety dollars and Zero cents per linear foot. (Pay Note M6)	$ 90.00	$ 1800.00
8)	4 MO	Erosion/Sediment Control, furnished, installed, complete and in place, for the sum of: Two thousand and seven hundred dollars and zero cents per month. (Pay Note M7)	$ 2,700.00	$ 10,800.00
9)	4 MO	Traffic Control, furnished, installed, complete and in place, for the sum of: Five hundred dollars and Zero cents per month. (Pay Note M8)	$ 500.00	$ 2,000.00
10)	4 MO	Job Site Safety, furnished, installed, complete and in place, for the sum of: Two thousand dollars and zero cents per month. (Pay Note M9)	$ 2000.00	$ 8,000.00
11)	11,450 SY	Seeded Erosion Control Mats, furnished, installed, complete and in place, for the sum of: four dollars dollars and fifteen cents per square yard. (Pay Note M10)	$ 4.13	$ 47,517.50

Base Bid: Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
12)	1 LS	Spray Watering, furnished, installed, complete and in place, for the sum of: Ten thousand five hundred dollars and zero cents per lump sum. (Pay Note M11)	$ 10,500.00	$ 10,500.00
13)	N/A	Material Mark-up, complete and in place, for the sum of: Twenty percent. (Pay Note M12)	% 20	$ N/A
14)	N/A	Labor Mark-up (Regular Work Hours), complete and in place, for the sum of: Twenty percent. (Pay Note M13)	% 20	$ N/A
15)	N/A	Equipment Rental Mark-up (Non-Standard Equipment Only), complete and in place, for the sum of: Twenty percent. (Pay Note M14)	% 20	$ N/A
Total Miscellaneous Items 1-15		$ 292,297.50		

Base Bid: Demolition Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	120 LF	Removal & Disposal of Existing Wastewater Main, complete and in place, for the sum of: Sixteen dollars and Seventy Five cents per linear foot. (Pay Note D1)	$ 16.75	$ 2,010 00
2)	1 EA	Removal & Disposal of Existing 48" Manhole, (0'-5' Deep), complete and in place, for the sum of: One Thousand five hundred dollars and Zero cents per each. (Pay Note D2)	$ 1,500 00	$ 1,500 00
3)	15 VF	Remove & Disposal of Existing 48" Manhole Additional Depth, (> 5' Deep), complete and in place, for the sum of: Two hundred and seventy five dollars and Zero cents per vertical foot. (Pay Note D3)	$ 275 00	$ 4,125 00
4)	100 SY	Removal & Dispose of Existing Unclassified Pavement, complete and in place, for the sum of: nine dollars and Zero cents per square yard. (Pay Note D4)	$ 9. 00	$ 900 00
5)	400 LF	Removal & Disposal of Existing Barbed-wire Fence, complete and in place, for the sum of: ten dollars and Zero cents per linear foot. (Pay Note D5)	$ 10 00	$ 4,000 00
Total Demolition Items 1-5		$ 12,535 00		

Base Bid: Wastewater Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	4,700 LF	18" ASTM F679 (PS 115), PVC, Wastewater Main, furnished, installed, complete and in place, for the sum of: One hundred and twenty one dollars and Zero cents per linear foot. (Pay Note WW1)	$ 121 00	$ 568,700 00
2)	140 LF	8" SDR 26 ASTM D3034, PVC, Wastewater Main, furnished, installed, complete and in place, for the sum of: thirty five dollars and fifty cents per linear foot. (Pay Note WW1)	$ 35.50	$ 4970.00
3)	240 LF	8" SDR 35 ASTM D3034, PS46, PVC, Wastewater Main, furnished, installed, complete and in place, for the sum of: thirty four dollars and Zero cents per linear foot. (Pay Note WW1)	$ 34 00	$ 8160 00
4)	17 EA	48" Fiberglass Manhole & Cover, (0'-5' Deep), furnished, installed, complete and in place, for the sum of: four thousand, one hundred fifty dollars and Zero cents per each. (Pay Note WW2)	$ 4150 00	$ 70,550 00
5)	240 VF	48" Fiberglass Manhole Additional Bury Depth, (> 5' Deep), furnished, installed, complete and in place, for the sum of: five hundred dollars and Zero cents per vertical foot. (Pay Note WW3)	$ 500 00	$ 120,000 00

Base Bid: Wastewater Items				
Item No.	Quantity	Description	Unit Price	Total Amount
6)	3 EA	8" Manhole Drop Structure (0'-5' Deep, External), furnished, installed, complete and in place, for the sum of: two thousand five hundred dollars and zero cents per each. (Pay Note WW4)	$ 2,500 00	$ 7,500 00
7)	15 VF	8" Manhole Drop Structure Additional Bury Depth (> 5' Deep, External), furnished, installed, complete and in place, for the sum of: two hundred fifty dollars dollars and zero cents per vertical foot. (Pay Note WW5)	$ 250 00	$ 3,750 00
8)	1 EA	8" Wastewater Main Plug, furnished, installed, complete and in place, for the sum of: twenty five dollars and zero cents per each. (Pay Note WW6)	$ 25 00	$ 25 00
9)	1,400 LF	Open Trenching of Wastewater Main (0'-16' Deep), furnished, installed, complete and in place, for the sum of: thirty two dollars and fifty cents per linear foot. (Pay Note WW7)	$ 32.50	$ 45,500 00
10)	2,180 LF	Open Trenching of Wastewater Main (16'-20' Deep), furnished, installed, complete and in place, for the sum of: fourty dollars and fifty cents per linear foot. (Pay Note WW7)	$ 40.50	$ 88,290 00
11)	1,000 LF	Open Trenching of Wastewater Main (20'-24' Deep), furnished, installed, complete and in place, for the sum of: fifty dollars and fifty cents per linear foot. (Pay Note WW7)	$ 50.50	$ 50,500 00

Base Bid: Wastewater Items				
Item No.	Quantity	Description	Unit Price	Total Amount
Total Sewer Items 1-11			$	967,945.00

Base Bid: Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	500 SY	2" Type D HMAC Asphalt Pavement Repair (PG70-22), furnished, installed, complete and in place, for the sum of: Thirty dollars and Zero cents per square yard. (Pay Note P1)	$ 30.00	$ 15,000.00
2)	100 GAL	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY), furnished, installed, complete and in place, for the sum of: Six dollars and Fifty cents per gallon. (Pay Note P2)	$ 6.50	$ 650.00
3)	500 SY	Flowable Fill / 2-Sack Backfill, furnished, installed, complete and in place, for the sum of: Ninety dollars and Zero cents per square yard. (Pay Note P3)	$ 90.00	$ 45,000.00
4)	500 SY	6" Base Rock Pavement Repair (Flexible Base), furnished, installed, complete and in place, for the sum of: Fifteen dollars and Twenty Five cents per square yard. (Pay Note P4)	$ 15.25	$ 7,625.00
Total Paving Items 1-4		$ 68,275.00		

Bid Price For:	
1. Miscellaneous Items	$ 292,297.50
2. Demolition Items	$ 12,535.00
3. Wastewater Items	$ 967,945.00
4. Paving Items	$ 68,275.00
Total Price	$ 1,341,052.50

In addition to providing the individual prices for the items above, Contract shall write the total bid amount in the sum of

One million, three hundred fourty one thousand, fifty two dollars

and fifty cents total.

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the contract documents pertaining to the work covered by the above bid. The selected contractor will receive written notice to proceed.

Bidder agrees to substantially complete all work within 150 calendar days after receipt of notice to proceed.

PUBLIC INFORMATION

To the extent that Bidder is submitting a bid for a contract described by Section 552.371 of the Texas Government Code, Bidder agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this bid, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

Enclosed herewith in this proposal is a cashier's check, cash or bid bond on a form approved by the City Attorney, for

5% of Bid Proposal dollars

and _____ cents total. ($ 5% total bid)

which it is agreed shall be collected and retained by the owner as liquidated damages in the event this proposal is accepted by the Owner within thirty days (30) after the date advertised for the reception of bids and the undersigned fails to execute the contract and required bonds with the owner, under the conditions thereof, within (15) days after the date said proposal is accepted; otherwise said check or bond shall be returned to the undersigned on demand.

Red Deer Construction LLC

Name of Contractor

[signature] III	David Chandler III - President
Submitted By	Print Name and Title

PO Box 51473

Mailing Address

Midland	TX	79710
City	State	Zip

PAY NOTES

West Wadley Avenue Wastewater Line Extension

Bid Item		Pay Quantity Note
Miscellaneous Items		
1	Mobilization	M1
2	Bypass Pumping	M2
3	Bore Pit	M3
4	Receiving Pit	M4
5	36" Bore For Casing Pipe	M5
6	36" Steel Pipe Casing (1/4" Wall Thickness)	M6
7	16" Steel Pipe Casing (1/4" Wall Thickness)	M6
8	Erosion/Sediment Control	M7
9	Traffic Control	M8
10	Job Site Safety	M9
11	Seeded Erosion Control Mats	M10
12	Spray Watering	M11
13	Material Mark-up	M12
14	Labor Mark-up (Regular Work Hours)	M13
15	Equipment Rental Mark-up (Non-Standard Equipment Only)	M14
Demolition Items		
1	Removal & Disposal of Existing Wastewater Main	D1
2	Removal & Disposal of Existing 48" Manhole (0'-5' Deep)	D2
3	Removal & Disposal of Existing 48" Manhole Additional Depth (> 5' Deep)	D3
4	Removal & Disposal of Existing Unclassified Pavement	D4
5	Removal & Disposal of Existing Barbed-Wire Fence	D5
Wastewater Items		
1	18" ASTM F679 (PS 115), PVC, Wastewater Main	WW1
2	8" SDR 26 ASTM D3034, PVC, Wastewater Main	WW1
3	8" SDR 35 ASTM D3034, PS46, PVC, Wastewater Main	WW1
4	48" Fiberglass Manhole & Cover (0'-5' Deep)	WW2
5	48" Fiberglass Manhole Additional Bury Depth (> 5' Deep)	WW3
6	8" Manhole Drop Structure (0'-5' Deep, External)	WW4
7	8" Manhole Drop Structure Additional Bury Depth (> 5' Deep, External)	WW5
8	8" Wastewater Main Plug	WW6
9	Open Trenching of Wastewater Main (0'-16' Deep)	WW7
10	Open Trenching of Wastewater Main (16'-20' Deep)	WW7
11	Open Trenching of Wastewater Main (20'-24' Deep)	WW7
Paving Items		
1	2" Type D HMAC Asphalt Pavement Repair (PG70-22)	P1
2	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY)	P2
3	Flowable Fill / 2-Sack Backfill	P3
4	6" Base Rock Pavement Repair (Flexible Base)	P4

PAY QUANTITY NOTES

M1 Includes the necessary equipment, labor, materials, and incidentals for all Mobilization to the job site complete and in place. Measurement and payment to be made per month.

M2 Includes the necessary equipment, labor, materials, and incidentals for Bypass Pumping per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per each week.

M3 Includes the necessary equipment, labor, materials, and incidentals to place and backfill a Bore Pit per the construction drawings and City of Midland standards and specifications, including all excavation, embedment, backfill, appurtenances, and clean-up. Measurement and payment to be made per lump sum once the bore pit backfill is completed.

M4 Includes the necessary equipment, labor, materials, and incidentals to place and backfill a Recieving Pit per the construction drawings and City of Midland standards and specifications, including all excavation, embedment, backfill, appurtenances, and clean-up. Measurement and payment to be made per lump sum once the recieving pit backfill is completed.

M5 Includes the necessary equipment, labor, materials, and incidentals to install a ##" Bore For Casing Pipe per the construction drawings and City of Midland standards and specifications, including all appurtenances and clean-up. Measurement and payment to be made per linear foot measured along the ground surface following the bore centerline through all objects, structures, and appurtenances.

M6 Includes the necessary equipment, labor, materials, and incidentals for the installation of Pipe Casing per the construction drawings and City of Midland standards and specifications, including all spacers, grout, embedment, detector wire, tracer tape, and appurtenances. Measurement and payment to be per linear foot measured along the ground surface following the pipe centerline through all valves, fittings, structures, and appurtenances.

M7 Includes the necessary equipment, labor, materials, and incidentals to implement the Erosion Control Plan per the construction drawings and City of Midland standards and specifications. Measurement and payment to be made per month.

M8 Includes the necessary equipment, labor, materials, and incidentals to implement Job Site Safety and to provide a safe work environment for the project work area (including all personal protection equipment, trench safety, etc.) per the construction drawings and in compliance with all applicable Federal, State, and Local requirements or regulations including those of OSHA and the City of Midland. JOB SITE SAFETY IS THE RESPONSABILITY OF THE CONTRACTOR. Measurement and payment to be made per month.

M9 Includes the necessary equipment, labor, materials, and incidentals to implement the Traffic Control per the approved Traffic Control Plan. Any required traffic control devices are to meet the City of Midland Traffic Division Standards. Measurement and payment to be made per month.

M10 Includes the necessary equipment, labor, materials, and incidentals for Seeded Erosion Control Mats per the construction drawings and City of Midland standards and specifications, including all removal, storage, and replacement of existing topsoil as well as all mats, seeding, staking, and appurtenances. Watering is addressed in a separate pay note. Measurement and payment to be made per square yard measured along the ground surface.

M11 Includes the necessary equipment, labor, materials, and incidentals for Spray Watering per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per lump sum.

M12 Includes the Material Mark-up for materials and material sizes (pipe, valve, manhole, etc.) required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of the material in question plus the set percent increase established by this bid item. The Contractor must provide a copy of the invoice for the material cost from the supplier to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any material. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

M13 Includes the Labor Mark-up (Regular Work Hours) for labor required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of labor in question plus the set percent increase established by this bid item. The Contractor must provide a typical hourly pay rate for work crews prior to the percent increase along with the number of workers on the crew and the number of hours worked by the crew for the project in question to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any labor. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

M14 Includes the Equipment Rental Mark-up (non-standard equipment only) required to complete work for improvements not covered by the bid items listed in the Proposal for this project per the construction drawings and the City of Midland standards and specifications. Measurement and payment to be made per the cost of the equipment rental in question plus the set percent increase established by this bid item. The Contractor must provide a copy of the invoice for the rented equipment from the equipment supplier to the Engineer of Record or the City of Midland designee before this bid item may be claimed for any rented equipment. This will be applied solely at the discretion of the Engineer of Record or the City of Midland designee.

D1 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Utility Mains per the construction drawings and City of Midland standards and specifications, including the removal and disposal of all pipes, fittings, and appurtenances. Measurement and payment to be made per linear foot measured along the ground surface following the pipe centerline through all valves, manholes, fittings, junctions, structures, and appurtenances.

D2 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Manholes to a depth of 5' per the construction drawings and City of Midland standards and specifications, including the removal and disposal of all drop structures, other structures, base, and appurtenances. Measurement and payment to be made per each manhole removed.

D3 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Manholes at depths exceeding 5' per the construction drawings and City of Midland standards and specifications, including the removal and disposal of all drop structures, other structures, and appurtenances. Measurement and payment to be per vertical foot of existing manhole removed below a depth of 5' measured from the lowest invert at the manhole flowline and rounded up to the nearest 0.5'.

D4 Includes the necessary equipment, labor, materials, and incidentals for the Removal & Disposal of Existing Unclassified Pavement per the construction drawings and City of Midland standards and specifications including all saw-cutting and appurtenances. Depths given are approximate and pavement material is to be removed in its entirety. No additional compensation will be made for increased pavement depth removal. Saw-cut pavement edges are to be full pavement depth, cleanly cut, and clearly defined edges free of breaks. Measurement and payment to be made per square yard of unclassified pavement removed.

D5 Includes the necessary equipment, labor, materials, and incidentals to Remove & Dispose of Existing [Cinderblock, Brick, Chain-link, Barbed-wire, Panel] Fence per the construction drawings and City of Midland standards and specifications, including removal of all gates, columns, posts, foundations, anchors, and structures as well as all excavation, backfill, cutting, and appurtenances. Measurement and payment to be made per linear foot measures along the ground surface following the fence centerline through all structures and appurtenances.

WW1 Includes the necessary equipment, labor, materials, and incidentals for the installation of Wastewater Mains per the construction drawings and City of Midland standards and specifications, including all embedment, detector wire, tracer tape, necessary testing, and appurtenances. Measurement and payment to be made per linear foot measured along the ground surface following the pipe centerline through all structures and appurtenances.

WW2 Includes the necessary equipment, labor, materials, and incidentals for the installation of Fiberglass Manhole & Cover to a depth of 5' per the construction drawings and City of Midland standards and specifications, to the depth shown on the construction drawings and including all embedment, base, necessary testing, concrete collars, and appurtenances. Measurement and payment to be made per each manhole installed.

WW3 Includes the necessary equipment, labor, materials, and incidentals for the installation of Fiberglass Manhole Additional Bury Depth (> 5' pipe invert bury depth) per the construction drawings and City of Midland standards and specifications, including all embedment and appurtenances. Measurement and payment to be made per vertical foot measured from the lowest flowlline invert at the manhole to 5' below the rim elevation.

WW4 Includes the necessary equipment, labor, materials, and incidentals for the installation of a Manhole Drop Structure (External) per the construction drawings and City of Midland standards and specifications, including all coring, repairs, and appurtenances for a vertical adjustment of up to 5'. Additional pipe required for a vertical adjustment of more than 5' will be addressed in a separate pay note. Measurement and payment of drop structures to be made per each drop structure installed.

WW5 Includes the necessary equipment, labor, materials, and incidentals for the installation of a Manhole Drop Structure Additional Bury Depth (> 5' Deep, External) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment of drop structures to be made per each vertical foot installed below a depth of 5' below the manhole rim elevation.

WW6 Includes the necessary equipment, labor, materials, and incidentals for a Wastewater Main Plug per the construction drawings and City of Midland standards and specifications, including all fittings and appurtenances. Measurement and payment to be made per each plug installed.

WW7 Includes the necessary equipment, labor, materials, and incidentals for Open Trenching of Wastewater Main per the construction drawings and City of Midland standards and specifications, including all unclassified excavation, backfill not including flowable fill backfill, providing trench safety and protection for workers to install pipe, structures, and appurtenances. Measurement and payment to be made per linear foot measured along the ground surface following the pipe centerline through all structures, fittings, and appurtenances.

P1 Includes the necessary equipment, labor, materials, and incidentals for the installation of Type "D" HMAC Asphalt Pavement Repair (110 LBS / SY at 1" thick, PG 70-22) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P2 Includes the necessary equipment, labor, materials, and incidentals for application of Bituminous Prime Coat (MC-30, or AEP, 0.20 GAL / SY) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per gallon of material applied at the designated rate.

P3 Includes the necessary equipment, labor, materials, and incidentals for installation of Flowable Fill / 2-Sack Backfill (Portland Cement 2 Sack = 188 LBS/CY) per the construction drawings and City of Midland standards and specifications, including all appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

P4 Includes the necessary equipment, labor, materials, and incidentals for Base Rock Pavement Repair including the installation of base rock backfill (City base) per the construction drawings and City of Midland standards and specifications including all pavement and appurtenances. Measurement and payment to be made per square yard measured along the ground surface.

Bid Bond Information

Red Deer Construction, LLC
Contractor

City of Midland
Obligee on Bond

West Wadley Wastewater Line Extention
Description

11/18/2020
Bid Date

BID REQUEST
Bond No.

Bid Results

	Contractor	Amount
Low		$
2nd		$
3rd		$

If you were not in the above, your price $ _____
Is the job going to be awarded? _____
Yes - No

In order to better serve you, please return this form to our office as soon as possible.

Thank you for allowing Boley-Featherston-Huffman & Deal provide this bond for your organization.

BOLEY-FEATHERSTON INSURANCE

P.O. Box 97513 • 701 Lamar • Wichita Falls, TX 76307
Office (940) 723-7111 Fax (940) 723-7531
Surety@BoleyFeatherston.com

BID BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

SURETY NO N/A

KNOW ALL MEN BY THESE PRESENTS, THAT Red Deer Construction, LLC (Hereinafter called the Principal), as Principal, and FCCI Insurance Company (Hereinafter called the Surety, as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of ***FIVE PERCENT OF BID AMOUNT*** Dollars ($ (5%)) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a Bid or Proposal to enter into a certain written contract for the construction of West Wadley Avenue Wastewater Line Extension.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully, enter into such written Contract, then this obligation shall be void; otherwise to remain in full force and effect.

IT IS EXPRESSLY UNDERSTOOD AND AGREE that if said Principal should withdraw its Bid anytime after such Bid is opened and before official rejection to such Bid or, if successful in securing the award thereof, said Principal should fail to enter into the Contract and furnish satisfactory Performance Bond and Payment Bond, the Obligee, in either of such events, shall be entitled and is hereby given the right to collect the full amount of this Bid Bond as liquidated damage.

PROVIDED, further that if any legal action be filed upon this Bond venue shall lie in Midland County, Texas.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this 18th day of November, 2020.

Red Deer Construction, LLC	FCCI Insurance Company
Principal	Surety
By Dan G. Chadd Jr.	By Connie M. Dubski
	Connie M. Dubski Attorney-in-Fact
Address PO Box 51473	Address 6300 University Parkway
Midland, Texas 79710	Sarasota, FL 34240

APPROVED AS TO FORM:

City Attorney

NOTE: Attach Power of Attorney

Form Revised October 2020

FCCI INSURANCE GROUP

GENERAL POWER OF ATTORNEY

Know all men by these presents: That the FCCI Insurance Company, a Corporation organized and existing under the laws of the State of Florida (the "Corporation") does make, constitute and appoint:

Brenda Bledsoe; Garland Martin; Robbie Martin; Josh Andrajack; Tina McLelland; Connie M. Dubski

Each, its true and lawful Attorney-In-Fact, to make, execute, seal and deliver, for and on its behalf as surety, and as its act and deed in all bonds and undertakings provided that no bond or undertaking or contract of suretyship executed under this authority shall exceed the sum of (not to exceed $10,000,000.00): $10,000,000.00

This Power of Attorney is made and executed by authority of a Resolution adopted by the Board of Directors. That resolution also authorized any further action by the officers of the Company necessary to effect such transaction.

The signatures below and the seal of the Corporation may be affixed by facsimile, and any such facsimile signatures or facsimile seal shall be binding upon the Corporation when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached.

In witness whereof, the FCCI Insurance Company has caused these presents to be signed by its duly authorized officers and its corporate Seal to be hereunto affixed, this 23rd day of July, 2020.

Attest: _____
Christina D. Welch, President
FCCI Insurance Company

FCCI INSURANCE COMPANY CORPORATE SEAL 1994 FLORIDA

_____
Christopher Shoucair,
EVP, CFO, Treasurer, Secretary
FCCI Insurance Company

State of Florida
County of Sarasota

Before me this day personally appeared Christina D. Welch, who is personally known to me and who executed the foregoing document for the purposes expressed therein.

My commission expires: 2/27/2023

Notary Public State of Florida
Peggy Snow
My Commission GG 283505
Expires 02/27/2023

_____
Notary Public

State of Florida
County of Sarasota

Before me this day personally appeared Christina D. Welch, who is personally known to me and who executed the foregoing document for the purposes expressed therein.

My commission expires: 2/27/2023

Notary Public State of Florida
Peggy Snow
My Commission GG 283505
Expires 02/27/2023

_____
Notary Public

CERTIFICATE

I, the undersigned Secretary of FCCI Insurance Company, a Florida Corporation, DO HEREBY CERTIFY that the foregoing Power of Attorney remains in full force and has not been revoked; and furthermore that the February 27, 2020 Resolution of the Board of Directors, referenced in said Power of Attorney, is now in force.

Dated this 18th day of November, 2020

_____
Christopher Shoucair, EVP, CFO, Treasurer, Secretary
FCCI Insurance Company

REDDEER-01 BCAMPBELL

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 9/30/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Boley-Featherston Insurance 701 Lamar Street Wichita Falls, TX 76301	PHONE (A/C, No, Ext): (940) 723-7111	FAX (A/C, No): (940) 723-7531
	E-MAIL ADDRESS:	

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : FCCI Insurance Company	10178
INSURER B : Evanston Insurance Company	35378
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED

Red Deer Construction, LLC
P.O. Box 51473
Midland, TX 79710

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY [X] PRO-JECT [ ] LOC OTHER: $1,000 deductible PD per claim			CPP100061669	10/1/2020	10/1/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY			CA100061670	10/1/2020	10/1/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X UMBRELLA LIAB [X] OCCUR EXCESS LIAB [ ] CLAIMS-MADE DED [X] RETENTION $ 10,000			UMB100061671	10/1/2020	10/1/2021	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WC0100061672	10/1/2020	10/1/2021	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
B	Excess Liability			MKLV4EUE100356	10/2/2020	10/1/2021	Each Occurrence	5,000,000
A	Limited Pollution			CPP100061669	10/1/2020	10/1/2021	Work Sites	100,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

City of Midland
PO Box 1152
Midland, TX 79702-1152

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

© 1988-2015 ACORD CORPORATION. All rights reserved.
The ACORD name and logo are registered marks of ACORD

AGENCY CUSTOMER ID: REDDEER-01 BCAMPBELL

LOC #: 1

ADDITIONAL REMARKS SCHEDULE

AGENCY		NAMED INSURED
Boley-Featherston Insurance		Red Deer Construction, LLC P.O. Box 51473 Midland, TX 79710
POLICY NUMBER SEE PAGE 1		
CARRIER SEE PAGE 1	NAIC CODE SEE P 1	EFFECTIVE DATE: SEE PAGE 1

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: ACORD 25 FORM TITLE: Certificate of Liability Insurance

additional info

The Auto and General Liability policies include a blanket additional insured endorsement that provides additional insured status to the certificate holder only when there is a written contract between the named insured and the certificate holder that requires such status.

The Auto, General Liability and Worker's Compensation policies include a blanket automatic waiver of subrogation endorsement that provides this feature only when there is a written contract between the named insured and the certificate holder that requires it.

The Auto, General Liability and Umbrella policies include a special endorsment with "Primary and Noncontributory" wording.

The Umbrella policy follows form of the Underlying Policies with regard to Additional Insured and Waiver of Subrogation.
Pollution coverage is excluded in the umbrella

© 2008 ACORD CORPORATION. All rights reserved.
The ACORD name and logo are registered marks of ACORD

CONTRACT

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

THIS CONTRACT, made and entered into this 16th day of December, 20 20, by and between the City of Midland of the County of Midland and State of Texas, acting through its Mayor thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and Red Deer Construction, LLC of the City Midland, County of Midland, State of Texas, Party of the Second Part, herein-after termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the first Part (OWNER), and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follows: West Wadley Avenue Wastewater Line Extension together with appurtenances and incidentals.

Conditions of the Contract and at his (or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendent, labor, insurance and other accessories and services necessary to complete the said construction in accordance with the conditions and prices stated in the Proposal attached hereto, and in accordance with the Notice to the Contractors, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore as prepared by Engineering and Transportation Department of the City of Midland, Texas, herein entitled the ENGINEER, together with the CONTRACTOR'S written Proposal, the General Conditions of the Contract, and the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire Contract.

The CONTRACTOR hereby agrees to commence work within fifteen (15) calendar days after the written notice to do so and to substantially complete the same within 150 calendar days after receipt of notice to proceed, subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this Contract, such payments to be subject to the General and Special Conditions of the Contract.

The SUM TOTAL of this Contract shall be: $1,341,052.50.

INSURANCE

Contractor shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):		
	— Personal Injury:	$1,000,000.00 per person
		$1,000,000.00 per occurrence
	— Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:		$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:		Statutory limits
Employers' Liability:		$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on an occurrence basis. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Business Automobile Liability insurance provided by Contractor shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the

work that is the subject of this Contract. The insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Workers' Compensation coverage provided by Contractor shall inure to the benefit of employees injured during the course and scope of their employment by Contractor pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of the City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of the City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name the City as an additional insured on a claims occurred basis. City shall be provided the notice by Contractor's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Contractor shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Contractor shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of the City. The City shall not be required to provide any insurance whatsoever pursuant to this Contract.

The Contractor certifies that the certificate of insurance provided as required herein complies with the requirements of Senate Bill 425, passed during the 82nd regular session of the Texas Legislature, and effective January 1, 2012. The Contractor shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of the Contractor.

WAIVER OF ATTORNEY FEES

WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, CONTRACTOR AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE CONTRACTOR SPECIFICALLY AGREES THAT IF THE CONTRACTOR BRINGS OR COMMENCES

ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMEDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE CONTRACTOR AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH CONTRACTOR MIGHT OTHERWISE BE ENTITLED.

CONTRACTOR AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE CONTRACTOR ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE CONTRACTOR FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE OWNER AND THE CONTRACTOR. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE CONTRACTOR AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

SOVEREIGN IMMUNITY

By executing this Contract, the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

GOVERNING LAW AND VENUE

This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas.

COMPLIANCE – Contractor agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Contractor agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

VERIFICATION

To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Contractor hereby verifies that Contractor does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Contractor shall be deemed to have not made such verification.

RECORDS RETENTION AND PRODUCTION OF INFORMATION

To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Contractor shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to the City of Midland for the duration of the contract, (2) promptly provide to the City of Midland any contracting information related to the Contract that is in the custody or possession of Contractor on request of the City of Midland, and (3) on completion of the Contract, either (i) provide at no cost to the City of Midland all contracting information related to the Contract that is in the custody or possession of Contractor, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to the City of Midland.

PUBLIC INFORMATION

To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Contractor agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Parties of the First Part (Owner)

By: _____
Patrick Payton, Mayor

ATTEST:

_____
Amy Turner, City Secretary

APPROVED ONLY AS TO FORM:

By: _____
John Ohnemiller, City Attorney

By: _____
Party of the Second Part (CONTRACTOR)

By: _____
Title

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, on this _____ day of _____, 20__ personally appeared _____, an officer of Red Deer Construction, LLC, known to me to be the person and official whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as an act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this _____ day of _____, 20_____

_____
Notary Public

Form Revised October 2020

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of ___West Wadley Avenue Wastewater Line Extension_____ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for West Wadley Avenue Wastewater Line Extension, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20___ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

CERTIFICATE OF PAYMENT

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

West Wadley Avenue Wastewater Line Extension

The undersigned states that all debts, bills, and expenses that were incurred by the undersigned, his agents, or subcontractors employed by him, for labor, wages, materials and other purposes furnished for the above project have been paid and satisfied in full.

The undersigned, as general contractor for the above described project agrees to indemnify, hold harmless and defend the City, its officers, agents, and employees, from and against all claims and suits for damages, expenses, including court costs and attorney fees, arising out of or resulting from the undersigned contractor, his agents or subcontractors employed by him for expenses, warranties for items furnished, or labor performed and for any party that has supplied materials in connection with the repair or construction of the above referenced premises.

The undersigned contractor agrees to waive any and all claims it may have against the City, associated with, resulting from or arising out of the work performed at the above premises.

Further, the undersigned states that all labor performed by the undersigned, his agents, and subcontractors employed by him, has been completed in the usual and customary workmanlike manner and all work performed is accompanied with the usual and appropriate warranties for such work or repair, absent any disclaimer previously approved by the City of Midland.

I, the undersigned, release and relinquish unto the City of Midland, and their assigns the above described lien upon the above referenced property and hereby certify that all debts, bills, and expenses incurred by the undersigned, his agents, or subcontractors employed by him in connection with work done at the above

premises have been fully paid, in exchange for payment in full to be made by the City of Midland for the performance on the above described premises.

WITNESS MY HAND on this _____ day of _____, 20_____.

_____
Signature

_____
Typed or Printed Name

_____
Title

_____
Name of Company

SUBSCRIBED AND SWORN to before me on the _____ day of _____, 20_____.

_____
Notary Public, State of Texas

_____
Typed or printed name

_____
My Commission expires:

Form Revised October 2020

City of Midland Specifications

PREPARATION OF RIGHT OF WAY

1. GENERAL

Includes the preparation of right-of-way for construction by clearing, grubbing, removing and disposing of all obstructions and objectionable material from the right-of-way and designated easements, which is not specifically provided for on the plans.

Obstructions and objectionable material refer to all objects or material that do not meet the quality of standards for the courses of pavement to be constructed or which protrude into the excavation for slopes.

Measurement and Payment - Measurement and payment will be at the units and prices for the applicable bid item in the proposal.

When no specific bid items are included in the bid proposal for work specified under this section this work shall be considered as incidental to other items of work and the cost shall be included in the bid for these items. No separate payment will be made.

2. CONSTRUCTION METHODS

Removal - Obstructions and objectionable material to be removed by blading, plowing, bulldozing, or other methods approved in writing by the Engineer. The use of explosives will not be permitted. Solid objects must be removed to a depth of at least one (1) foot below the finished slope or subgrade elevation. Hollow objects must be removed entirely.

Disposal - Material to be removed from the right-of-way becomes the property of the Contractor. If disposal areas are available, they will be indicated on the plans.

Preservation of Trees and Shrubs - Trees and shrubs to be preserved in the right of way are shown on the plans and must be protected from injury during construction.

Removal of Concrete - Cut concrete at the right-of-way line straight and vertical by sawing or other approved methods prior to the removal of concrete in the right-of-way.

EXCAVATION, EMBANKMENT AND PREPARATION OF SUBGRADE 1
1. GENERAL 2
2. CONSTRUCTION METHODS 2

EXCAVATION, EMBANKMENT AND PREPARATION OF SUBGRADE

1. GENERAL

Includes the excavation, embankment and preparation of subgrade determined by the lines, grades and sections shown on the plans and in accordance with the provisions of the specifications.

Excavation - Includes excavation to planned grade, disposal of the material, removal of unsuitable subgrade material and borrow material when required in the construction. All excavation to be classified as common.

Embankment - Consists of excavated or borrow materials placed and compacted in horizontal layers in accordance with the specifications.

Subgrade - The upper eight inches (8") of embankment or the upper eight inches (8") below the roadway excavation finished grade. The subgrade shall extend from six inches (6") back of curb to six inches (6") back of curb where curb and gutter is to be constructed.

Measurement and Payment - Measurement and payment to be at the units and prices for the applicable bid items in the proposal.

2. CONSTRUCTION METHODS

Excavation - Made at the location and to the lines and grades shown on the plans in areas previously prepared in accordance with provisions of Section 2A. Dispose of excess material not required in the embankment and material that is unsuitable for subgrade. Excavation tolerance to be plus or minus 1/10 foot from the plan grade.

The area between the curb and property line shall be excavated or filled, whichever is necessary, to curb height at back of curb and finished to a straight even surface to the property line. The minimum elevation at the property line shall be the elevation of the top of the curb. The maximum elevation at the property line shall be equal to a rise of 1/4 inch per foot from the back of the curb to the property line.

During the excavation of this project, it will be required that all parkways be excavated and shaped at the same time the roadway is excavated. Excess excavation will be disposed of at locations approved by the Engineer.

Embankment shall be constructed at the locations and to the lines and grades shown on the plans in areas previously prepared in accordance with Section 2A of these specifications. Top eight inches (8") of natural ground to be compacted

to embankment density requirements. Embankment shall be constructed from suitable material obtained from the excavation or borrow free of roots, rocks in excess of three inches (3"), debris and other objectionable material. Excavation deficiencies shall be supplemented from a borrow source approved by the Engineer. Embankment shall be constructed in uniform horizontal layers not to exceed eight inches (8") of loose depth and compact with suitable equipment to a minimum of ninety percent (90%) AASHTO T180. The materials shall be processed by aeration or watering to bring the material to the approximate optimum moisture. Dry layers will not be permitted. Soft spots that develop in the embankment shall be removed and replaced with suitable material. No payment will be made for removal of soft spots. Tolerance for embankment grading shall be one-half foot (1/2) plus or minus the plan grade.

Preparation of Subgrade - Eight inches (8") of the upper portion of the embankment or excavation shall be shaped and compacted to a minimum density of 95 percent (95%) AASHTO T180 and finished within a tolerance of one-half inch (1/2") in ten feet (10'). The finished subgrade shall be protected and maintained in a satisfactory condition until covered by succeeding construction.

Compaction Tests - Field density tests will be made by the Owner or by a laboratory selected by the Owner. The Contractor shall notify the Engineer when compaction has been achieved. The Contractor shall allow 24 hours for scheduling of test. Prior to the taking of subgrade density test, the entire subgrade will be tested by proof-rolling using a pneumatic roller weighing not less than 50,000 lbs. gross with tire pressure being not less than 110 psi. Any soft spots, pumping, or other evidence of weakness shall be remedied before density tests are made. Proof rolling shall be in the presence of the Engineer or his duly authorized representative.

The City will pay the cost of initial density tests made on the subgrade. If the subgrade fails to meet the density requirements on the first test, the contractor will be required to have subsequent density tests made by the commercial lab selected by owner. The cost of all subsequent density tests will be born by the contractor.

08/07

CONCRETE CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS,

VALLEY GUTTERS, CENTER DRAINS AND RIP RAP

1. GENERAL

Includes the construction of concrete curb and gutter, sidewalks, driveways, valley gutters, center drains and rip rap in accordance with lines, grades and the sections shown on the plans and constructed in full compliance with provisions of the specifications.

A proven performance record by the Texas Highway Department shall be supplied by material producers for all materials supplied by them.

2. MATERIALS

Concrete - All concrete other than rip rap shall be Class "A" concrete in accordance with Texas Highway Department specifications Item No. 421. Concrete for rip rap shall be the class as shown on the plans and detail drawings. When no concrete class is shown the plans concrete for rip rap shall be Class "B" concrete.

Concrete batch designs shall be furnished for each project and shall include all classes of concrete proposed for use on the project.

Reinforcing Steel - Reinforcing steel shall be deformed bars or wire mesh fabric conforming to the requirements of "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" Item No. 440 and shall be of the sizes and grades as shown on the plans.

The contractor, at his option, may use fiber reinforcing in lieu of the wire mesh for all concrete slab on grade. When fiber reinforcing is used, it shall be "Fiber Mesh" or "Caprolan RC" or approved equal. The material and rate of application shall be approved by the Engineer prior to its use.

Expansion Joints - Bituminous pre-molded joint filler shall be composed of top grade fiber, treated by special impregnation system with water repellent bituminous materials. It shall be a non-extruding type, resilient, expanding on release of compression, preventing open joint crevices. The pre-molded joint filler shall be of such character, that it will not be deformed by handling during hot weather, nor shall it become brittle in cold weather. It shall be free from visible external defects such as holes, ragged or untrue edges, breaks, cracks or tears. It may be covered on both sides with paper to facilitate handling.

The joint filler shall be accurately cut to the dimensions and shapes required. It shall be of the thickness required by the plans, or as specified elsewhere.

3. CONSTRUCTION METHODS

GENERAL

No concrete shall be placed when, in the Engineers opinion, weather or other conditions would be detrimental to the structure placed. No concrete shall be placed on grade when the ground temperature is 35^{o} F or lower. Concrete may be placed when the ground temperature is rising from 35^{o} F. Concrete placed in cold weather shall be protected from freezing for 72 hours after being placed.

CURB AND GUTTER

EXCAVATION AND SUBGRADE - Excavation for curb, gutter, and combined curb and gutter shall be done with the subgrade excavation for the street. Street subgrade shall extend from six inches (6") back of curb to (6") back of curb and shall be compacted for a full width to a minimum of 95% AASHTO T180-61. Where subgrade is more than three inches (3") below bottom of curb, fill shall be compacted caliche base constructed from six inches (6") back of curb to six inches (6") back of curb as specified for base course.

Whenever subgrade or base is dry or dusty, it shall be thoroughly moistened, not made muddy, before the concrete is placed.

Forms - Forms shall be of steel, of a type to be approved by the Engineer, except that curves may be formed with wood sections built up or laminated, upon prior approval by the Engineer.

The forms shall be attached securely to stakes, shall be set true to line and grade, and braced sufficiently to remain true during the placing and tamping of the concrete. Forms shall be thoroughly cleaned and oiled before each use.

Curves - All changes in direction of the curbs shall be by means of true circular curves of the radii as shown on the plans.

Expansion Joints - Expansion joints shall be placed between curb and gutter sections at the tangent points of all curves, at each side of the inlet boxes, drives, alleyways, and at intervals of not more than forty feet (40') in straight runs. The expansion material shall be pre-molded three-fourths inch (3/4") in thickness, and shall conform to the requirements of expansion material as specified herein. It shall be cut to the full size and shape or the cross section of the curb and gutter, less one-half inch (1/2") from the finished surface thereof. The edges of sections against the joint shall be finished with an edging tool and the joint raked clean of concrete.

Finishing - There shall be provided on the job a metal screed or mule designed to give proper shape to the curb and gutter. It shall be bent to the exact shape of the finished curb and gutter and the forward edge turned up slightly to prevent disturbing the mortar. It shall be designed to ride on the forms and when properly manipulated shall leave the curb and gutter in its proper shaped condition. An "S" trowel shall be used to finish the surface and minor imperfections shall be corrected with a mason's trowel. Care shall be taken to finish

the gutter flow line to a true, uniform grade. All edges shall be finished with an edging tool, and joints marked with a jointer. Joint marks shall coincide with actual joints and shall be straight and true.

Curing - The completed curb and gutter, shall be cured in accordance with the requirements of the item "Membrane Curing", Texas Highway Department Item 531.

DRIVEWAYS AND ALLEY RETURNS

Driveways and alley returns shall be constructed of Class "A" concrete to the lines and grades as shown on the plans and detail sheets. All driveways and alley returns shall be reinforced as shown on the detail drawings.

Excavation and Subgrade - Excavation shall be accomplished in the same manner as for streets and curbs. The subgrade for all driveways and alley returns shall be compacted to 95% modified proctor density for 8 inches depth.

Driveways for single family residences and property used for two family residential purposes (duplexes) may be placed on the compacted subgrade. All other driveways shall be considered as commercial driveways and shall be constructed on 6 inches compacted flexible base.

Flexible Base - Commercial driveways and alley returns shall be constructed on 6 inches of flexible base conforming to Section 2-C- Flexible Base, Caliche.

Forms - Forms shall be constructed of steel or, when approved by the engineer, wood conforming to the requirements for curb and gutter forms.

Expansion Joints - Expansion joints shall be placed at the ends of abutting curb and gutter at the end of radii for all driveways and alley returns. In addition, expansion joints shall be placed at the ends of abutting sidewalk sections and at any point where the driveway or alley return abuts another concrete structure. Expansion joint material shall be pre-molded three fourths inch (3/4") in thickness, cut to the shape and dimensions required and shall extend the full depth of the concrete.

Finishing - Shaping and finishing of driveways and alley returns shall be accomplished by using a screed to shape the driveway or alley return to the lines and grade required. Finishing shall be accomplished by use of wooden floats and stiff bristled brushes or brooms. The last finish shall be by brushing or brooming in
A direction transverse to the direction of traffic.

During the entire finishing process care shall be taken to maintain the true gutter invert in line with the street curb and gutter.

Curing - Finished driveways and alley returns shall be cured in accordance with the requirements "membrane curing" "Texas Department of Highways and Public Transportation, 1982 Standard Specifications for Highways, Streets and Bridges", Item Number 531.

CONCRETE VALLEY GUTTERS, CENTER DRAINS AND DRAINWAYS

Concrete slab type street drainage structures with or without curbs, shall be constructed of Class "A" concrete to the lines and grades as shown on the plans and detail sheets or as may be established in the field by the engineer.

Subgrade excavation preparation and compaction and flexible base shall be the same as specified for street construction. All drainage structures within the roadway shall be constructed on a flexible caliche base so that the thickness of the concrete slab plus base is equal to the thickness of the hot mix asphaltic concrete surface plus base.

Forms - Forms shall be as specified for curb and gutter.

Reinforcing - All slab type drainage structures shall be reinforced as shown on the plans and detail drawings. Care shall be taken to maintain all reinforcing in good condition and at its proper location within the slab.

Expansion Joints - Expansion joint material shall be as specified for curb and gutter and for driveways and alley returns.

Expansion joints for valley gutter shall be placed at the ends of radii and at the juncture between the fillet and the cross valley as shown on the detail sheet.

For center drains, expansion joints shall be placed at the ends of widened or transition sections and at each end of a section containing a manhole or other structure and at intervals of sixty feet (60') measured along the center line of the drain.

Additional expansion joints shall be placed where drainage slabs abut backs of curbs, sidewalks and at contact points with other concrete structures.

Contraction Joints - Contraction joints shall be spaced at 15' intervals along the center line of center drains. These contraction joints shall be saw cut 3/8" wide minimum and 1/4 the depth of the slab using an approved concrete saw.

Saw cut contraction joints shall be made after the concrete has set sufficiently to prevent excessive raveling during sawing and shall be completed before the concrete is 48 hours old.

Finishing - Finishing shall be the same as for alley returns and driveways with the last finishing operation for structures subject to vehicular traffic being by broom or stiff brush in a direction transverse to the direction of traffic.

Curing - Curing shall be the same as for curb and gutter and driveways and alley returns.

SIDEWALKS

Sidewalks shall be constructed of Class A" concrete to the lines and grades as shown on the plans and detail drawings or as may be established in the field by the engineer. Sidewalks shall be constructed parallel to the back of the curb and on a grade parallel to

the top of curb grade. The minimum thickness for any sidewalk is 4 inches. The minimum width of any sidewalk is 4 feet.

Excavation and Subgrade - Excavation for sidewalk shall be made with street excavation where applicable. Care shall be exercised in excavating for sidewalks. Any over excavation or any fill required for sidewalk must be brought to grade in lifts not to exceed two inches (2") and thoroughly tamped. Subgrade for sidewalks shall be compacted to at least the density of the adjacent soil or to 85% modified proctor whichever is greater.

When a sidewalk is to be constructed on an embankment the fill must extend at least 3 feet beyond the edge of the sidewalk.

If the subgrade is dry or dusty it must be thoroughly moistened but not made muddy before concrete is placed.

Forms - Forms for sidewalks may be either steel or wood. Forms must be in good shape and true to line and grade. If nominal 2" x 4" lumber is used the subgrade must be finished one half inch (1/2") below the bottom of the form to provide the required 4 inch thickness.

Expansion Joints - Expansion joint material shall be pre-molded conforming to these specifications and shall be one half inch (1/2") thick. The expansion joint shall extend the full depth of the sidewalk.

Expansion joints shall be placed at points where the sidewalk contacts the back of curb, at all junctures between sidewalks all directions, and at all points where the sidewalk abuts a driveway, alley return or other concrete structure including fence foundations.

Transverse expansion joints shall be constructed in the sidewalk at intervals not exceeding twenty eight feet (28') as measured along the centerline of the walk except for sidewalks that are constructed wider than four feet (4') in which case expansion joints may be placed at intervals that are multiples of the width but not exceeding thirty feet (30').

Contraction Joints - Contraction joints consisting of trowel cuts one and one half inches (1-1/2") deep shall be spaced at four foot (4') intervals along the sidewalk. Contraction joints shall be edged using an edging tool with a 1/4 inch or 3/8 inch radius.

For sidewalks wider than four feet (4') contraction joints may be placed at intervals equal to the width of the walk up to but not exceeding ten feet (10').

Finishing - Sidewalks shall be "struck off" with a screed to provide an even surface and float finished using a wooden float.

The final finish on the sidewalk shall be accomplished by brooming or brushing using a stiff bristled brush or broom with the final strokes being in the transverse direction.

Curing - Curing shall be as specified for curb and gutter and driveways and alley returns.

CONCRETE RIP RAP

Concrete rip rap shall be constructed of concrete of the class and to the line and grades as shown on the plans.

Excavation and Subgrade - Care shall be taken not to over excavate for rip rap. The subgrade for rip rap shall be compacted to at least the density of the adjacent undisturbed soil or 85% modified proctor whichever is higher.

Forms - Forms, where required, may be either steel or wood. Forms must be in good condition and true to line and grade.

Expansion Joints - Expansion joints, where required, will meet the requirements of expansion joints materials as specified herein and will be placed as shown on the plans or directed by the engineer.

Finishing - Finishing shall be by screed and wooden float to produce true uniform surface.

Curing - Curing shall be as specified for other concrete herein.

Slope Paving - Slope paving may be required behind the curb or behind sidewalks where street paving requires deeper cuts in developed areas. Slope paving shall be constructed of Class "A" concrete and shall be constructed to the lines and grades as shown on the plans or as established in the field. Slope pavement shall be four inches (4") thick and shall be constructed in accord with the specifications for sidewalks.

When no slope grade is given on the plans the slope gradient shall be l:l.

Unless listed separately on the bid proposal, slope pavement shall be measured and paid for as sidewalk.

4. BACKFILL AND CLEANUP

GENERAL

Backfill and clean up are an integral part of the various items covered by this specification and must be completed for each item before that item will be considered for payment.

CONCRETE STRUCTURES WITHIN THE PAVED AREA OF STREETS

Backfill and clean up for concrete structures within the paved areas of streets, alleys, etc. shall receive special attention to assure the integrity of the street pavement.

Structures constructed in previously paved areas shall have sufficient surface removed along with base and subgrade where necessary to set full face forms for the concrete. As soon as the forms are removed all loose material shall be removed from the form trench and the trench filled to the base level with Portland cement stabilized backfill material

consisting of two (2) sacks Portland cement to one (l) cubic yard of caliche base material or one (l) cubic yard "blow sand". When the cement stabilized backfill has cured the pavement edge shall be saw cut to provide true and straight lines and the pavement restored to its original or revised grade using Hot mix asphaltic concrete conforming to the requirements of Section 2-F of these specifications.

For structures constructed on previously prepared subgrade or base course, clean up and backfill shall be considered complete when the subgrade or base course has been made ready to receive the next course.

When a structure is constructed on a finished base course and it is necessary to remove base material to set forms, backfill and cleanup shall be as described for previously paved areas and shall be considered complete when the base course is made ready to receive the surface course or courses.

BACKFILL BEHIND CURBS AND ALONG SIDEWALKS

Backfill behind curbs and along sidewalks that is to be grassed shall be made using good top soil. Top soil shall be free of caliche, rocks, clods, lumps, debris and other objectionable material. This backfill shall be compacted to at least the density of undisturbed adjacent soil but not less than 85% modified proctor.

Backfill behind curbs and along sidewalks that is to receive paving shall be constructed to conform to the base and subgrade of the adjacent paving and shall be compacted to 95% modified proctor. Or the contractor may elect to backfill to the top of the base with two (2) sack cement stabilized backfill.

In undeveloped areas and in areas where no sidewalks exist the contractor shall slope from the back of the curb to a maximum height of 1/4 inch per foot rise from the top of the curb to the property line on a straight line grade. The minimum elevation at the property lines shall be top of curb elevation.

In deeper cut areas slope paving may be required. When slope paving is required it shall be constructed to the lines and grades shown on the plans. Backfill and shaping beyond the slope paving shall be in accord with the applicable portions of this specification.

CONCRETE CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS **1**

VALLEY GUTTERS, CENTER DRAINS AND RIP RAP **1**

1. GENERAL 1
2. MATERIALS 1
3. CONSTRUCTION METHODS 2

GENERAL *2*
CURB AND GUTTER *2*
DRIVEWAYS AND ALLEY RETURNS *3*
CONCRETE VALLEY GUTTERS, CENTER DRAINS AND DRAINWAYS *4*
SIDEWALKS *4*
CONCRETE RIP RAP *6*

4. BACKFILL AND CLEANUP 6

GENERAL *6*
CONCRETE STRUCTURES WITHIN THE PAVED AREA OF STREETS *6*
BACKFILL BEHIND CURBS AND ALONG SIDEWALKS *7*

CONCRETE STRUCTURES

1. GENERAL

This specification covers concrete structures including but not limited to junction boxes, culverts, head walls, cast in place manholes, valve vaults, meter vaults and retaining walls.

2. MATERIALS

CONCRETE

Concrete for cast in place manholes, junction boxes, storm sewer inlet boxes, valve vaults and direct traffic culvert and bridge decks shall be a modified class "C" concrete using a minimum of 6 sacks cement per cubic yard with a maximum water content of 5 gallons per sack of cement and producing a concrete with 4000 psi 28 day compressive strength.

Concrete for other structures shall be class "A" as specified in "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" item number 421. Concrete for riprap shall be class "B".

Reinforcing steel shall conform to the requirements of item number 440 or "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" and shall be of the sizes and grades as shown on the plans.

3. CONSTRUCTION

Construction of concrete structures shall be in accordance with the provisions of item 420 "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges".

FLEXIBLE BASE, CALICHE 1
1. GENERAL 2
2. MATERIALS 2
3. CONSTRUCTION 3
4. TESTING 3

FLEXIBLE BASE, CALICHE

1. GENERAL

This item consists of the construction of a caliche flexible base course to the lines, grades and thickness shown on the plans and in accordance with the provisions of the specifications.

Qualification of Material Source - There will be no designated material sources, but the source proposed by the Contractor must be approved by the Engineer. The contractor shall furnish evidence of capability to crush and screen the material with suitable equipment.

Measurement and Payment - Measurement and payment to be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Material from the approved source shall meet the following requirements when tested in accordance with the referenced testing standards:

Gradation - Tested by ASTM C 136-67 to meet the following gradation limits:

Sieve Size	Percent Passing
1-3/4"	100.0
7/8"	65-90
3/8"	50-70
No. 4	30-60
No. 40	15-35

Liquid Limit and Plasticity Index **-** Tested by ASTM D423-66 and D 424-59.

Liquid Limit - 30.0 Maximum
Plasticity Index - 10.0 Maximum
Triaxial Classification - Tested by Texas Highway Department Method TEX 117-E, Part II - minimum class 3.0.

Source Quality Control - The contractor shall exercise caution in the operation of the material source to prevent the inclusion of inferior materials.

3. CONSTRUCTION

A. The subgrade shall be finished true to the lines and grades as shown on the plans or as established by the Engineer and finished within specified tolerances and properly maintained to prevent drying and/or loosening of the surface.

No base material may be dumped on any subgrade until it has been tested and approved by the Engineer.

B. Flexible caliche base material shall be placed in uniform courses and processed to provide a uniformly mixed base course of the proper moisture content for compaction. The processing and compaction procedure used shall provide a uniform base course compacted to ninety-five percent (95%) modified proctor density (YACHT T180) minimum. The minimum thickness of any one compacted course shall be three inches (3"). The maximum thickness of any one compacted course shall be eight inches (8").

Any soft or segregated spots that appear in the base shall be removed, replaced or reprocessed and recompacted prior to final finishing of the base. The finished base shall conform to the lines and grades as shown on the plans or established by the Engineer. Finished tolerances shall not exceed one half inch (1/2") in ten feet (10').

The finished base shall be primed as soon after finishing as practical and shall be protected until the hot mix asphaltic concrete surface is applied. In no case will prime be applied until the finished base has been approved by the Engineer.

4. TESTING

A. All test for approval of the source shall be performed by a commercial lab selected by the owner and shall be paid for by the contractor.

B. Gradation and soil constants tests (ASTM C-136, D423 and D424) and THD Triaxial Test (THD TEX117-E Part II) will be performed for source approval. Should the appearance, workability or other visual checks indicate a possible change in the material being furnished, the Engineer may require the contractor to retest the material for source approval.

C. Field quality control test will consist of the finish tolerance test and density test.

The finish tolerance test will be performed by the contractor at his expense using a 10' rolling straight edge. This test shall be performed at the direction of the Engineer or his representative. When required, the test shall consist of checking one path in each lane with the rolling straight edge.

Density test will be made by the City or a commercial laboratory chosen by the City using Troxler 3411-B nuclear density gauges or approved equal at the minimum rate of one test for each 1000 square yards of base. In no case shall less than three tests be run on any one area processed as a unit. The City will bear the cost of the first test or set of tests only. If the base fails the first test the contractor, at his own expense, will be required to have all subsequent tests performed by the commercial laboratory chosen by the city.

8/07

BITUMINOUS PRIME

1. GENERAL

This item consists of the application of a bituminous prime coat to the finished caliche base in accordance with the provisions of the Specifications.

Qualification of Material Source - Material shall be supplied by a producer with a proven performance record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment will be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Cut-back asphalt grade MC-30, Texas Highway Department Item 300.

Source Quality Control - Certificates of compliance to be furnished by the producer to the Engineer.

3. CONSTRUCTION METHODS

Condition of Base - The surface of the base shall be tightly compacted to the line and grade shown on the plans and within the tolerances of the specifications. The surface shall be clean and the base shall contain sufficient moisture to assure the proper penetration of the prime.

The prime shall be applied with an approved distributor to the surface of the base at a rate of between 0.15 and 0.40 gallon per square yard. The application rate shall be varied to meet field conditions and to obtain uniform coverage, and adequate penetration. Properly applied prime coat should penetrate from 3/8" to 1/2" into the base and should cure in approximately 72 hours with ambient temperatures at or near 70 degrees F. The prime shall be applied at a temperature within the range of temperatures recommended in Item 300 of Texas Highway Department Standard Specifications. The temperature shall be varied within this range to provide a viscosity that will assure even spreading and penetration of the base. Air Temperatures at the time of application shall be above 50'F.

BITUMINOUS TACK

1. GENERAL

This item consists of the application of a bituminous tack coat to the primed base or existing asphaltic concrete or Portland cement concrete pavement in accordance with the provisions of the specification.

Qualification of Material Source - Material shall be supplied by producer with a proven performance record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment will be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Cut-back asphalt grade RC-250, Texas Highway Department Item 300.

3. CONSTRUCTION METHODS

Conditions of Surface - Prior to application of tack to the base course the prime must be completely penetrated into the base and the surface cleaned of foreign objects.

The tack shall be applied with an approved distributor at a rate of between 0.05 and 0.10 gallons per square yard. The temperature of application shall be within the range recommended by the Texas Highway Department in Item 300. The surface temperature to which tack is being applied shall be above 50 degrees F. at the time of application.

When the asphaltic concrete surface is being placed on primed caliche base, use of the tack coat may be waived by the Engineer if the contractor can show that adequate adhesion of the surface being placed to the base course is achieved without it.

Tack coat shall be placed on all asphaltic concrete or portland cement concrete surfaces on which an additional course of asphaltic concrete surfacing is to be placed. The tack coat shall be rolled with a pneumatic roller to assure even distribution over the entire surface and to achieve proper penetration into and adhesion to the surface being overlayed.

HOT MIX ASPHALTIC CONCRETE

I. GENERAL

Includes the construction of the hot mix asphaltic concrete surface in accordance with lines, grades and the sections shown on the plans and with the provisions of the specifications.

Qualification of Material Sources - Producers of oil asphaltic concrete mixture to have a proven record of acceptance by the Texas Highway Department.

Measurement and Payment - Measurement and payment to be at the units and price for the applicable bid item in the proposal.

2. MATERIALS

Oil Asphalt - Oil asphalt grade AC-l0 or AC-20, Texas Highway Department Item 300. When no asphalt grade is shown on the plans, and unless directed otherwise by the Engineer, asphalt for this project shall be grade AC-10.

Coarse Aggregate - Crushed stone or crushed gravel with a minimum of 75 percent of the aggregates having two or more crushed faces. Additional requirements:

(a) Los Angeles Abrasion: ASTM C l3l, Wear not to exceed 40.

(b) Decantation: Maximum 2.0 percent by weight

Fine Aggregates - Natural sand and screenings crushed from the same or similar material meeting the requirements of the course aggregates. Additional requirements.

(a) Plasticity Index: Maximum of 6.

(b) Sand Equivalents: Minimum of 50 for each individual fine aggregate.

Paving Mixtures - The paving mixture(s) shall be as shown on the plans and details. If no mixtures are shown on the plans surface or wearing courses up to l-3/4 inches thick shall be Type D, base courses up to 2 inches thick shall be Type C and base courses over 2 inches thick shall be Type B or Type A.

(a) Gradation: The master gradations for the paving mixtures are:

TYPE "A" (Coarse Graded Base Course):	Percent Aggregate by weight or volume
Passing 2" sieve	100
Passing l-3/4" sieve	95 to 100
Passing l-3/4" sieve, retained on 7/8" sieve	16 to 42
Passing 7/8" sieve, retained on 3/8" sieve	16 to 42
Passing 3/8" sieve, retained on No. 4 sieve	10 to 26
Passing No. 4 sieve, retained on No. l0 sieve	5 to 21
Total retained on No. l0 sieve	68 to 84
Passing No. l0 sieve, retained on No. 40 sieve	5 to 21
Passing No. 40 sieve, retained on No. 80 sieve	3 to 16
Passing No. 80 sieve, retained on No. 200 sieve	2 to 16
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

TYPE "B" (Fine graded Base or Leveling-up course)	Percent Aggregate by Weight or Volume
Passing l" sieve	100
Passing 78" sieve	95 to 100
Passing 7/8" sieve, retained on 3/8" sieve	21 to 53
Passing 3/8" sieve, retained on No. 4 sieve	11 to 42
Passing No. 4 sieve, retained on No. l0 sieve	5 to 26
Total retained on No. l0 sieve	58 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 21
Passing No. 80 sieve, retained on No. 200 sieve	3 to 21
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

Type "C" (Coarse Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing 7/8" sieve	100
Passing 5/8" sieve	95 to 100
Passing 5/8" sieve, retained on 3/8" sieve	16 to 42
Passing No. 4 sieve, retained on No. l0 sieve	11 to 37
Total retained on No. l0 sieve	54 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 27
Passing No. 80 sieve, retained on No. 200 Sieve	3 to 27
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

TYPE "D" (Fine Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing l/2" sieve	100
Passing 3/8" sieve	85 to 100
Passing 3/8" sieve, retained on 4" sieve	21 to 53
Passing No. 4 sieve, retained on No. l0 sieve	54 to 74
Total retained on No. l0 sieve	54 to 74
Passing No. l0 sieve, retained on No. 40 sieve	6 to 32
Passing No. 40 sieve, retained on No. 80 sieve	4 to 27
Passing No. 80 sieve, retained on No. 200 sieve	3 to 27
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 4 to 8 percent of the mixture by weight.

TYPE "F" (Fine Graded Surface Course):	Percent Aggregate by Weight or Volume
Passing 3/8" sieve	100
Passing No. 4 sieve	95 to 100
Passing No. 4 sieve, retained on No. l0 sieve	58 to 73
Passing No. l0 sieve, retained on No. 40 sieve	6 to 26
Passing No. 40 sieve, retained on No. 80 sieve	3 to 13
Passing No. 80 sieve, retained on No. 200 sieve	2 to 11
Passing No. 200 sieve	1 to 8

The asphaltic material shall form from 3.5 to 6.5 percent of the mixture by weight.

(b) Tolerances: Deviations from job mix formula limited to:

(l) Sizes larger than the l0 sieve- Plus or Minus 4 percent.

(2) No. l0 sieve and smaller - Plus or Minus 3 percent.

(3) The deviation from the job mix formula shall be further limited in that the total deviation from the job mix formula between any two adjacent aggregate grades shall not exceed the allowable deviation for either one.

(4) Asphalt - Plus or Minus 0.3 percent.

(c) Density - The mixture shall be designed to produce an acceptable mixture within tolerance, at or near optimum density. The mixture molded in the laboratory should have the following percent of maximum theoretical density:

Minimum	Maximum	Optimum
96	98	97

(d) Stability: Minimum of 35 Hveem

Source Quality Control - Paving mixture and plant tests to be performed by laboratory selected and paid by the Owner, except as noted.

Job Mix Formula - The contractor shall submit a job mix formula, prepared by laboratory chosen by the owner, at least l0 days in advance of laying operations to allow time for review by the engineer. Substitution of one or more materials will require a new job mix formula and must be approved by the engineer.

The design of job mix formula whether for original submittal or revisions shall be paid for by the contractor.

Plant Tests - Check of raw material uniformity, quality and flow, hot bin gradations, temperature of mixture, mixture tests for density, stability and percent asphalt and other necessary tests to be performed bythe laboratory selected by the owner for each day's production.

Oil Asphalt - Producer to furnish certificates of compliance to the Engineer.

3. CONSTRUCTION METHODS

A. GENERAL

Condition of Base - The surface of the base shall be tight and free of debris. The prime coat shall be uniformly distributed, well penetrated and completely cured prior to application of the tack coat. If the mixture will adhere to the surface of the base without the application of a tack coat, the tack coat can be eliminated. If the surface of the base is one half (l/2") inch or more lower than the proposed bottom of the asphaltic concrete it shall be corrected by placing and compacting a level up course of the asphaltic concrete before the mat is placed on it.

Stockpiling, Storage, Batching and Mixing - Shall meet the requirements of Item 340, "Texas Highway Department l982 Standard Specifications for Road and Bridge Construction.

Weather Limitations - Shall be the requirements of Item 340,"Texas Highway Department l982 Standard Specifications for Road and Bridge Construction." With the added provision that no asphaltic concrete shall be placed when the surface on which the mat is to be placed is below 50 degrees F.

Thickness - Shall be as shown on plans. Unless shown otherwise on the plans, the maximum compacted thickness of any one course of asphaltic concrete shall be two and one-half (2-l/2) times the maximum aggregate size of the mixture being placed. The minimum shall be one (l) inch or one and one fourth (1-1/4) times the maximum particle size which ever is greater.

B. PLACING

Placing of Asphaltic Concrete shall be accomplished using an approved self propelled spreading and finishing machine with a heated vibrating screed capable of producing a surface that will meet the requirements of the typical cross section and the surface test, and when the mixture is dumped directly into the finishing machine shall have adequate power to propel the delivery vehicles in a satisfactory manner. The finishing machine shall be equipped with a flexible spring and/or hydraulic type hitch sufficient in design and capacity to maintain contact between the rear wheels of the hauling equipment and the pusher rollers of the finishing machine while the mixture is being unloaded.

The use of any vehicle which requires dumping directly into the finishing machine and which the finishing machine cannot push or propel in such a manner as to obtain the desired lines and grades without resorting to hand finishing will not be allowed. Vehicles dumping directly or indirectly into the finishing machine shall be so designed and equipped that unloading into the finishing machine can be mechanically and/or automatically operated in such a manner that overloading the finishing machine being used cannot occur and the required lines and grades shall be obtained without resorting to hand finishing.

Automatic screed controls will be required and shall meet the requirements item, 528 "automatic screed controls for asphaltic concrete spreading and finishing machines "Texas Department of Highways and Public Transportation 1982 Specifications for Construction of Highways, Streets and Bridges".

The screed shall be ski controlled using a ski of not less than l8' in length. Curb shoe control will not be allowed.

The spreading and finishing machine shall be maintained in good working order and operated by competent trained personnel.

The Engineer may require the contractor to place a test strip to prove the capability of the machine and the competency of the operating personnel to produce a satisfactory finished surface.

In dips and on curved surfaces where the ski control cannot be used, the surface will be controlled using a l0' straight edge.

Fillet areas, turn outs and other areas not accessible to the spreading machine may be hand laid provided a satisfactory surface is produced.

C. COMPACTION AND FINISHING

Compaction Requirements - The asphaltic concrete surface shall be compacted so that the compacted mixture will contain not more than seven percent (7%) nor less than three percent (3%) air voids.

The surface of the pavement, after compaction, shall be smooth and true to the established line, grade and cross section, and when tested with a l0 foot rolling straightedge, except as provided herein, the maximum deviation shall not exceed l/8 inch in l0 feet, and any surface not meeting this requirement shall be corrected as directed by the engineer.

Raking and Leveling - Minor leveling may be accomplished using asphalt rakes prior to compacting the surface. The surface shall be leveled by loosening the surface of the asphaltic concrete using an asphalt rake then adding or removing material and smoothing the surface. Any large aggregate worked to the surface in this process shall be removed before compaction. The large aggregate shall not be spread over the new asphaltic concrete surface.

Edges and joints with compacted asphalt or concrete gutters shall be carefully squared and excess material removed before compaction. Care shall be taken to see that NO excess material laps over onto the surface of existing asphaltic concrete paving or concrete gutters. Large aggregate worked to the surface in this process shall be removed. It shall not be spread over the new asphaltic concrete surface.

Rolling - In general rolling shall conform to the requirements of item 340 of the Texas Department of Highways and Transportation 1982 Specifications for Construction of Highways, Streets an Bridges except as modified herein.

It shall be the responsibility of the contractor to have rolling equipment available on the job to properly compact the paving mixture in place as required without delay to the lay down operation. Rollers provided shall meet the qualifications for their type as follows:

PNEUMATIC TIRE ROLLERS: The rollers shall be acceptable medium pneumatic tire rollers conforming to the requirements of the item, "Rolling (pneumatic tire)", Type B, unless otherwise specified on plans.

TWO AXLE TANDEM ROLLER: This roller shall be an acceptable power driven tandem roller weighing not less than 8 tons.

THREE WHEEL ROLLER: This roller shall be an acceptable power driven three wheel roller weighing not less than l0 tons.

THREE AXLE TANDEM ROLLER: This roller shall be an acceptable power driven three axle roller weighing not less than l0 tons.

Vibrating rollers will not be used without prior written approval of the engineer. Written approval will be granted only upon demonstration by the contractor that the roller and operator can produce a satisfactory surface within the tolerances of these specifications. Only the operator or operators thus approved will be allowed to operate the vibrating roller on this project.

Areas not accessible to standard rollers shall be compacted using trench rollers, impact tampers, hand tamps or other approved means that will produce the density and surface required.

JOINTS- Shall be carefully rolled to provide compaction of the asphalt against the existing surface or face of the concrete gutter. Joints between concrete gutters and Hot Mix Asphaltic Concrete shall be placed so that the HMAC will be approximately l/2 inch higher than the concrete when compaction is completed. At transverse joints such as valley gutters and fillet areas where finishing asphalt paving 1/2 inch above the edge of concrete will adversely affect ride quality the asphalt shall be finished 1/4 inch above the edge of the concrete.

Transverse joints shall be rolled in the transverse direction with the first pass extending approximately six (6") inches onto the new asphalt each additional pass shall extend approximately twelve (12") inches further onto the new asphalt until the full width of the roller is on the new asphalt. Longitudinal rolling may begin then.

All transverse joints shall be checked with a l0" straight edge while the material is

still hot enough to roll. Any corrections shall be made by loosening the material using an asphalt rake and adding or removing material and recompacting the surface. The surface shall be rechecked and when the joint is acceptable the asphalt spreading machine may proceed with the pass.

Final or finish rolling shall be accomplished using a two axle tandem roller to remove roller marks. This rolling shall be accomplished after the surface has cooled sufficient to minimize further marking but before it is too cool to respond to rolling.

STRAIGHTEDGES AND TEMPLATES - The contractor shall provide acceptable l0 foot straightedge for surface testing. Satisfactory templates shall be provided as required by the Engineer.

4. FIELD QUALITY CONTROL

Test Lots - Field Quality Control Tests shall be made by lot with a lot being the amount of contiguous surface laid in one day. No lot shall exceed l0,000 S.Y. If a days laying exceeds l0,000 S.Y., that days laying shall be divided into two approximately equal lots. The same lot divisions shall be used for all Quality Control Tests. Each separate block or combination of contingeous (blocks) of paving shall be considered as a separate lot even though they may be placed in a single day and do not comprise l0,000 S.Y. of surface.

Surface Tests - Surface tolerance tests will be performed in both longitudinal and transverse directions. The test for longitudinal surface tolerance will be performed with a ten-foot rolling straightedge furnished by the contractor, and calibrated and used in accordance with the manufacturer's recommendation or other approved method.

The maximum allowable deviation in surface shall be 1/8 inch in 10 feet. Tests for longitudinal surface tolerance will be performed by the contractor, accompanied by the engineer within 24 hours of the completion of a lot. One path in each lane for the length of the entire lot will be tested. The location of the test path (Distance from centerline or pavement edge) will be determined by the engineer through the use of random numbers. Any deviations in the surface finish of a roadway wearing course which exceeds l/4 inch must be corrected. After corrections have been made, the entire lot must meet the l/8 inch surface tolerance.

Thin course "scab on" patching will NOT be permitted. Corrections may be made by planning, milling and patching or by removing and replacing affected surface area.

When milling and patching is used to correct surface defects the minimum depth of removal shall be l".

For milling and patching or surface removal the area removed or milled shall be sufficiently large to avoid the appearance of patching.

When planning is used to correct defects the thickness of the remaining paving shall meet the thickness requirements as shown on the plans.

Surface tolerance test will be performed on the last or wearing course only.

Asphaltic concrete pavement constructed under these specifications that does not meet the surface tolerance requirements and is allowed to remain in place will be paid for at a reduced rate determined by multiplying the price bid for the wearing surface course by a surface tolerance quality factor. This rate shall apply to the entire lot.

Lower courses will not be affected by this quality factor but will be paid for at the price bid or such price as it may be affected by other quality factors.

The surface tolerance quality factor will be determined according to the following schedule:

Linear % of pavement exceeding 1/8 inch surface tolerance	Surface tolerance quality factor
0.0 to 1.0	1.0
1.1 to 1.5	0.9
1.6 to 2.5	0.8
over 2.5	0.5

Roadway surface requirements will not be applied for paved drives, aprons, turnouts, and other irregular sections, however, asphaltic concrete shall be placed in such a manner as to provide a neat and uniform appearance and shall be compacted by methods satisfactory to the engineer.

The contractor may request permission to reconstruct a portion of the pavement when, in his opinion, the surface tolerance quality factor can be improved. Upon approval of the engineer, the contractor shall take sufficient tests to isolate the portion or portions of pavement to be pre- constructed and remove and reconstruct the pavement. All costs in connection with this reconstruction are to be born by the contractor. The minimum width of this reconstruction shall be l/2 the street width unless approved otherwise in writing by the engineer. The portions reconstructed shall be re-tested and the surface tolerance quality factor recomputed using the new information along with the test from the area within the portion of the lot not reconstructed.

When other quality factor reductions are provided for on the plans or in the specifications the effect shall be cumulative ie: QFl x QF2 x QF3 x ....x QFn x unit price.

No payment will be made for pavement with a combined quality factor of less than 0.5.

Thickness Test - Thickness test will be made by the engineer on each course of asphaltic concrete laid. Test specimens shall be made by a commercial laboratory selected by the owner. Test specimens shall be cores having a minimum nominal diameter of 6". These cores shall be made in the presence of the inspector at locations designated by the inspector using an approved power operated coring machine.

For thickness and compaction test, each lot shall be divided into approximately equal sublots corresponding in width to each pass of the lay down machine and containing up to but not exceeding 2,000 square yards each. If a lot contains less than 2,000 square yards the engineer may, at his option, divide the lot into two equal sublots, or, if the contractor has a record of satisfactory workmanship, the engineer may waive tests on said lots.

The engineer will locate one test spot for each l,000 S.Y. and/or fraction thereof in each sub-lot using random numbers. If a spot thus located falls within one foot of a longitudinal joint or lip of gutter or within two feet of an unsupported edge or within l5 feet of the beginning or ending edge of a pass, the engineer will relocate the spot using random numbers. The commercial laboratory chosen by the owner will remove the test specimen from each designated spot, mark the specimen and the adjacent pavement for future reference and perform the required tests. Test specimens shall be removed with special caliper type tongs having circular jaws of the diameter of the specimen being removed. These jaws shall grip at least 1/2 of the circumference of the specimen. Screw drivers or other type of prying instruments shall not be used to remove the specimens.

The thickness of a specimen shall be determined by averaging four (4) measurements made at ninety degree (90) intervals around the specimen. Any thickness less than design thickness shall be considered as deficient.

For hot mix asphaltic concrete pavement less than 2 inches thick the maximum allowable deficiency in any one test specimen is l/8 inch provided that no more than twenty five percent (25%) of the specimens tested show a deficiency. For pavement in excess of 2 inches in thickness the maximum allowable deficiency in any one specimen shall be l/8 inch plus l/l6 inch for each additional inch of thickness provided that no more than twenty five percent (25%) of the test specimens show a deficiency.

When a test specimen has a greater deficiency and less than (25%) of the test specimens show a deficiency the contractor shall, at his own expense, determine the extent of the deficiency and correct it by removing and replacing the surface. The minimum width for such correction will be the full width of the pass or passes of the lay down machine in which the deficiency occurs.

The minimum length of such correction shall be three times the width removed. When more than (25%) of the test specimens show a deficiency the surface may at

the engineers option be declared uniformly deficient and the contractor shall correct the deficiency by removing and reconstructing the surface or by constructing an overlay of not less than l inch thickness over the deficient area. The construction of an overlay will require milling at lip lines and dips.

The corrected surface shall meet all the requirements of these specifications.

Asphaltic concrete pavement constructed under these specifications that is less than design thickness, if allowed to remain in place, will be paid for at a reduced rate determined by multiplying the unit price bid in the bid proposal by a thickness quality factor. This rate shall apply to the entire lot in which the deficiency is found.

The thickness quality factor for hot mix asphaltic concrete pavement less than 2 inches in thickness shall be:

Thickness Deficiency	Quality Factor
Maximum l/8" for any one specimen with no more than 25% of the specimens showing a deficiency.	l.0
Pavement not meeting the 25% limitation with an average specimen deficiency up to l/8 inch.	0.75
Average specimen deficiency of l/8 inch to l/4 inch	.55
Average deficiency of more than l/4 inch	0.0

The thickness quality factor for hot mix asphaltic concrete more than 2 inches thick will be l.0 if the maximum deficiency for any one specimen is l/8 inch plus l/l6 inch for each additional inch of thickness over 2 inches and not more than twenty five percent (25%) of the test specimens in the lot are deficient. For thickness test that fall outside this area either by single specimen thickness deficiency or more than twenty five percent (25%) of the specimens showing deficiency the thickness quality factor shall be computed as follows:

$$\text{Thickness Quality Factor} = \frac{1}{\left(\frac{1}{\text{Thickness Ratio}}\right)^2}$$

The thickness ratio for a lot is the average specimen thickness for that lot, with no allowance for thickness in excess of design, divided by the design thickness. For determining the average specimen thickness, those specimens in excess of design thickness shall be considered at design thickness.

The minimum thickness quality factor for which payment will be allowed is .55. Any pavement with a thickness quality factor below .55 will be considered as having a thickness quality factor of 0. This shall apply only if the contractor requests, in writing, to have this paving remain in place and this request is approved in writing by the engineer.

When the deficient area is in a lower course of a multi-course paving structure the contractor may reduce or correct the deficiency by increasing the thickness of the subsequent course or courses as follows:

When subsequent course is	Maximum increase in course thickness
Type B	1/2"
Type C	3/8"
Type D	1/4"

When corrected in this manner the thickness quality factor shall be determined using the combined thickness of the corrected courses and shall apply to all unit prices applicable to this lot.

The contractor may request permission to reconstruct a portion of the pavement when, in his opinion, the thickness quality factor can be improved. Upon approval of the engineer, the contractor shall take sufficient tests to isolate the portion or portions of pavement to be reconstructed and remove and reconstruct the pavement. All cost in connection with this reconstruction are to be born by the contractor. The minimum width of this reconstruction shall be l/2 the street width unless approved otherwise in writing by the engineer. The portions reconstructed shall be retested and the thickness quality factor recomputed using the new information along with the test from the area within the portion of the lot not reconstructed.

When other quality factor reductions are provided for on the plans or in the specifications the effect shall be cumulative ie: QFl x QF2 x QF3 x....x QFn x unit price.

No payment will be made for pavement with a combined quality factor of less than 0.5.

Compaction Test: Compaction test will be made by the commercial laboratory chosen by the owner on the core samples removed from the paving for thickness testing.

The percent air voids will be calculated using maximum theoretical specific gravity of the mixture.

The contractor may attempt to correct deficiencies in compaction by additional pneumatic rolling upon written permission of the engineer. Requests for permission to conduct additional rolling shall be submitted, in writing, to the engineer no later than three days following notification of the deficiency by the commercial laboratory and the additional rolling shall be completed within ten (l0) days following said notification weather permitting.

In no case shall the additional rolling be delayed beyond thirty (30) days from the date the surface was laid. All cost for additional rolling and additional coring and testing of the re-rolled surface shall be born by the contractor.

Asphaltic concrete pavement not meeting this specification and that is allowed to remain in place shall be paid for at a reduced rate determined by multiplying the price bid in the bid proposal by a compaction quality factor determined according to the following schedule:

Percent air voids (average of all specimens for the lot)	Compaction Quality factor	
less than 3	0	
3.0 to 8.0	1.0	
8.1 to 9.0	0.9	
9.1 to 10.0	0.7	
10.1 to 11.0	0.5	and the engineer may require a chip seal to be applied at the contractor's expense
More than 11		0 and the engineer may require a chip seal to be applied at the contractor's expense.

NOTE: HMAC surfacing with between 11% and 15% air voids may, upon written request by the Contractor, be reviewed by the Engineer to determine if it may be left in place. The Engineer's review will consider the type of street and expected traffic conditions among other factors and a written determination will be issued. If the surface is allowed to remain in place, a chip seal will be required at the Contractor's expense. The quality factor for this paving will remain at 0.

The reduced rate shall apply to the entire lot.

The effect of compaction quality factors shall be cumulative and shall be applied as described for surface quality factors and thickness quality factors.

Cost for Field Quality Control - The surface tolerance test shall be made by the contractor at his expense.

The initial thickness and compaction test will be made at no cost to the contractor except for the cost of materials and labor to repair the holes left when cores are removed.

The cost of all thickness test to isolate a deficient area and the cost of retesting the corrected area shall be born by the contractor.

The cost of all retesting of compaction after additional rolling to correct compaction deficiencies shall be born by the contractor.

Areas reconstructed to remedy deficiencies shall meet all the requirements of these specifications and shall be tested in the same manner as original construction. The cost of all tests on reconstructed areas shall be born by the contractor.

5. ADDITIVES

Anti-stripping: An approved liquid anti-stripping agent shall be added to the asphalt used in the hot mix asphaltic concrete. The rate of application shall be in accordance with the manufacturer's recommendation. The minimum anti-stripping agent added shall be one-half (l/2) of l%.

The anti-stripping agent used shall have a proven record when used with similar aggregate and shall be approved by the engineer in writing prior to the date set for reception of bids.

DOUBLE COURSE ASPHALT SURFACE TREATMENT

1. SCOPE

The work to be done under this section consists of furnishing all labor, materials and equipment necessary to construct a Double Asphalt Surface Treatment on the prepared base course in accordance with the sections shown on the plans and as specified herein or as directed by the Engineer.

2. MATERIALS

2.1 Asphalt

The asphalt used shall be of the grade and type specified below. The material shall be homogeneous and free from water, shall not foam when heated to 347° F., and shall meet the following requirements.

Viscosity Grade AC-5
Texas Highway Department 1982 Specifications

Viscosity 140 F. Stokes	500 +/- 100	
	Min.	Max.
Viscosity 140 F. Stokes	1.4	--
Penetration 77° F. 100 g. 5 sec.	135	--
Flash Point C.O.C.F.	425	--
Solubility in trichlorethylene percent	99.0	--

Tests on residues from thin film oven test:

Viscosity 140 F. Stokes	--	1500
Ductility, 77° F. 5 cms per min. cms.	100	--

Spot Test – negative for all grades.

2.2 Aggregate

All aggregate shall be composed of sound and durable particles of crushed stone or crushed gravel. At least eighty-five percent (85%) of the particles of the aggregate retained on the No. 4 sieve shall have one or more crushed faces. Aggregate particles shall be free from organic matter, clay, loam, or pebbles coated therewith, and shall not contain more that (5%) of slate, shale, schist or soft particles of sandstone. The aggregates shall have a percent of wear of not more than thirty-five (35). (Los Angeles Abrasion Tests of Coarse Aggregate, AASHO Designation

T-96 as revised). Crushed limestone will not be acceptable for this project.

Double Asphalt Surface Treatment

No. 1 Aggregate –	Retained on ¾" Sieve -	0% by weight
(Texas Highway	Retained on 5/8" Sieve -	0 – 2% by weight
Department 1982	Retained on ½" Sieve -	20, 35% by weight
Grade 3)	Retained on 3/8" Sieve -	85 – 100% by weight
	Retained on ¼" Sieve	95 – 100% by weight
	Retained on No. 10 Sieve-	99-100% by weight

No. 2 Aggregate -	Retained on ½" Sieve -	0% by weight
(Texas Highway	Retained on 3/8" Sieve -	0 – 5% by weight
Department 1982	Retained on No. 4 Sieve -	40 – 85% by weight
Grade 5)	retained on No. 10 Sieve -	98 –100% by weight
	Retained on No. 20 Sieve-	99 100% by weight

3. CONSTRUCTION METHODS

3.1 Preparation of base

If the surface of the base course is not in proper condition for placement of surfacing, it shall first be brought true to the section and grade as established. The base shall be checked, and any deviation in excess of ¼-inch from grade or from true cross section shall be corrected by scarifying then adding or removing material, reshaping and re-compacting by sprinkling and rolling. No "scab" or "featheredge" patches will be permitted. After correction of any defects in the base, it shall be cleaned of dirt, dust, or other deleterious material by sweeping or other approved methods and primed.

The base course shall be primed with MC-30 Asphalt as directed by the Engineer. The asphalt used shall meet the 1982 Texas Highway Department Specifications Item 300.

The base course shall be checked at least 24 hours in advance of placing the surfacing and any defects shall be repaired and re-primed. Immediately prior to placing the surfacing, the base shall be cleaned of all dirt, dust, or other deleterious materials by sweeping with rotary and hand brooms or other approved methods.

Prime coats shall not be applied more than 7 days in advance of placing the surface course. Areas that have been primed longer than the time

specified above prior to placing the surface course shall be re-primed at the Contractor's expense.

3.2 Handling and Applying Asphalt

All storage tanks, piping, retorts, booster tanks, and distributors used in storing or handling asphalt shall be kept clean and in good operating condition at all times, and they shall be operated in such a manner that there will be no contamination of the asphalt with foreign material. Asphalt shall not be heated above 400° F. at any time, and when applied, it shall be at a temperature of not less than 300° F. and not more than 350° F. The Engineer will select the temperature of application, and the Contractor shall apply the asphalt at a temperature within 15° of the temperature selected. All asphalt material heated above 400° F. will be rejected. Re-circulating heating equipment shall be equipped with recording temperature gauges.

The prime coat shall not be applied when the air temperature is below 50° F. and falling or when in the opinion of the Engineer weather conditions are not suitable. Prime coat shall not be applied when the temperature of the surface on which it is to be applied is less than 40° F. The prime coat shall be applied at least 24 hours in advance of placing the surface course. Prime coat shall be applied with an approved distributor at a rate of 0.30 gallon per square yard, or as directed by the Engineer.

Double Asphalt Surface Treatment shall not be applied when the temperature of the surface on which it is to be placed is below 50° F. and is falling but may be applied when the air temperature is above 40° F. and rising. No asphalt shall be placed when general weather conditions, in the opinion of the engineer, are unsuitable. No double asphalt surface treatment shall be placed from September 30 to April 15.

Asphalt shall be applied on the clean surface by an approved type of self-propelled pressure distributor so operated as to distribute the material in the quantity specified, evenly and smoothly, under a pressure necessary for proper distribution. The Contractor shall provide necessary facilities for determining the temperature of the asphalt in all of the heating equipment and in the distributor, for determining the rate and pressure at which it is applied, and for securing uniformity at the junction of two distributor loads. The beginning and ending of each shot of asphalt shall start and stop on a strip of heavy craft paper of not less than thirty (30) inches in width.

In areas inaccessible to the distributor, asphalt shall be applied by means of a hose and spray nozzles attached to the distributor. Care shall be

taken during application of any asphalt to shield the curb and gutter from the asphalt spray; satisfactory means of handling this matter will be insisted upon.

3.3 Application of Aggregate

Immediately after making the first application of asphalt, the surface shall be covered with No. 1 aggregate. The aggregate shall be spread with an approved self-propelled continuous feet aggregate spreader box, or approved equal, at rates as specified below or as directed by the Engineer. If necessary to obtain uniform distribution of aggregates, hand brooming and hand spotting of aggregates will be required. After completion of placing the aggregates, all areas shall be bull-wheeled with a three- wheeled roller weighing not less than 8 tons followed immediately by two complete passes with an approved self propelled pneumatic roller.

The second application of asphalt shall then be made and the No. 2 aggregate shall be applied in the same manner as stated above for the No. 1 aggregate. The Contractor shall be responsible for the maintenance of the surface and the distribution of the excess aggregate until the work is accepted.

On the two successive days following completion of the work as specified above, all areas shall be rolled with at least four complete coverage's with a pneumatic roller. This rolling shall be done in the warm part of the day.

3.4 Rate of Application of Materials

The asphalt and aggregate shall be applied at the rates specified in the following schedule:

Double Asphalt Surface Treatment

Application	Aggregate Gal. Asphalt/Sq. Yd.	Aggregate Cu. Yd. To Sq. Yds.	Designation
First	0.30	1:70	No. 1
Second	0.40	1:110	No. 2

3.5 Cleanup

After completion of the asphalt surfacing, all debris resulting from the construction shall be cleaned up and removed from the site of the work to

an approved place of disposal. The ditches, shoulders and back slopes shall be bladed and graded to true grades and cross sections as shown on the plans. The entire premises of the work shall be left in a clean condition satisfactory to the Engineer, and all costs of cleanup shall be included in the contract unit prices for the items of work involved.

DOUBLE COURSE ASPHALT SURFACE TREATMENT 1
1. SCOPE 1
2. MATERIALS 1
2.1 Asphalt 1
Viscosity Grade AC-5 1
Texas Highway Department 1982 Specifications 1
Viscosity 140 F. Stokes 1.4 --..... 1
2.2 Aggregate 1
Double Asphalt Surface Treatment 2
3. CONSTRUCTION METHODS 2
3.1 Preparation of base 2
3.2 Handling and Applying Asphalt 3
3.3 Application of Aggregate 4
3.4 Rate of Application of Materials 4
Double Asphalt Surface Treatment 4
3.5 Cleanup 4

3/2006

PREPARATION OF ASPHALTIC CONCRETE SURFACE FOR OVERLAY OR SEAL COAT

1. GENERAL

This item includes patching, milling and incidentals to prepare the asphaltic concrete surface for tack coating and overlay or for application of a seal coat.

2. MATERIALS

a. Asphalt

Asphalt for hot mix asphaltic concrete shall be Grade ACl0 Texas Highway Department Item 300.

Asphaltic concrete shall be Type D or Type F Texas Highway Department Item 340 except when the overlay is the second phase of phased construction in which case the asphaltic concrete for full depth patching shall be the grade as shown on the plans.

b. Portland Cement Stabilized Base

Cement stabilized base shall conform to Texas Highway Department Item 274 and shall consist of caliche base materials described in Section 2-C of this specification. Stabilized using 2 sacks of Portland cement per cubic yard. Cement stabilized base may be blade mixed at or near the job site if the contractor can produce a uniformly mixed acceptable product by this method.

3. PATCHING

a. Patching Surface Raveling

Where, in the opinion of the engineer, surface raveling has caused sufficient loss of material to require patching, the contractor shall thoroughly clean the area to be patched by brooming, and/or compressed air nozzle. When the patched area is completely free of loose aggregate and other foreign matter the contractor shall lightly brush the area with emulsified asphalt type SS1 and apply Type F hot mix asphaltic concrete. The asphaltic concrete shall be raked using an asphalt rake and finished smooth a little higher than the existing surrounding surface and compacted using a steel wheel roller and/or a pneumatic roller. Rollers shall be sufficient size and weight to achieve

adequate compaction. Small areas may be compacted using vibrating plate compacters when approved by the Engineer.

b. Patching Deteriorated Surface

When, in the opinion of the engineer, the surface has deteriorated to a point where replacement is required the engineer shall mark the area to be removed and replaced. The contractor shall saw cut for the full depth of the asphaltic concrete and remove said pavement. The saw cut shall be rectangular in shape with the edges being parallel to and at 90` to the centerline of the street. The minimum width for any patch shall be one (l') foot. After the surface has been removed the base shall be carefully smoothed and all loose base material shall be removed. When needed the base shall be reprimed using a light shot of RC 250 or MC 30 asphalt. After the prime coat has penetrated the base material, the contractor shall apply tack coat to the sawed edges of the surface and place Type D asphaltic concrete to a sufficient depth above the existing surface to provide a compacted surface slightly higher than the adjacent surface. The patch shall be compacted to a density of 92% to 97% Rice density using steel wheel and or pneumatic rollers.

c. Patching Deteriorated Substructure

When the base and or subgrade have failed and are to be removed, the contractor shall remove the surface as specified for deteriorated surface patching. The weakened base shall be removed to a uniform depth to expose undamaged base or subgrade. The minimum depth of removal shall be six (6") inches. The base and subgrade thus removed shall be replaced with Portland cement stabilize base and compacted to 95% modified proctor density and finished at the level of the abutting base. The finished base shall be primed and the surface replaced as specified for patching deteriorated surface.

4. MILLING

Surface milling shall be accomplished using approved asphalt milling machines. The maximum depth of milling shall be one (l") inch.

Milling shall be as directed by the engineer to remove asphaltic concrete placed at valley gutters, gutters and at the ends of the first phase of phased construction for drainage and to remove the asphaltic concrete placed for a smooth connection between that phase and the existing paving. The Engineer may also direct milling to

remove ridges and ruts that have formed on the pavement surface.

The Contractor shall be responsible for controlling the milling operation so that only these areas which require milling are milled. No measurement or payment will be made for milling where only superficial surface marks are left and from which no material is removed. When milling is required to remove ridges and ruts the low areas between ridges and ruts will be considered as "milled surface" for payment.

If a smooth straight joint can not be made by milling the contractor may be required to saw cut a one (l") inch depth groove at the edge of the milled area and remove material between the saw cut and the milled area by hand. No separate payment will be made for this saw cut when required.

5. MEASUREMENT AND PAYMENT

a. Patching Surface Raveling

Measurement will be made of the actual square footage of surface area patched. Payment will be made at the price bid per square foot for patching surface raveling in the bid proposal.

b. Patching Deteriorated Surface

Measurement will be made of the square yards of street surface replaced.

Payment will be made for the actual number of square yards of street surface replaced at the price bid per square yard for patching deteriorated surface in the bid proposal.

c. Portland Cement Stabilized Base

Measurement will be made of the actual cubic yards of compacted cement stabilized base in place.

Payment will be made at the price per cubic yard bid for compacted in place Portland cement stabilized base in the bid proposal.

d. Saw Cutting

Measurement will be made of the actual length of full depth saw cut made as directed by the engineer. No measurement will be made of the sawing required to square up poor milling edges.

Payment will be made at the price per linear foot of full depth saw cutting for the actual number of feet of saw cut as measured above.

No payment will be made for saw cutting required to square up the edges left by improper, inadequate or poor quality milling.

e. Milling

Measurement will be made of the actual area milled. No measurement will be made of areas where milling leaves only superficial surface marks from which no material was removed.

Payment will be made for the actual number of square yards of surface milling as measured above at the unit price bid per square yard of surface milling in the bid proposal.

01/04

SEAL COAT

I. DESCRIPTION

This item shall consist of the application of liquid asphalt to the existing pavement surface followed by placement of cover aggregate and rolled to increase adhesion, together with other operations necessary to form a complete durable seal coat.

II. MATERIALS

A. Asphaltic Materials

The material shall be homogeneous, shall be free from water, shall not foam when heated to 347 degrees F and shall meet the following requirements:

		VISCOSITY GRADE	
TEST		AC-5 Min/Max	AC-10 Min/Max
Viscosity, 140 F stokes		500+100	1000+200
Viscosity, 275 stokes		1.4	1.9
Penetration, 77F, 100g, 5 sec.		135	85
Flash Point, C.O.C.F.		425	450
Solubility in trichlorethylene	%	99.0	99.0
Tests on residues from thin film oven test: Viscosity, 140 F stokes		1500	3000
Ductility, 77 F 5cms per min, cms		100	70
Spot Test		Negative for all grades	

B. Storage, Heating and Application Temperatures

Asphalt materials should be applied at the temperature which provides proper and uniform distribution and within practical limits avoiding higher temperatures than necessary. Satisfactory application usually should be obtained within the recommended ranges shown below. No material shall be heated above the following maximum temperatures:

Applications and Mixing

TYPE-GRADE	Recommended Range, F	Maximum Allowable, F	Heating and Storage Maximum, F
AC-5, 10	275-350	375	400

NOTE:Heating of asphalt materials (except emulsions) constitutes a fire hazard to various degrees. Proper precautions should be used in all cases and especially with RC cutbacks.

Warning to Contractors: Attention is called to the fact that asphaltic materials are very flammable. The utmost care shall be taken to prevent open flames from coming in contact with the asphaltic materials or the gases of same. The Contractor shall be responsible for damages from any fires or accidents which may result from heating the asphaltic materials.

C. Additives

1. Latex Additive: A minimum of two percent by weight latex additive (solids basis) shall be added to AC-5 asphalt when specified on the plans or in other specifications in the contract. The latex additive shall be governed by the following specifications:

The latex is to be an anionic emulsion of butadiene-styrene low-temperature copolymer in water, stabilized with fatty-acid soap so as to have good storage stability, and possessing the following properties:

Monomer ratio, B/S 70/30
Minimum solids content 67%
Solids content per gal @ 67% ..... 5.3 lbs
Coagulum on 80-mesh screen ..... 0.1% max

Type Anti-oxidant ..... staining
Mooney Viscosity of Polymer
(M/L4 @ 212 F) ....100 min
pH of Latex ..... 9.4 - 10.5
Surface Tension ..... 28-42 dynes/cm^2
Brookfield Viscosity
of Latex ..... 1200 ps max @ 67% solids

The finished latex-asphalt shall meet the following requirements:

Viscosity at 140 F, stokes ..... 1500 max
Ductility at 39.2F, 1cm per min, cm..... 100 min

2. Anti-stripping Agent. An approved liquid anti-stripping agent shall be added to the asphalt used on this project when called for on the plans or elsewhere in the specifications or bid proposal. The rate of application shall be in accordance with the manufacturers recommendations. The minimum anti-stripping agent added shall be one/half (1/2) of 1%. The anti-stripping agent shall be Permatac or approved equal.

D. Regular Aggregate

Regular aggregate shall be Type B Grade 4 or Grade 5 crushed gravel, or crushed stone as specified in Item 302 of the Texas State Department of Highways and Public Transportation (T.S.D.H.P.T.) 1982 Standard Specification for Construction of Highways, Streets, and Bridges with the following exceptions:

1. Limestone other than natural limestone rock asphalt will not be approved for use on this project.

2. Aggregate shall contain not more than 1% by weight of organic matter, clays, loam or pebbles coated therewith and shall contain not more than 5% by weight of any one of or combination of slate, shale, schist or soft particles of sandstone when tested in accordance with Test Method Tex-217-F.

3. Aggregate Gradation, expressed as a percentage of weight, shall be as follows:

Grade 4	Percent by Weight		
Retained on 5/8" sieve			0
Retained on 1/2" sieve	0	-	2
Retained on 3/8" sieve	5	-	35
Retained on No. 4 sieve	80	-	100
Retained on No. 10 sieve	98	-	100
Passing No. 200 sieve	0	-	0.5

Grade 5	Percent by Weight		
Retained on 1/2" sieve			0
Retained on 3/8" sieve	0	-	5
Retained on No. 4 sieve	40	-	85
Retained on No. 10 sieve	98	-	100
Retained on No. 20 sieve	99	-	100

When no aggregate grade is shown on the plans or called for elsewhere in the specifications or bid proposal, Grade 5 aggregate will be furnished.

4. The percent of wear, as determined by ASTM C-131, shall not exceed 25%.

5. The percent loss of the aggregate, as determined by ASTM C-88 using a magnesium sulfate solution and a four cycle test, shall not exceed 30%.

E. Precoated Aggregate

Precoated aggregate shall be Type PB Grade 4 or Grade 5 crushed gravel, or crushed stone as specified in Item 304 of the T.S.D.H.P.T. 1982 Standard Specification for Construction of Highways, Streets, and Bridges with the following exceptions:

1. Those exceptions listed in Paragraph II 2(B) above.

2. The precoated aggregate shall be coated with 1.0 to 2.0 per cent by weight of asphaltic cement of Grade AC-20.

F. Joint Paper

Paper used for starting and stopping asphalt application, as well as making fabricated paper discs to protect manhole covers and valve covers, shall be a non-absorbent, high grade 60# Kraft paper, 30" in width.

The contractor shall cover all manhole and valve box lids with paper discs, furnished by Contractor, immediately before application of asphalt and remove same immediately after application of rock.

G. Delivery Tickets

A legible copy of the delivery tickets for all materials to be used on this project shall be furnished to the City's representative at the time materials are delivered to the project stock pile and storage site.

III. CONSTRUCTION METHODS

A. Equipment

In general, all equipment used on this project shall be in good working order and in sufficient quantity to insure proper expedition of the seal operation.

1. Asphalt Handling Equipment

The asphalt distributor shall have been recently calibrated and the Engineer shall be furnished an accurate and satisfactory record of such calibration. The distributor shall be an approved type of self-propelled pressure distributor so operated as to distribute the material in the quantity specified, evenly and smoothly, under a pressure necessary for proper distribution. The Contractor shall provide all necessary facilities for determining the temperature of the asphaltic material in all of the heating equipment and in the distributor, for determining the rate at which asphalt is applied, and for securing uniformity at the junction of two distributor loads. All storage tanks, piping, retorts, booster tanks, and distributors used in storing or handling asphaltic material shall be kept clean and in good operating

condition at all times, and they shall be operated in such manner that there will be no contamination of the asphalt with foreign material. It shall be the responsibility of the Contractor to provide and maintain in good working order a recording thermometer at the storage heating unit at all times.

2. Drag Broom

A drag broom shall be required if the aggregate is not properly distributed. The drag broom shall be furnished at no additional cost to the City.

3. Pneumatic-tire Roller

Pneumatic-tire rollers shall be of the self-propelled type consisting of not less than 7 pneumatic-tired wheels, running on axles in such manner that the rear group of tires will not follow in the tracks of the forward group, and mounted on a rigid frame and provided with a loading platform or body suitable for ballast loading. The roller shall be not less that 10 tons in weight and carry not less than 50 pounds pressure in each tire.

4. Aggregate Spreader

Aggregate spreader shall be an approved self-propelled continuous feed aggregate spreader. The spreader shall be equipped with a disposable trash box for placing debris removed from spreader box scalping screen.

5. Miscellaneous Equipment

The Contractor shall have available for immediate use at no additional cost one rock blade and one drag broom if their use is required by the Engineer. These pieces of equipment shall not be pulled by rollers. In addition, the Contractor shall furnish one tail gate aggregate spreader and one dump truck, equipped to receive the tail gate spreader.

6. Truck Scale

A truck scale conforming to the requirements of item 520 of "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges" shall be furnished by the Contractor at aggregate stockpile sites.

B. Surface Preparation

The City of Midland will sweep all streets to be sealed ahead of the Contractor. This sweeping by the City of Midland is not intended to be a final cleaning preparation for the application of asphalt but is intended as an aid to the Contractor.

Prior to placing the seal coat, loose dirt and other objectionable material shall be removed from the existing surface by the Contractor. The surface will be cleaned with rotary brooms. Hand brooms will be used in areas not accessible to the rotary broom. The Engineer shall approve all streets before application of any asphalt.

C. Application of Bituminous Material

Paper shall be spread on the surface for a sufficient distance back form the end of each application so that flow through sprays may be started and stopped on the paper, and so that all sprays will operate properly over the entire length being treated.

No asphaltic material shall be applied when the total of air temperature plus pavement surface temperature is less than 120" F.

No equipment or vehicular traffic shall be allowed to cross over joint paper in place, except the distributor.

Immediately following the application of asphaltic material, the Contractor shall remove all joint paper and load same on a designated vehicle. At the end of each day, all paper shall be disposed of at the City Landfill.

Following all preparation outlined above, the Contractor shall immediately apply asphaltic materials at the specified rates and temperatures designated by the Engineer.

If the Contractor employs only one distributor in the seal operation, he shall be required to seal all designated filets and street stubs in the seal area before moving to another section of the City. If two distributors are used, one distributor will be employed only to seal filets and street stubs.

The use of a second distributor to seal filets and street stubs shall require the following additional equipment; one dump truck equipped with tailgate spreader, and one self-propelled pneumatic roller. All rolling shall be deferred until aggregate is dry.

D. Application of Aggregate

Aggregate shall be immediately and uniformly applied and spread by an approved self-propelled continuous-feed aggregate -8- spreader, unless otherwise authorized by the Engineer. Aggregate shall be applied at the approximately rate directed by the Engineer.

Vehicles used to transport aggregate from stockpiled area to spreading machine shall be weighed and a weight ticket issued for each load. Weight tickets shall show truck identification No., tare weight of truck, gross weight, and net weight of aggregate. The weight ticket shall be delivered to the city's representative at the aggregate spreader.

E. Rolling

A minimum of three (3) rollers shall be employed by the Contractor. Rolling shall be controlled by the Engineer during the entire project. The speed of all rollers will be held to a maximum of 5 miles per hour during the rolling process. When surface moisture is present on aggregate, "Rolling shall be deferred until aggregate is dry.

F. Stockpiling

All aggregate stockpiles shall be placed on a paved surface or areas acceptable to the Engineer.

When dust from the aggregate creates a nuisance or when aggregate fails to adhere to the asphalt the Engineer may require the Contractor to "water down" the aggregate stock pile.

When, directed by the Engineer, or desired by the Contractor, aggregate stockpiles will be "watered down". When the "watered down" aggregate does not adhere to the asphalt properly the Engineer may direct that water for this purpose contain 5% EA10S emulsified asphalt and/or an approved wetting agent. The Engineer may direct the contractor to increase the amount of emulsified asphalt added to the water if, in his opinion, desired results are not being achieved. No separate payment shall be made for emulsified asphalt, water or wetting agent but the cost shall be considered as an incidental cost for furnishing satisfactory aggregate.

G. Cleanup

Clean up shall be maintained on a timely manner as the work progresses. All debris scattered on the sidewalks and driveways shall be swept up by the Contractor. Sweeping debris onto freshly sealed streets shall not be allowed.

City forces will remove excess aggregate from the street and gutters after the project is completed.

H. Maintenance

The Contractor will be required to maintain all sealed streets until final acceptance of the project by the Engineer. Maintenance shall consist of adding additional coverstone when required, rolling, pony blading, or drag brooming.

IV. MEASUREMENT

Asphaltic material shall be measured in gallons at the applied temperature at the point of application.

Aggregate shall be measured by the ton in vehicles as delivered to the aggregate spreader and applied on the street. Trucks will not be allowed to leave the construction area with a partial load. If it becomes necessary for a truck to leave the area because of mechanical failure or other reasons, a second weigh ticket for that truck will be required.

Rolling shall be measured by the hours of actual rolling for each roller.

V. PAYMENT

Payment shall be made as provided under "Measurement" at the unit price bid for "aggregate", "asphalt", and "rolling" and shall be full compensation for furnishing and incorporating the materials "Aggregate" and "Asphalt" (and additives where applicable) into a composite product; for delivering, stockpiling; for brooming, compaction, and rolling; for cleaning the existing surface; for cleaning excess bituminous material; cleaning gutters; for cleaning sidewalks and driveways; for cleaning stockpile sites; for all required maintenance; for pony blading; for drag brooming; for adding additional cover aggregate; for all labor, equipment, supervision, tools, overhead, profit, and any other incidentals necessary to complete the work required under the conditions of these plans and specifications to the satisfaction of the Engineer.

08/07

ASPHALT - RUBBER SEAL COAT

(Stress Absorbing Membrane)

1. SCOPE

This specification covers the material, equipment, and construction procedures for a Stress Absorbing Membrane (seal coat).

2. PREQUALIFICATION OF A NEW ASPHALT-RUBBER MATERIAL

Pre-qualification of a new asphalt-rubber material or applicator may be requested at any time. Pre-qualification will be based on three controlled field applications evaluated after three years' performance under traffic. New asphalt-rubber material that has been evaluated and pre-qualified by an agency recognized nationally may be pre-qualified by that agency upon disclosure of suitable evidence of successful performance. Notwithstanding other agency pre-qualification, the City reserves the right to withhold pre-qualification pending the performance evaluation of local controlled field applications.

3. MATERIALS

3.1 Asphalt

The grade of asphalt cement for the asphalt-rubber mixture shall be AC - 5 or AC - 10 which shall comply with the requirements of Item 300 "Asphalt, oils and emulsions" of Texas State Department of Highways and Public Transportation 1982 Standard Specification for Construction of Highways, Streets and Bridges. The grade selected shall be based on laboratory testing by the asphalt-rubber supplier, to insure compatibility with the granulated reclaimed rubber.

If indicated necessary by laboratory testing, an approved anti-stripping additive may be added to the asphalt cement up to 1.0 percent by weight of asphalt.

3.2 Granulated Reclaimed Rubber

The granulated reclaimed rubber used shall be produced primarily from the processing of automobile and truck tires. The rubber shall be produced by ambient temperature grinding processes only.

The gradation of the granulated reclaimed rubber when tested in accordance with ASTM C-136 and using a 50 gram +/- 1 gram sample, shall meet the

following requirements:

Sieve Sizes	Percent Passing
#8	100
#10	95 - 100
#16	40 - 60
#30	0 - 10
#50	0 - 5

The use of rubber from multiple sources is acceptable provided that the overall blend of rubber meets the gradation requirements.

The individual granulated rubber particles, irrespective of diameter, shall not be greater in length than 3/16 inch (5mm).

The granulated rubber shall have a specific gravity of 1.15 +/- 0.05 and shall be free of loose fabric, wire and other contaminants except that up to 4 percent (by weight of rubber) calcium carbonate or talc may be added to prevent rubber particles from sticking together. The rubber shall be sufficiently dry so as to be free flowing and not produce a foaming problem when blended with the hot asphalt cement.

The granulated reclaimed rubber shall be accepted by certification from the rubber supplier.

3.3 **Diluent**

The diluent shall have the following properties:

Flash Point	130^{o} F Minimum
Initial Boiling Point (ASTM D-86)	340^{o} F Minimum
Dry Point (ASTM D-86)	390^{o} - 415^{o} F
Total Saturates	85% Minimum

3.4 **Asphalt - Rubber**

The asphalt-rubber supplier shall furnish to the engineer a minimum of 10 days before the beginning of membrane placement, the asphalt-rubber mix formulation which shall contain the following information:

Asphalt Cement
Source of Asphalt Cement

Grade of Asphalt Cement
Percentage of Asphalt Cement by total weight of the asphalt-rubber mixture.

Granulated Reclaimed Rubber
Source of Granulated Rubber
Grade of Granulated Rubber
Percentage of Granulated Rubber by total weight of the asphalt-rubber mixture.

If granulated rubber from more than one source is utilized the above information will be required for each granulated rubber used.

Diluent
Source of Diluent
Grade of Diluent
Percentage of Diluent allowable by volume of the asphalt-rubber mixture.

3.5 **Cover Aggregate**

Aggregate shall be composed of a clean and durable crushed rock, crushed gravel or crushed slag conforming to Item 304 "Aggregate for Surface Treatments (pre-coated)" of Texas State Department of Highways and Public Transportation 1982 Standard Specification for Construction of Highways, Streets and Bridges, grade No. 3 or No. 4.

Proposed aggregate samples shall be submitted to the asphalt-rubber supplier a minimum of 21 days prior to application, to test for aggregate stripping characteristics. The results shall be submitted to the engineer. Anti-strip will be included as a contingency bid item.

4. **EQUIPMENT**

4.1 **General**

The equipment used by the contractor shall include a self propelled rotary power broom or mobile pickup broom for pavement cleaning and excess cover material removal.

4.2 **Asphalt-Rubber Equipment**

All equipment utilized in the production and application of the asphalt-rubber shall be so designed and accessible that the Engineer can readily determine

the percentage by weight for each material being incorporated into the mixture and shall be as described as follows:

4.2.1 An asphalt heating tank with a hot oil heat transfer system or retort heating system capable of heating asphalt cement to the necessary temperature for blending with the granulated rubber. This unit shall be capable of heating a minimum of 3,000 gallons of asphalt cement.

4.2.2 An asphalt-rubber mechanical blender with a two stage continuous mixing process capable of producing a homogenous mixture of asphalt cement and granulated rubber, at the mix design specified ratios, as directed by the engineer. This unit shall be equipped with a granulated rubber feed system capable of supplying the asphalt cement feed system, as not to interrupt the continuity of the blending process. A separate asphalt cement feed pump and finished product pump are required. This unit shall have both an asphalt cement totaling meter in gallons and a flow rate meter in gallons per minute.

4.2.3 A truck mounted self powered distributor truck equipped with a retort heating unit, and an internal mixing device capable of maintaining a uniform mixture of asphalt cement and granulated rubber. It shall be equipped with a full circulating spreader bar and a pumping system capable of applying asphalt-rubber material within +/- .05 gallons per square yard tolerance of the specified application rate and must give a uniform covering of the surface to be treated. The distributor shall have a boot board on the rear of the vehicle and a bootman shall accompany the distributor. The bootman shall ride in a position so that all spray bar tips are in full view and readily accessible for unplugging if a plugged tip should occur. The distributor shall also include a tachometer, pressure gauge, volume measuring device and a thermometer.

4.3 Cover Material Spreader

The cover material (chip) spreader shall be a self-propelled machine with an aggregate receiving hopper in the rear, belt conveyors to carry the aggregate to the front, and a spreading hopper equipped with a full-width distribution auger and spread roll. The spreader shall be in good mechanical condition and be capable of applying the cover material uniformly across the spread at the specified rate.

4.4 Rolling Equipment

A minimum of three operational self-propelled pneumatic-tired rollers shall be used for the required rolling of the cover material. The pneumatic tired rollers shall carry a minimum loading of 3,000 pounds on each wheel and a

minimum air pressure of 100 pounds per square inch in each tire.

4.5 **Hauling Equipment**

Trucks for hauling cover material shall be tailgate discharge and shall be equipped with a device to lock onto the hitch at the rear of the cover material spreader. Haul trucks shall also be compatible with the cover aggregate spreader so that the dump bed will not push down on the spreader when fully raised or have too short a bed which results in aggregate spillage while dumping into the receiving hopper.

5. **CONSTRUCTION**

5.1 **General**

Streets to receive the asphalt-rubber stress absorbing membrane or seal coat shall be prepared in accord with Section 2-C-1 "Preparation of Asphaltic Concrete Surface for Overlay or Seal Coat" of these specifications.

Immediately prior to the application of the asphalt-rubber membrane, the surface shall be thoroughly cleaned in order to insure adequate adhesion of the asphalt-rubber to the pavement.

Due to the handling characteristics of asphalt-rubber, when radii and other irregular areas are to be sealed it is recommended that this be done with an RS or CRS chip seal emulsion or paving grade asphalt cement.

5.2 **Asphalt-Rubber Mixing and Reaction**

The percentage of granulated rubber shall be 23 percent plus or minus 3 percent by weight of total asphalt-rubber mixture, the exact granulated rubber content shall be as determined by the mix design submitted by the asphalt-rubber supplier. During membrane placement the granulated rubber percentage shall not fluctuate more than 1 percent by weight of total asphalt-rubber mixture.

The temperature of the asphalt cement shall be between 350^{o} and 400^{o} F at the addition of the granulated rubber. The asphalt and rubber shall be combined and mixed together in the asphalt-rubber blending unit and reacted in the distributor for a period of time as required by the engineer which shall be based on laboratory testing by the asphalt-rubber supplier. The temperature of the asphalt-rubber mixture shall be above 350^{o} F during the reaction period.

After the reaction between asphalt cement and granulated rubber has occurred, the viscosity of the hot asphalt-rubber-mixture may be adjusted for spraying and/or better "wetting" of the cover material by the addition of a diluent. The diluent shall comply with the requirements of Section 3.3 and shall not exceed 7.5 percent by volume of the hot asphalt-rubber mixture.

When a job delay occurs after full reaction, the asphalt-rubber may be allowed to cool. The asphalt-rubber shall be reheated slowly just prior to application but not to a temperature exceeding 350° F. An additional quantity of diluent not exceeding 3 percent by volume of the hot asphalt-rubber mixture may be added after reheating.

5.3 Application of Asphalt-Rubber Material

Placement of the asphalt-rubber membrane shall be made only under the following conditions.

1. The pavement surface temperature shall be 45° F and rising.

2. The pavement surface is clean and absolutely dry.

3. The wind conditions are not excessive.

4. All construction equipment such as asphalt-rubber distributor, cover material spreader, haul trucks with cover material, and rollers are in position and ready to commence membrane placement operations.

5. Rain is not imminent.

The asphalt-rubber mixture shall be applied at a temperature of 300° to 350° F at a rate of between .55 and .65 gallons per square yard. Transverse joints shall be constructed by placing building paper across and over the end of the previous asphalt-rubber application. Once the spraying has progressed beyond the paper, the paper shall be removed immediately and disposed of as directed by the engineer. All longitudinal joints shall not exceed a four inch overlap.

5.4 Application of Cover Material

Cover material shall be applied immediately to the asphalt-rubber after spreading at a rate of 25 to 35 pounds per square yard.
At the time of application to the asphalt-rubber, cover material shall be

surface dry so as to gain proper adhesion to the asphalt-rubber material.

5.5 Rolling

At least three operational pneumatic-tired rollers complying with the requirements of Section 4.4 shall be provided to accomplish the required embedment of the cover material. At some project locations or where production rates dictate, fewer rollers may be utilized as directed by the engineer. At no time shall there be less than two operational pneumatic tired rollers on a project.

Sufficient rollers shall be used for the initial rolling to cover the width of the aggregate spread with one pass. The first pass shall be made immediately behind the cover material spreader, and if the spreading is stopped for an extended period, the cover material spreader shall be moved ahead or off the site so that all cover material may be immediately rolled. Four complete passes with rollers shall be made with all rolling completed within one hour after the application of the cover material.

5.6 Traffic Control

Except when it is necessary that hauling equipment must travel on the newly applied membrane, traffic of all types must be kept off the membrane until it has had time to set properly. The speed of all hauling equipment shall not exceed 15 miles per hour when traveling over a membrane which is not adequately set. The minimum traffic free period shall not be less than one hour.

5.7 Removing Loose Cover Material

Sweeping can begin a minimum of one hour after membrane placement.

5.8 Method of Measurement and Basis of Payment

5.8.1 Asphalt-Rubber

a) Measurement will be made of the actual number of gallons of Asphalt-Rubber including asphalt placed in accord with these specifications.

b) Payment will be made at the price bid per gallon of Asphalt-Rubber in the bid proposal and will be full compensation for furnishing all asphalt, rubber, extender and for all labor,

equipment and incidentals for placing the asphalt-rubber on the Street surface.

5.8.2 **Cover Aggregate**

a) Measurement will be made of the actual number of tons of pre-coated aggregate placed in accord with these specifications.

b) Payment will be made at the price bid per ton of pre-coated aggregate in the bid proposal and shall be full compensation for furnishing all pre-coated aggregate and for all labor and equipment including rollers and rolling for the complete surface in place.

5.8.3 **Rolling**

a) No measurement will be made of rolling but rolling shall be considered as incidental to placing of the cover aggregate.

b) No separate payment will be made for rolling. The cost of rolling shall be included in the price per ton of cover aggregate in the bid proposal.

5.8.4 **Anti strip agent**

a) Anti stripping agent, when used, shall be measured by the gallon.

b) Payment for anti stripping agent shall be made at the price per gallon of anti stripping agent bid in the bid proposal.

08/07

POLYMER MODIFIED SLURRY SEAL (MICRO-SURFACE)

I. SCOPE

This specification covers the design, application, testing, quality control and measurement and payment for a complete in place "polymer modified micro surface" constructed on existing paved surfaces cleaned and prepared in accordance with the item 2-C-1 "PREPARATION OF ASPHALTIC CONCRETE SURFACE FOR OVERLAY OR SEAL".

2. DESCRIPTION

This specification covers all materials, equipment, construction and application procedures for rut filling and/or surfacing of existing paved surfaces. The micro-surfacing shall be a mixture of cationic polymer modified asphalt emulsion, mineral aggregate, mineral filler, water and other additives, properly proportioned, mixed and spread on the paved surface in accordance with this guideline and as directed by the Engineer.

3. MATERIALS

3.1 Emulsified Asphalt

(1.) The emulsified asphalt shall be a cationic emulsified type, designated as CSS-1P and shall comply with the following requirements.

	Min.	Max.
Viscosity, Saybolt Furol, 25 C (77 F), Sec.	**20**	**100**
Storage Stability test, one day, percent	**-**	**1**
Particle charge test		**Positive**
Sieve test, percent	**-**	**0.1**
Distillation:		**-** **-**
Oil distillate, by volume of emulsion, %	**-**	**0.5**
Residue, %		**62** **-**
Test on Residue from Distillation:		
Penetration, 77 F, 100 g, 5 seconds	**55**	**90**
Ductility, 77 F, 5 cm/min, cm	**70**	**-**
Solubility in trichloroethylene , %	**97**	**-**
Softening Point, R. & B., F	**135**	**-**
Viscosity, absolute 60 C (140 F), Poise		**8000** **-**

This standard distillation procedure shall be modified as follows: The temperature on the lower thermometer shall be brought slowly to 350 degrees plus or minus 10 degrees F and maintained at this point for 20 minutes. Complete the total distillation in 60 plus or minus 5 minutes from the first application of heat.

(2). The emulsion shall be modified with an approved Polymer. The distillation residue of the modified emulsion shall contain a minimum of three percent (3%) polymer solids by weight. The modified emulsion shall pass all applicable storage and settlement tests. The polymer material shall be milled into the emulsion or blended into the asphalt cement prior to the emulsification process. The cement-mixing test shall be waived for this emulsion.

(3). The polymer modified emulsified asphalt shall be so formulated that when the paving mixture is applied with the relative humidity at not more than 50% and the ambient temperature at least 75^{o} F, the paving mixture will sufficiently cure so that uniformly moving traffic can be allowed in approximately one hour. Locations such as driveways, Intersections and where sharp turning may take place or where vehicles may accelerate sharply, additional curing time may be required.

(4). The contractor shall notify the Engineer of the source of his asphaltic material prior to the design or production of the surfacing mixture and this source shall not be changed during the course of the project, except on written permission by the Engineer.

3.2 Mineral Aggregate

(1) Description. One Hundred percent (100%) of the mineral aggregate shall be crushed and shall be composed of clean, tough and durable particles of traprock, granite, sandstone or other approved aggregates. A sand equivalent of 65 or higher is required. The aggregate shall have a weight loss of not more than 12% when sodium sulfate is used or 18% when magnesium sulfate is used in accordance with Test Method Tex-411-A, using 5 cycles. The aggregate shall be one that has proven resistant to polishing in roadway surfacing.

(2.) Grades. When tested by Test Method Tex-200-F, Part I, the gradation requirements shall be as follows:

Grade 1 (Fine Graded Surface Course)	Percent Aggregate By Weight
Passing 3/8" sieve	100
Passing No. 4 sieve	98-100
Passing No. 8 sieve	75 -90
Passing No. 16 sieve	50- 75
Passing No. 30 sieve	30- 50
Passing No. 50 sieve	18- 35
Passing No. 200 sieve	5 -15

Grade 2 (Coarse Graded Surface Course)	Percent Aggregate By Weight
Passing 1/2" sieve	100
Passing 3/8" sieve	99-100
Passing No.4 sieve	86- 94
Passing No. 8 sieve	45- 65
Passing No. 16 sieve	25- 46
Passing No. 30 sieve	15 - 35
Passing No. 50 sieve	10 - 25
Passing No. 200 sieve	5- 15

(3.) Mineral Filler. Mineral filler shall be non-air entrained Portland cement that is free of lumps or foreign matter.

3.3 Water

The water shall be portable and shall be free of harmful soluble salts.

3.4 Other Additives

Additives supplied by the emulsion manufacturer may be added to the emulsion mix or to any of the component materials to provide control of the set time in the field.

4. LABORATORY EVALUATION

4.l General

Before work commences, the contractor shall submit a signed mix design covering the specific materials to be used on the project. This design shall be performed by the contractors or suppliers laboratory or by a qualified laboratory chosen by the owner. Once the materials are approved, no substitution will be permitted, unless first tested and approved by the laboratory preparing the mix design. The cost of mix design shall be born by the contractor.

4.2 Designing Job Mix

The qualified laboratory shall develop the job mix design and present certified test results for the contractor approval. Compatibility of the aggregate and modified CSS-1P shall be verified by the mix design. The mix design must be made using samples taken from the actual materials proposed for use in the project and in accordance with the procedures and requirements of Article 5.1 below.

5. PAVING MIXTURE

5.1 Mixture Design.

The mix shall be designed in accordance with Texas State Highway Department Bulletin C-14 and Test Method Tex-204-F, using Test Method Tex-227-F to supplement Test Method Tex-201-F and Tex-202-F to conform to the requirements herein. The above laboratory mixing and curing procedures may be modified as approved by the Engineer. The emulsified asphalt content will be selected by the Engineer to provide an optimum laboratory compacted density within the range of 94 to 97%. A minimum Hveem stability of 35 is required for placements exceeding a depth of twice the maximum aggregate size.

This is a mix design requirement, to be verified by testing of trial batch material prior to placement of project material. Hveem Stability testing will be performed by the selected laboratory. The Engineer will determine the frequency of job control density and stability testing. The Contractor shall furnish the mix design for the type of mixture specified together with applicable design worksheets and data. The Bulk Specified Gravity will be determined for each aggregate to be used in the design mixture. If the determined values vary by 0.300 or more, the mixture design will be by the Volumetric Method, Test Method Tex-204-F, Part II. To substantiate the design, trial mixtures will be produced and tested using all of the proposed project materials and equipment prior to any placement. The Engineer may waive trial mixtures if the same design has been proven to be in conformance with these requirements.

5.2 Composition of Mixture.

The Engineer shall approve the design mix and all micro-surfacing materials and methods prior to use and shall designate the proportions to be used within the following limits.

Residual Asphalt	**6 to 9 percent by weight of dry aggregate or 13.5 to 23 percent by volume of the aggregate**
Mineral Filler	**0.5% to 3.0% by dry weight of aggregate**
Modifier	**As required to provide the specified properties**
Water	**As required to provide proper consistency**

5.3 Type

The paving mixture shall consist of a uniform mixture of coarse aggregate, fine aggregate and asphaltic material. The mix may also contain mineral filler and/or additives when required.

The mixture shall be designed so that the mineral aggregate will produce a gradation, which conforms to the limitations for the master grading for the type specified herein. The gradation will be determined in accordance with Test Method Tex-200-F (Dry Sieve Analysis) and shall be based upon aggregate only. The amount of asphaltic material shall conform to the limitation for the type specified.

The aggregate grade shall be as shown on the plans. If no grade is shown on the plan grade 2 aggregate shall be used.

5.4 Tolerances

The aggregate portion of the paving mixture produced shall not vary from the design gradation by more than the tolerances that follow. The material passing the No. 200 sieve is further restricted to conform to the limitations for the master grading for the type specified. The asphaltic material portion of the paving mixture shall not vary from the design amount by more than the allowed tolerance and is also restricted to conform to the master limits. The method of test for determining the aggregate gradation and asphalt content of the mixture shall be Test Method Tex-210-F or other methods of proven accuracy.

	Percent by Weight or Volume as Applicable
Passing 3/8" sieve, retained on No. 4 sieve	**Plus or minus 5**

Passing No. 4 sieve, retained on No. 8 sieve	**Plus or minus 5**
Total retained on No. 8 sieve	**Plus or minus 5**
Passing No. 8 sieve, retained on No. 16 sieve	**Plus or minus 3**
Passing No. 16 sieve, retained on No. 30 sieve	**Plus or minus 3**
Passing No. 30 sieve, retained on No. 50 sieve	**Plus or minus 3**
Passing No. 50 sieve, retained on No. 200 sieve	**Plus or minus 3**
Passing No. 200 sieve	**Plus or minus 2**

Asphaltic Material Plus or minus 0.5 by wt. or l.2 by vol.

6. EQUIPMENT

6.1 General.

All equipment for the handling of all materials and mixing and placing of the mixture shall be maintained in good repair and operating condition and subject to the approval of the Engineer. Any equipment found to be defective and potentially affecting the quality of the paving mixture will be replaced or, at the option of the Contractor, satisfactorily repaired. It will be the contractor responsibility to prove to the Engineer that the repaired equipment is properly functional.

6.2 Mixing and Proportioning Equipment.

(1.) The material shall be mixed by a self-propelled micro-surfacing mixing machine which shall be a continuous flow mixing unit able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, field control additive and water to a revolving multi-blade twin shafted mixer and discharge the mixed product on a continuous flow basis. The machine shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, field control additive and water to maintain an adequate supply to the proportioning controls. The machine shall be equipped with self-loading devices, which provide for the loading of all materials while continuing to lay micro surfacing.

The machine shall be equipped with opposite side driving stations to optimize longitudinal alignment. The machine shall be equipped to allow the mix operator to have full hydrostatic control of the forward and reverse speed during application of the micro-surfacing material.

The self-loading devices, opposite side driving stations and forward and reverse speed controls shall be original equipment manufacturer design.

(2). Individual volume or weight controls for proportioning each material to be added to the mix shall be provided. Each material control device shall be calibrated and properly marked.

(3) The aggregate feed to the mixer shall be equipped with a revolution counter or similar device so the amount of aggregate used may be determined at any time.

(4) The emulsion pump shall be a positive displacement type and shall be equipped with a revolution counter or similar device so that the amount of emulsion used may be determined at any time.

(5.) The mixing machine shall be equipped with a water pressure system and nozzle type spray bar to provide a water spray immediately ahead of and outside the spreader box.

(6.) The mixing machine shall be equipped with an approved fines feeder that shall provide a uniform, positive, accurately metered, predetermined amount of the specified mineral filler.

6.3 Spreading Equipment.

The paving mixture shall be spread uniformly by means of a mechanical type spreader box attached to the mixer, equipped with paddles, screws or augers to agitate and spread the materials throughout the box. A front seal shall be provided to insure no loss of the mixture at the road contact surface. The rear seal shall act as a final strike off and shall be adjustable and shall break in the middle so that the screed can be adjusted to fit the crown of the street including inverted crowns. The rear seal carrier shall be capable of being fitted with a rubber seal or a steel strike off bar.

The spreading equipment shall be readily adjustable in width so that laying widths can be changed without undue delay before starting each pass if necessary.

The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The seam where two spreads join, shall be neat appearing and uniform.

7. STOCKPILING AND STORAGE.

7.1 Aggregate Storage.

If the mineral aggregates are stored or stockpiled, they shall be handled in such a manner as to prevent segregation, mixing of the various materials or sizes, and contamination with foreign materials. The grading of aggregates proposed for use and as supplied to the mixing plant shall be uniform. Suitable equipment of acceptable size shall be furnished by the Contractor to work the stockpiles and prevent segregation of the aggregates. The mineral aggregate shall be screened and weighed at the contractor stockpile prior to job site delivery. The Engineer shall approve screens and scales.

7.2 Storage and Heating of Asphaltic Materials.

The asphaltic material storage shall be ample to meet the requirements of the plant. Asphalt shall not be heated to a temperature in excess of that specified
in the Item "Asphalt's, Oils and Emulsions" Texas Highway Department 1982 Standard Specifications. All equipment used in the storage and handling of asphaltic material shall be kept in a clean condition at all times and shall be operated in such manner that there will be no contamination with foreign matter.

8. CONSTRUCTION METHODS

8.1 General

It shall be the responsibility of the Contractor to produce, transport, and place the specified paving mixture in accordance with these specifications and as approved by the Engineer.

8.2 Street Preparation

Prior to starting the micro-surfacing operation, streets designated to be surfaced shall be prepared in accordance with item 2-C-1 "Preparation of Asphaltic Concrete Surface for Overlay or Seal".

8.3 Weather Limitations.

The material shall be spread only when the atmospheric temperature is at least fifty (50 degrees) F and rising and the weather is not foggy or rainy. No material will be placed when the surface on which it is to be placed is below 50^{o} F.

8.4 Final Surface Preparation

Immediately before placing the micro-surface, the area to be sealed shall be thoroughly cleaned of all vegetation, loose aggregate and soil, and moistened. Water for prewetting the surface shall be applied immediately ahead of the spreader box by use of a pressure spray bar equipped with nozzles that produce a fine mist. The rate of application of water shall be sufficient to dampen the entire surface without any free flowing water ahead of the spreader box. The rate of the mist spray shall be adjusted from time to time during the placing operation to accommodate changes in temperature, surface texture, humidity and dryness of the pavement surface.

8.5 Placing the Mix

(1). The mixture shall be spread to fill cracks and minor surface irregularities and leave a uniform skid resistant application of aggregate and asphalt on the surface. The finished surface shall be neat in appearance without drag marks, excessive buildup or other detracting irregularities.

(2). The speed of operation of the surfacing equipment shall be controlled by the mixer operator at forward speeds between 85 and 225 feet per minute depending on conditions and appearance of the newly placed surface.

If transverse rippling occurs the speed of the equipment shall be reduced until the ripples disappear.

(3). The Engineer shall designate either rubber seal/screed or the steel strike off screed according to the Project requirements.

(4). The depth of mixture in the spreader box shall be carefully controlled to prevent transverse ridging and premature setup of material in the corners of the box and ahead of the screed. In general the depth of mixture in the box should be approximately to the mid point of the auger-agitator.

(5). Auxiliary equipment shall be kept in good working order and free of leaks. Any truck or transport used to bring materials on to the street being surfaced that develops leaks either of the material being transported or fuel and/or oil leaks will be removed from the job site and not allowed to return until it has been thoroughly repaired.

Scales and screens used at the contractors stockpile and storage site shall be kept in good working order.

(6). Spills of surfacing materials or fuel, oil or other detrimental substances on the street ahead of the surfacing operation shall be thoroughly removed before the surface is placed. This may required the operation to be shut down until the street has been cleaned.

(7). No excessive streaks shall be left in the finished surface. When such excessive streaking occurs, the operation shall be immediately stopped and corrective action is taken before resuming the operation.

8.6 Joints

(1). Longitudinal joints shall be placed on lane lines. On residential streets an eight-foot parking lane will be assumed with the centerline being the other lane line.

(2). All longitudinal and transverse joints shall be straight and neat in appearance without excessive build up or bare spots. Any irregularity shall be corrected immediately before the material has started to set up.

(3). The overlap at longitudinal joints shall not exceed 4 inches. When the overlapped pass is only partially set care shall be exercised to avoid skid marks. Any skid marks that occur shall be immediately corrected by removing any partially set material that has been displaced and placing fresh mix in the mark and shaping by use of Lutes, squeegees, hand drags, etc.

Overlapping of longitudinal joints shall not leave a visible build up. Any buildup shall be immediately removed by use of lutes, squeegees, hand drags, shovels or other approved means.

8.7 Mix Stability

The modified mixture shall posses sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading; it shall be free of excess water or emulsion and free of segregation of the emulsion and aggregate fines from the coarser aggregate.

8.8 Hand Work

Areas that cannot be reached with the mixing machine shall be surfaced using hand squeegees to provide complete and uniform coverage. The area to be hand-worked shall be lightly dampened prior to mix placement. Care shall be exercised to leave no unsightly appearance from handwork. The same type finish as applied by the spreader box shall be required. Handwork shall be completed during the machine applying process.

8.9 Lines

Care shall be taken to insure straight lines along curbs and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a good appearance.

8.10 Work Force

The contractor shall maintain a work force of adequate size to accomplish the work as specified herein, including the loading and transporting of materials to the job site, the placing of the micro surface, the monitoring of joints and surface and the correction of any deficiencies that occur.

If, at any time, the Engineer or his representative determines that the work force is not adequate to perform all the tasks required for the proper completion of the micro surfacing, work on the project will be halted until adequate personnel are provided and/or modifications in procedure are implemented that will assure proper placement of the surfacing material.

8.11 Scratch or Level up course

A scratch or level up course will be required on certain streets as shown on the plans and/or as directed by the Engineer. This course shall be the same material as the polymer modified surface course and will be placed in the same manner except the spreader shall be equipped with a steel strike off screed. This screed shall be set to run as close to the pavement surface as practical.

The appearance of this course is not as critical as the final surface so long as any marks or blemishes that occur are not of such magnitude that they will affect the appearance of the final course.

8.12 Correction of Deficiencies and Blemishes

After the laydown work is completed and before final acceptance by the

Engineer, spot application of micro- surfacing material may be required to correct any deficiencies such as streaks, scuff marks, tire tracks, gaps, etc. to improve the ride quality and overall appearance. The spot application shall be performed with a full width spreader box when required.

9. QUALITY CONTROL

9.1 Materials

The contractor will permit the Engineer and/or the Independent laboratory to take samples of the aggregate and asphalt emulsion used in the project at the Engineers discretion. Gradation and sand equivalent tests may be run on the aggregate and residual asphalt content tests on the emulsion. Test results will be compared to specifications. Tests will be run at the expense of the owner. The owner must notify the contractor immediately if any test fails to meet the specifications.

9.2 Polymer Modified Micro-Surfacing

Samples of the material may be taken directly from the mixing unit(s). Consistency and residual asphalt content tests may be made on the samples and compared to the specifications. Tests will be run at the expense of the owner. The owner must notify the contractor immediately if any test fails to meet specifications.
The Engineer may use the recorders and measuring facilities of the unit to determine application rates, asphalt emulsion content, mineral filler and additive.

9.3 Non-Compliance

If any two successive tests fail on the stockpile material, the job shall be stopped. It is the responsibility of the contractor, at his own expense, to prove to the Engineer that the conditions have been corrected. If any two successive tests on the mix from the same machine fail, the use of the machine shall be suspended. It will be the responsibility of the contractor, at his own expense, to prove to the Engineer that the problems have been corrected and that the
machine is working properly.

10. CLEAN UP

10.1 Protecting and Cleaning Manholes and Valves

Prior to beginning the sealing operation the contractor shall locate all manhole covers and valve boxes in the area to be sealed. Placing one or

more layers of heavy craft paper or other suitable material over them shall protect manhole covers and valve boxes. The protective covering shall be secured in place so that it does not move or tear during the sealing operation. The contractor shall remove the protective covering and any seal material placed over manhole covers and valve boxes as soon as the seal has set sufficiently to prevent damage to the adjoining seal in the process. The edges around manhole covers and valve boxes shall be neat and smooth and shall conform to the shape and size of the manhole cover or valve box.

10.2 Streets

Clean up along streets shall be accomplished as the work progresses and any excess material that is raked onto or otherwise placed on adjoining concrete curb and gutter, valley gutters or fillet areas or on adjacent asphalt or concrete paving shall be removed before it breaks or sets up.

Before a section of street is opened to traffic all clean up work shall be completed on that section.

11. MEASUREMENT AND PAYMENT

11.1 General

Payment will be made for these items listed in the bid proposal only. All work, materials, labor and appurtenance required to complete the project as shown on the plans or called for in the specifications but not listed in the bid proposal shall be considered as incidental and no separate payment will be made. The cost of these incidentals must be included in the price bid for the various items listed in the bid proposal.

11.2 Measurements

(1). Measurement will be made of the actual number of tons of each type or grade of the Composite Polymer Modified Slurry Seal (Micro-Surface) complete in place. For this specification a ton is considered 2000 lbs. and the composite slurry seal mixture is defined as the asphalt,
aggregate and additives.

All materials shall be weighed on certified public scales or the contractor shall place a set of standard truck scales at a site approved by the Engineer. Scales shall conform to the requirements of the item "Weighing and measuring equipment" Texas Highway Department 1982 Standard Specifications.

(2). Aggregate - The quantity of aggregate used in the accepted portions of the work shall be measured by net ticket weight of each individual load of
aggregate shipped to the project from the approved job site scale.

The weight of mineral additive used shall be calculated and included in the total aggregate weight.

(3). Polymer Modified Asphalt Emulsion. The quantity of polymer modified asphalt emulsion in the accepted portion of the work shall be measured by tons of material based on the accepted load tickets issued from the manufacturer. At the completion of the project any unused emulsion shall be weighed back and that quantity deducted from the accepted asphalt emulsion quantity delivered.

11.3 Payment

Payment will be made for the number of tons of micro surface measured at the applicable unit price bid per ton of micro surface in the bid proposal. This payment shall be full and complete compensation for the complete in place micro surface.

08/07

P.V.C. PIPE CASINGS

1. SCOPE

   This item consists of furnishing and installing PVC pipe for casing for future water and electric lines at locations shown on the plans or as directed by the Engineer.

2. MATERIAL

   Pipe shall be ASTM D 1785 schedule 40 PVC pipe or ASTM D 2241 PVC SDR 32.5 pressure pipe. The ASTM designation and schedule or SDR shall be clearly marked on the outside of the pipe.

3. CONSTRUCTION

   Pipe shall be laid in straight alignment and grade in trenches as narrow as the diameter of the pipe can be laid. Pipe shall be placed after the sub grade is prepared but before base material is placed. Bedding under the pipe shall be a minimum of 2 inches in thickness and shall be carefully graded and leveled before pipe is placed. Joints shall be water tight. They may be solvent cement welded using approved materials, or may be made using a gasketed collars or push on gasketed bell and spigot. When collars are used care shall be exercised to assure that the collar is centered over the joint. All joints shall be made in accord with the manufacturer's recommendations. After pipe has been joined and inspected the pipe shall be encased in bedding/encasement material to a thickness of 3 inches above the pipe. Care shall be exercised to be sure the encasement material is worked in under the haunches of the pipe and compacted along the side of the pipe to assure adequate lateral support. The balance of the trench shall be back filled using cement stabilized backfill consisting of 2 sacks of Portland cement to 1 cubic yard of blow sand or crushed caliche mixed with sufficient water to form a stiff place able mixture that can be consolidated in the trench by rodding or vibrating. The back fill shall be "struck off" at the finished sub grade level using square point shovels or suitable screeds. The ends of the pipe shall be tightly plugged to prevent the entrance of water debris or other foreign material. These plugs shall be PVC or rubber stoppers designed to endure until the water lines and/ or electric lines are places.

4. MEASUREMENT AND PAYMENT

   Casing pipe shall be measured by the linear foot along the center of the pipe and shall be paid for at the unit price in the bid proposal.

WATER LINE SPECIFICATIONS

1. SCOPE OF WORK

The work covered by this section consists of all water pipe lines and piping, including valves, valve boxes, tapping sleeves, fire hydrants and other accessories, required to complete the project. The contractor shall furnish all materials, labor, superintendence, tools, equipment and incidentals necessary for the complete construction of this work in accordance with the drawings and these specifications.

2. PIPE AND MATERIAL

2.1 General

Pipe shall be polyvinyl chloride (PVC) AWWA C900, ductile iron AWWA C-151 or steel cylinder concrete pipe AWWA C-303.

2.2 Polyvinyl Chloride (PVC) Pipe

A. PVC pipe furnished for use on this project shall conform to the requirements of AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. through 12 in., for water distribution pressure class 150, DR18. and shall be NSF approved for potable water supply.

B. The pipe furnished shall have an integral bell designed for joint assembly using elastomeric seals.

C. Markings for the pipe shall include all the requirements of AWWA C900 and the MSF approval stamp.

D. Elastomeric seals shall be furnished by the pipe manufacturer. Seals shall be manufactured to conform with the requirements of ASTM F4 77 and shall be specifically designed for use with the pipe furnished.

E. Lubricants intended for use with PVC pipe and seals (gaskets) shall be compatible with both PVC and the seal material. Lubricant shall not support growth of bacteria and shall not adversely affect the potable quality of the water that is to be transported.

F. Pipe laying lengths shall be 20'.

G. Service taps on PVC water lines shall be made using hinged type or double strap type saddles. Tapping saddles shall support the full circumference of the pipe and shall have a bearing area of sufficient width along the axis of the pipe to prevent distortion of the pipe when saddle is tightened.

No direct taps into the wall of PVC pipe will be permitted.

Seals for tapping saddles shall be recessed into the body of the saddle and shall be

a rubber - compound conforming to the requirements of ASTM F477.

Tapping saddles shall be SMITH-BLAIR Taper Seal Style 313 or DMD Dresser style 194 or approved equal.

H. Tapped connections for water mains and fire lines made on PVC water mains shall be accomplished using full bodied ductile iron tapping sleeves of a pressure rating equal to or greater than the pressure rating of the pipe specified.

I. Bedding for AWWA C900 PVC water pipe shall extend from a minimum depth of 4 inches below the outside of the water line to a minimum cover of 6 inches over the top outside of the water line.

J. AWWA C900 PVC water pipe shall be installed in accord with the applicable requirements for installing ductile iron pipe.

Care shall be taken to install each joint of PVC water pipe to, but not beyond the factory insertion mark on the pipe.

When a joint of PVC water pipe must be cut, the end of the pipe shall be carefully beveled to match the factory bevel on the uncut pipe. An insertion mark matching the factory insertion mark on the uncut pipe must be made before the pipe is inserted into the bell.

When PVC water pipe is to be inserted into a ductile iron fitting or valve, the factory bevel must be removed to form a square plain end pipe.

2.2 (a) Metallic Marking Tape (For PVC Water Pipe)

2.2(a).1 General

When non-metallic pipelines are to be installed, then the Contractor shall furnish and lay, above the pipeline, a continuous strip of metallic identification tape.

2.2 (a).2 Tape Material

The metallic identification tape shall be at least two inches (2”) in width and shall be of corrosive resistant metal of sufficient thickness to be stable and reflect electronic signals to electronic pipeline detector when buried to a dept of twenty-four (24”) below normal ground level.

The metallic tape shall be painted blue on one side and shall have 1-inch high letters painted continuously on the same side of the tape which read, “CAUTION: BURIED WATER LINE BELOW” or other words to this effect.

The marking tape shall be “Detectable Warning Tape”, as manufactured by the Omega Marking Company, or equal approved by the Engineer.

2.2(a).3 Construction Methods

The Contractor shall backfill over non-metallic pipelines to a depth which is less than twenty-four (24”) and not more than twelve inches (12) from the top of the cut of the ditch section in which the pipeline is laid. Contractor shall stop the backfilling material to a generally uniform level. All machine tamping, jetting and other compaction activities shall be accomplished up to this point of height in the backfilling the marking tape is placed in the trench.

The Contractor shall then lay the marking tape in the pipe trench and shall be held in position by the spot placement of backfill materials over it to keep it from sliding t the sides and/or from being blown about in the ditch by the wind. The tape shall be lid with the painted side, which shall also be the side with the identification lettering on it, in the “up” position. The tape shall be laid in the flat position and kept there until backfill is accomplished.

The Contractor shall then complete the backfilling operation in such a manner that the marking tape is not cut, crimped, ruptured or separated by the backfilling work.

2.2(a).4 Measurement and Payment

No separate pay item will be provided for furnish and placing the marking tape. This item shall be considered subsidiary to the non-metallic pipe being placed.

2.3 Ductile Iron Pipe

A. All ductile iron pipe used in the construction of water works improvements shall be Cement Lined and shall be manufactured in accordance with and shall meet the requirements of AWWA Specification C-l5l.

B. Pipe shall be cast in lengths of not less than l2 feet and shall be designed for a working pressure of l50 pounds per square inch. Thickness of ductile iron pipe shall be as shown on the plans and bid proposal or shall be computed in accordance with AWWA Specification C-l50, based on l50 pounds per square inch working pressure for 10 feet of cover and laying condition 2.

C. All ductile iron pipe shall have an exterior, bituminous coating and an inside cement-mortar lining in accordance with the requirements of AWWA Specification C-l04.

2.4 Polyethylene Plastic Tubing

Service lines shall be constructed with polyethylene plastic tubing as specified in ASTM D 2737 with a rating of l60 psi.

2.5 Ductile Iron Pipe Fittings

All fittings for ductile iron pipe and PVC pipe shall be ductile iron and shall be mechanical joint all connections except tees for fire hydrant leads unless shown otherwise on the plans. Tees for connecting fire hydrant leads shall be MJ- with a flange outlet.

All ductile iron fittings shall conform to AWWA Specification C-110, designed for a working pressure of 250 psi. All ductile iron fittings shall have an external coating and shall be cement lined in accordance with the specifications for coating and lining the pipe.

2.6 Pretensioned Concrete Cylinder Pipe

A. The contractor shall furnish and install all concrete cylinder pipe and fittings, including connections and appurtenances complete as shown on the plans and specified herein.

B. The contractor shall submit six (6) sets of full and complete shop drawings on the concrete cylinder pipe and fittings. All of the drawings and data shall be complete and shall include a complete description of the pipe offered, including cuts, tabulated layout and all pertinent engineering data required for a complete evaluation of the submittal. Submittal data shall be in such form and so presented that the Engineer may readily review the data.

C. Prior to delivery of the pipe to the project site, the manufacturer shall furnish an affidavit certifying that all pipe, fittings, and specials, and other products and materials furnished, comply with the applicable provisions of this specification.

D. The pipe manufacturer shall furnish a factory trained, job experienced field representative who shall visit the project periodically during the course of installation. He shall also be subject to call by the contractor and/or engineer to advise and assist with the solution of field problems.

During visits, the representative shall observe all phases of the project including location and condition of pipe strung ahead of the contractor, trench width, if applicable, bedding and backfill, assembly of pipe joints and protection of steel. If, in the opinion of the representative any phase of the installation is unsatisfactory, he shall so advise the contractor's superintendent and also advise the owner or engineer's representative on the job site.

E. All closure sections shall be the jack on type and "field welding" will not be permitted without the written permission of the engineer.

F. Pipe manufacturer will install all necessary taps for the contractor to disinfect and field hydrostatic test the pipe.

G. Pretensioned concrete cylinder pipe, fittings and specials shall be designed, fabricated and tested in accordance with the latest requirements of AWWA C-303, "Reinforced Concrete Pressure Pipe Steel Cylinder Type, Pretensioned, for Water and Other Liquids" with additional requirements or modifications as described herein.

H. Pretensioned concrete cylinder pressure pipe shall be designed for l50 psi, working pressure and manufactured in 32 foot nominal lengths in accordance with the provisions of AWWA Standard C-303.

I. Inspection and Testing

(1) The owner reserves the option to have an independent testing laboratory, at the owner's expense, inspect pipe and fittings at the pipe manufacturer's plant to ensure compliance with the applicable specifications. The owner's testing laboratory and Engineer shall have free access to those parts of the manufacturer's plant that are necessary to ensure compliance with the governing standard. The pipe manufacturer shall notify the owner, in writing, at least two weeks ahead of pipe fabrication as to start of fabrication and fabricating schedule so that the owner can advise the manufacturer as to owners' decision regarding tests to be performed by an independent testing laboratory. In event the owner elects to retain an independent testing laboratory to make material tests and weld test, it is the intent that the tests be limited to one spot testing of each category unless the tests do not show compliance with the standard. If these tests do not show compliance, the owner reserves the right to have the laboratory make additional tests and observations to ensure compliance of the finished product with the standard.

(2) In any event, the manufacturer shall perform the tests described in AWWA C 303, and furnish the owner with a copy of the test reports, if requested, at the expense of the pipe manufacturer. The pipe manufacturer shall furnish the owner with affidavit of compliance as outlined in the standard.

(3) All welds for water tightness in special pipe and fittings that have not been hydrostatically tested may be examined by use of visible dye penetrant system meeting requirement of ASTM El65; however, collar reinforcement and all other lap welds shall be tested by introducing air under l0 psi pressure between the collar and cylinder and checking for leaks around and through the welds with soap solution.

The area to receive the dye penetrant shall be cleaned free from contaminants that might interfere with the penetrant process. The temperature of the steel in the weld area shall be between 60 and l25 degrees F. when the penetrant is applied. Dwell time of six hours shall be allowed after application of the penetrant and developer before interpreting the results.

Defects that are found shall be repaired and the test repeated until all defects

are eliminated. Colored penetrant shall be removed before fittings are lined.

2.7 Casing Pipe

Casing pipe to be installed in bore or open cut may be limited service pipe, corrugated galvanized steel pipe or new straight seam or spiral welded steel pipe. Casing pipe shall be furnished in thickness or gage as shown on the plans.

Limited service pipe proposed for use on this project must be approved a minimum of four (4) working days prior to the time of opening bids and shall be in good condition and shall meet the same service requirements as the corrugated galvanized steel or welded steel pipe.

Welded steel casing pipe shall be coated inside and out using a coal tar epoxy or shall be bituminous coated in side and out by the hot dip method.

2.8 Bedding Materials

A. All water pipelines placed on this project shall be bedded with crushed stone bedding materials to the minimum as shown on the plans and in the Detail Drawings.

B. Granular material furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified, shall consist of any natural or synthetic mineral aggregate such as, crushed gravel, crushed rock, crushed stone, or slag, and shall conform to the following specifications and/or gradation.

Note, all materials used for these purposes shall be crushed and shall have at least two broken faces. Pea gravel will NOT be allowed.

	Foundation	Bedding	Encasement	Backfill
ASTM c33 Grade #57	X			
ASTM C33 Grade #67	X			
ASTM C33 Grade #8		X	X	
THD 1982 ITEM 302 Type "D" Grade #4		X	X	
THD 1982 Item 302 Type "D" Grade #5			X	
Crusher Fines**			*X	X

* 100 percent of crusher fines that are to be used within 12 inches of the top of pipe must pass the 3/4" sieve.

** Approximate Gradation for Crusher Fines

Sieve Size	% Passing
2 inch	100
#4	35 - 100
#10	20 - 100
#40	5 - 35
#200	4 - 10

Crushed stone material proposed as an alternate for use on this project and not meeting the above specifications must be approved in writing at least 48 hours prior to the time scheduled for opening bids.

C. Granular materials provided for Foundation, Bedding, Encasement, or backfill use as required by the contract, either as part of the pipe item work unit or as a separate contract item, shall be classified as to use in accordance with the following:

MATERIAL USE DESIGNATION	ZONE DESIGNATION
Granular Foundation	Placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support.
Granular Bedding	Placed below the midpoint of the pipe prior to pipe installation, to facilitate proper shaping and achieve uniform pipe support. Also for Class B Bedding where specified.
Granular Encasement	Placed below an elevation one half (6") foot above the top of pipe, after pipe installation, for protection of the pipe and to assure proper filling of voids and thorough consolidation of backfill.
Granular Backfill	Placed below the surface base course, if any, as the second stage of backfill, to minimize trench settlement and provide support for surface improvements.

In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

3. **VALVES AND VALVE BOXES**

3.1 General

A. Valves 4" through l2" shall be resilient seated gate valves with non-rising stems and shall open by turning to the left (counter clock wise).

B. Valves l4" and larger shall be resilient seated butterfly valves and have operators suitable for direct burial and shall open by turning to the left (counter clock wise).

All valves except valves for use in fire hydrant leads shall have mechanical joint ends unless shown otherwise on the plans. Valves for use in fire hydrant leads shall be flange by mechanical joint.

C. All valves and fire hydrants shall be spray coated with a two component thermal setting epoxy to cover all interior wetted ferrous surfaces. Finished coating shall have a minimum thickness of 4 mils. The coating shall conform to the coating section of these specifications.

D. All valves for buried service shall be equipped with 2" square AWWA operating nuts.

3.2 Gate Valves

A. Gate valves shall be iron body, resilient **wedge gate** and shall be in compliance with AWWA Standard C-509-80 or latest revision thereof and shall have the following design features:

B. All valves shall have a working pressure of 200 psi and shall be bottle tight tested at this pressure from both directions. The gate body shall also be hydrostatically tested at 400 psi. Zero leakage will be required in all tests. The body, bonnet, and stuffing box shall be flange together with ASTM A-307 Grade B bolts and nuts to insure repairability.

C. Stems shall be machined from modified manganese bronze rod with an integral forged thrust collar machined to size.

D. Stem seals shall be dual "O" ring type.

E. Valve discs shall be rubber encapsulated or have disc seat rings molded of natural rubber, internally steel reinforced retained to the disc by self-locking type 304 stainless steel screws. Valve gates shall seat against a machined epoxy coated mating surface in the body of the valve.

F. All internal ferrous metal surfaces (machined or cast) shall be factory spray coated with a two component thermosetting epoxy to a nominal thickness of 4 mils and the exterior shall be coated with asphalt varnish as specified for coating of the pipe. (See Sec. 3.4 of these specifications for epoxy coating).

G. Valves shall be Mueller A-**2360** or Dresser-M&H **4067** or approved equal. Any alternate (approved equal) to these specifications **shall have completely interchangeable parts with either of the specified valves.**

3.3 Butterfly Valves

A. General - All butterfly valves shall be of the rubber seated tight-closing type. They shall meet or exceed AWWA Standard C-504, Class l50B. Both valve ends shall be mechanical-joint per AWWA Standard C-lll. Accessories (bolts, glands, and gaskets) shall be supplied by the valve manufacturer.

B. All valves must use full AWWA C-504 Class l50 B valve shaft diameter, and full Class l50 B underground service operator torque rating throughout entire travel, to provide capability for operation in emergency service.

C. Valve body shall be high strength cast iron ASTM A 126 Class B with l8-8 type 304 stainless steel body seat. Valve vane shall be high strength cast iron ASTM A 48 Class 40 or ASTM A 536, Grade 65-45-l2 ductile iron having rubber seat mechanically secured with an integral l8-8 stainless steel clamp ring and l8-8 stainless steel self locking screws.

D. Rubber seat shall be a full circle 360^{o} seat not penetrated by the valve shaft. Valve shall have permanently set two way thrust bearing. Packing shall be designed for permanent duty in underground service.

E. Valve operator shall be of the traveling nut type, sealed, gasketed and lubricated for underground service. It shall be capable of withstanding an overload input torque of 450 ft. lbs. at full open or closed position without damage to the valve or valve operator. It shall be designed to resist submergence in water to 25 ft. head pressure. Number of turns to operate valve shall be as listed below in order to closely resemble conventional distribution valve practices and to minimize water hammer:

Pipe and Valve Size	Turns to close	Pipe and Valve Size	Turns to Close
4" - 6"	16-1/2	14" - 16"	48"
8"	24	18" - 20"	72
10" - 12"	36	24"	90

F. Valves shall be capable of easy closure by one man using standard valve key, even under emergency line-break conditions as severe as those that would - cause a valve maximum opening torque requirement of as much as two times AWWA Class l50 B.

G. All valves shall be tested bottle-tight at rated working pressure by the manufacturer as follows:

l4" up. . . . . l50 psi

In addition a hydrostatic test with vane partially open shall be given to the assembled valve as follow:

l4" up. . . . . 300 psi

H. Valve shafts shall be l8-8 type 304 stainless steel. Shaft bearings shall be of the self lubricating sleeve type.

I. Valve discs or vanes for valves 30" and larger shall be the flow through (bridge or truss) type.

J. Butterfly valves shall be Dresser-M&H Model "450", "4500" or "l450" or Mueller line seal III or approved equal. Alternates (approved equal) to these specifications must be approved in writing 48 hours prior to time bids are received.

3.4 Coating

A. The coating shall be a two part thermosetting epoxy protective coating and shall function as a physical, chemical and electrical barrier between the base metal to which it is applied and the surroundings.

B. The coating shall be non-toxic and shall not impart taste to water. The coating must be formulated from materials deemed acceptable per the FOOD AND DRUG ADMINISTRATION DOCUMENT TITLE 2l of the FEDERAL REGULATIONS ON FOOD ADDITIVES SECTION l2l.25l4 entitled, RESINS AND POLYMERIC COATINGS.

C. The coating shall have a satin finish and shall be suitable for field over coating and touchup with same coating material without sanding or special surface preparation, or application of heat in excess of room temperature.

D. The coating shall have a successful record of performance in valves, pipe or other allied equipment for a minimum of two years.

E. The coating adhesion to the substrate shall exceed cohesion of the coating film as demonstrated by the following test:

(1) Prepare test panel and apply coating per manufacturer's recommendation.

(2) After sample has properly cured per manufacturer's recommendation, scribe an "X" using a sharp knife or scalpel through the coating to the metal substrate.

(3) Then with the point of the knife at the juncture of two scribes, attempt to lift off coating. Coating should not lift off substrate or between coats readily, but should break up leaving coating material on the substrate of this damaged area.

(4) No disbandment of the film shall be noted as tested above after immersion in tap water for l500 hours at l00`F.

F. A falling sand abrasion test using ASTM D968 shall produce an abrasion coefficient of 25-30 liters/mil. As an alternative, a Taber Abrader Test should find 3.5 - 3.7 milligrams coating loss per l00 cycles when using a CSF l0 Wheel (l000 gram weight).

3.5 Valve Boxes

All valves to be used in buried service shall be enclosed in cast iron valve boxes. Care shall be taken to place and maintain the 2" square operating nut in the center of the valve box. The valve box shall be two piece cast iron suitable for use with PVC pipe box risers. The 6 inch diameter cover shall be marked " Water". The PVC riser pipe shall be furnished in lengths as required (minimum pipe cover 42") PVC pipe for valve box riser may be ASTM C-900, ASTM D1785 schedule 40, ASTM D2241 pressure class 125 or ASTM D3034 DR 35. Valve boxes shall have a concrete ring 8" thick and having a radius equal to the radius of the valve box plus one foot (1') cast around them. Valve boxes placed in unpaved areas shall be set level with or slightly higher than the finished ground elevation. Valve boxes set in paved areas shall match the finished pavement surface.

3.6 Fire Hydrants

A. Fire hydrants shall conform to the requirements of AWWA C 502 dry barrel type. The fire hydrants shall be designed for a depth of bury of 4.5 feet, however the depth of bury may vary according to field conditions and extensions or shorter bury depth may be required.

B. The hydrants shall have a 5-l/4 inch valve opening, two 2-l/2 inch hose nozzles and one 4-l/2 inch pumper nozzle.

C. Hose threads shall be National Standard threads.

D. The hydrants shall be sized for 6-inch mains and shall have an inlet connection compatible with the type pipe used. All gaskets, nuts, bolts and other jointing materials shall be considered part of the fire hydrant installation.

E. Operating nut shall be standard l-l/2 inch pentagon opening counter-clockwise. The hydrant shall close with the pressure.

F. Hydrants shall be painted Federal Safety Yellow.

G. Fire hydrants shall have all interior wetted ferrous surfaces epoxy coated as required in the general and coating section of this item.

H. The hydrants shall have a minimum of two (2) drain holes located on opposite sides of the hydrant. The entire drainage channel must be made of non-corrosive material and sealed by acceptable resilient material (metal and/or leather seals are not acceptable).

I. The hydrants shall have a breakable safety flange and breakable stem coupling which breaks cleanly upon impact.

J. The hydrants shall be AWWA improved type hydrants and shall have self-oiling reservoirs.

K. Fire hydrants shall be the Mueller Centurion, the Dresser -M & H 929 Reliant, or The American Darling.

4. EXCAVATION, TRENCHING BEDDING AND BACKFILLING

4.l Trenching

A. The trench shall be excavated to the lines and grades as established by the engineer and as shown on the plans. The depth of cover for all main lines on which the grades and elevations are not shown on the plans, shall in general be Forty-two (42) inches. The amount of cover may vary over or under 42 inches as directed by the engineer but in no case will the amount of cover be less than thirty-six (36) inches. Depth of cover for service lines shall be as shown on the detail drawings.

B. Water lines constructed in proposed streets and service drives shall have the depth of cover measured from the finished grade. The contractor is hereby cautioned that proposed street finished grades are sometimes cut below the existing ground elevation.

C. The minimum width of the trench shall be the outside diameter of the pipe plus twelve (l2) inches for pipe diameter through l8", the outside diameter of the pipe plus eighteen (l8) inches for pipe diameters over l8". The trenching equipment shall be maintained on a sufficiently level road bed to provide substantially vertical trench walls. The maximum horizontal offset of the trench wall from bottom of trench to the top of the trench (under-cutting) shall be four (4) inches.

D. The trench shall be over excavated to an even grade to the depth of required bedding so that the bottom of the pipe will rest on a uniform thickness of bedding material on the bottom of trench throughout the entire length of the pipe. In order to obtain a true even grade, the bedding material shall be fine graded by hand. On lines that are to be laid to established grades batter boards shall be set at fifty foot intervals and the trench graded to the established grade.

E. Any part of the trench excavated below grade shall be corrected by filling with bedding material. The bedding material shall be thoroughly compacted.

E. If large rock, rock fragments or other unyielding materials are encountered in the bottom of the trench they shall be removed to a depth of six inches below grade, and the void filled with thoroughly compacted approved bedding material.

G. Bell holes of ample dimensions shall be dug at each joint to permit the jointing of pipe to be made properly and of sufficient depth to prevent the bell of the pipe from resting on undisturbed materials.

H. Wherever necessary to prevent caving, the trench shall be adequately braced and sheeted. Trench safety shall be in accordance with item l4 "Shoring and Sheeting of this specification.

I. Trench digging machinery may be used to make the trench excavations except in places where operation of same would cause damages to trees, buildings or other existing structures either above or below ground. In such instances hand trenching methods shall be employed.

J. All excavated material shall be stockpiled in a manner that will not endanger the work or existing structures and that will cause the least amount of obstructions to walks and driveways.

K. There will be no classification of the excavated materials and the term excavation shall include all materials encountered in excavating the trenches or structural excavations.

L. The contractor shall take all necessary precautions for protecting paved areas from being damaged by the trenching and backfilling equipment. Any damage done to any paved area, outside of the area set forth in the plans, as a result of the construction work shall be repaired by the contractor at his own expense.

M. Where the lines are located behind curbs, the contractor shall take special precautions to protect trees and shrubs. Care shall be exercised to cause as little damage to lawns as possible.

Where lines cross under curbs, gutters or curbs and gutters, tunneling will be required.

N. Blasting for excavation of solid rock will be permitted only after securing the

approval of the Director of Engineering and Transportation and the engineer and only when proper precautions are taken for protection of persons and property. The hours of blasting will be fixed by the engineer. Any damage caused by blasting shall be paid for by the contractor. The method or procedure relative to blasting shall conform to all state laws and local ordinances.

O. The contractor will be required to locate all known utility lines, including consumer service lines, far enough in advance of the trenching to make proper provisions for protecting the lines and to allow for any deviations that may be required from the established lines and grades.

P. The contractor shall not be allowed to disrupt the service on any utility lines except consumers service lines, which may be taken out of service for short periods of time, if the contractor obtains permission from the engineer and from the owner of the premises being served by the utility.

Q. The contractor shall immediately notify the proper utility company of any damage to utility lines, in order that service may be reestablished with the least possible delay. Repair of any damage to existing lines and the repair of consumer lines which are authorized to be cut or temporarily taken out of service shall be made by the contractor at his own expense, and as directed by an official representative of the utility company involved.

R. All utility lines shall be properly supported to prevent settlement or damage to the line both during and after construction.

S. Any permanent relocations of existing utility lines shall be done by the proper utility company without expense to the contractor.

4.2 Backfill General

A. All pipeline excavations shall be backfilled in a manner that will restore pre-existing conditions as the minimum requirement and fulfill all supplementary requirements indicated in the Plans and Specifications. The backfilling operations shall be started as soon as conditions will permit on each section of pipeline to provide continuity in subsequent operations and restore normal public service as soon as practicable on a section-by- section basis. All operations shall be pursued diligently, with proper and adequate equipment, to assure acceptable results.

B. Depositing of the backfill shall be done so the shock of falling material will not injure the structure. Grading over and around all parts of the work shall be done as directed by the Engineer.

C. Whenever soil types which are determined by the Inspector to be undesirable for backfill are excavated from the trench, such material shall be hauled away and deposited where directed by the Inspector at no additional compensation.

D. In the absence of special work item requirements the backfilling shall be accomplished with the use of suitable materials selected from the excavated

materials to the extent available and practical. Should the materials available from the trench section be unsuitable or insufficient, the required additional materials shall be furnished from outside sources at the Owners expense.

E. Suitable material shall be defined as a mineral soil reasonable free of foreign materials (rubbish, debris, etc.) frozen clumps, oversize stone, rock, concrete or bituminous chunks and other unsuitable materials, that may damage the pipe installation, prevent thorough compaction, or increase the risks of after settlement unnecessarily. Material selection shall be such as to make the best and fullest utilization of what is available, taking into consideration particular needs of different backfill zones. Material containing stone, rock, or chunks of any sort shall only be utilized where and to the extent there will be no detrimental effects.

F. Backfill materials shall be carefully placed in relatively uniform depth layers spread over the full width and length of the trench section in a manner and/or sequence that will provide simultaneous support on both sides of the pipeline. Each layer shall be compacted effectively, by approved mechanical of hand methods, until there is no further visual evidence of increased consolidation. Compaction of the in place layer shall be completed acceptably before placing material for a succeeding layer thereon. The manner of placement, layer thickness, compaction equipment, and procedure effectiveness shall be subject to approval of the Engineer. Water jetting or flooding shall NOT be used to compact trench backfill.

G. Within the pipe bedding and encasement zones described as that portion of the trench which is below an elevation one foot above the top of the pipe, the materials placed shall be limited in particular size to 3/4 inch maximum. For larger pipe in access of 18 inches in diameter the Engineer may allow particle sizes up to 2 inches maximum if it can be shown that the backfill can be satisfactorily compacted without leaving voids or damaging pipe or joints. Above these zones, the placement of material containing stones, boulders, chunks, etc. shall be governed by the layer thickness and compaction equipment capabilities.

H. Compaction of materials placed within the pipe bedding and encasement zones shall be accomplished with portable or hand equipment methods to achieve thorough consolidation under and around the pipe and avoid damage to the pipe. Above the pipe zone material, the use of heavy roller type compaction equipment shall be limited to safe pipe loading.

I. The maximum loose thickness of each backfill layer shall be l2 inches, except that l6 inches will be permitted for Granular Materials placed above an elevation one foot above the top of pipe, and with the provision that, by authority of the Engineer in consideration of the demonstrated capability of special type vibratory compactors, these maximums may be increased at his discretion. "Hydro tamps" or "vibra tamp: or other heavy vibrating equipment shall not be used until the backfill has reached a depth of four (4) feet above the top of the pipe.

J. All surplus or waste materials remaining after completion of the backfilling operations shall be disposed of in an acceptable manner within 24 hours after

completing the backfill work on each particular pipeline section. Disposal at any location within the project limits shall be as specified, or as approved by the Engineer; otherwise, disposal shall be accomplished outside the project limits at the Contractor's discretion. The backfilling and surplus or waste disposal operations shall be a part of the work required under the pipeline installation items, not as work that may be delayed until final cleanup.

K. Until final acceptance of the project, the Contractor shall assume full Responsibility and expense for all backfill settlement and shall refill and restore the work as directed to maintain an acceptable surface condition. All additional materials required shall be furnished without additional cost to the Owner.

4.3 Backfill Procedure above Pipe Zone, in Public Rights-of-way and other areas where settlement is important.

A. Backfill above the pipe zone shall be made using Portland cement stabilized backfill or crushed stone screening (crusher fines).

B. Backfill around structures such as manholes, junction boxes, transformer boxes and valve boxes shall be made using portland cement stabilized backfill material or crushed stone screening (crusher fines).

C. The minimum depth of stabilized backfill or crusher fines shall be twelve (12") inches.

When utilities are being constructed under existing paving, the stabilized backfill or crusher fines shall extend from top of the pipe zone to the top of the base course.

When utilities are being constructed under existing unpaved streets that are not scheduled for immediate pavement construction, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the existing roadway surface.

When utilities are being constructed in new streets that are scheduled for immediate paving or in streets in a new subdivision for which a paving contract with the property developer has been approved the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the bottom edge of the eight (8") inches of subgrade, or, if the paving contractor has constructed a portion of the roadway prior to the construction of the utilities stabilized backfill shall extend to the top of the course the contractor has finished. In no case shall the backfill extend above the top of the base course.

If the final course of asphaltic concrete has been placed, the street or alley surface shall **NOT** be cut for utility installation.

In new streets where stabilized backfill is required only to the bottom of the subgrade course, the minimum depth of stabilized backfill may be reduced to six (6") inches in which case the maximum depth of the "pipe zone" shall be limited to six (6") inches above the top of the utility line or conduit.

D. Backfill Materials

(1) Portland cement stabilized backfill shall consist of caliche base material, blow sand or native soil stabilized by the addition of Portland cement. Crushed stone or concrete aggregate shall **NOT** be used.

The Contractor shall submit a mix design prepared by an approved Commercial Laboratory that will produce a minimum 7 day compressive strength of 150 psi. In no case shall the minimum cement content of the mix be less than 1 sack per cubic yard.

(2) Cement used in Portland cement stabilized backfill shall be Type I or Type II conforming to the requirements of ASTM Designation C150.

(3) Caliche used for Portland cement stabilized backfill shall be crushed material con-forming to Texas State Department of Highways and Transportation 1982Standard Specifications for Construction of Highways, Streets and Bridges Item 248 Type F, Grade 2.

(4) Blow sand used for Portland cement stabilized backfill shall be clean, free from organic matter, clay lumps, rock and other deleterious matter.

(5) Native soil used for Portland cement stabilized backfill shall be clean, free from clods and organic matter, and rock in excess of 2".

(6) Crushed stone screening (crusher fines) used for back fill shall be sharp grained particles of crushed stone conforming to the following gradation

Sieve Size	% Passing
2"	100
#4	35-100
#10	20-100
#40	5-35
#200	4-10

and may be the by product of crushing stone for other purposes or may be stone specifically crushed for use in backfill. Crusher fines not meeting these specifications may be approved for backfill upon demonstration that the desired results will be obtained.

E. Backfill Construction

(1) Portland cement stabilized caliche backfill or Portland cement stabilized native soil backfill may be constructed using either the "dry" method or the "wet" method.

(a) The dry method of stabilized backfill construction consists of dry mixing of the cement and caliche, sand or soil to produce a homogenous mixture then adding and mixing sufficient water for proper compaction and hydration of the cement. The water content of the mixture will be approximately one to two percent above the optimum moisture for soil compaction. The mixing may be accomplished by using batch mixers or on the job site by "blade Mixing" or other suitable method to produce the desired backfill material. The mixed material shall be placed in lifts of up to a maximum of 12 inches and compacted to ninety five (95%) modified proctor density by use of suitable compacting equipment.

(b) In the "wet" method of cement stabilized backfill construction, the materials shall be mixed in an approved concrete batching plant or mixer to the consistency of concrete and placed as concrete would be placed. The slump of the backfill material shall be such that all voids will be filled, approximately four (4") to six (6") inches. The backfill shall be consolidated by rodding or by the use of mechanical vibrators.

(c) The mix design used must be for the method of placement chosen.

(2) Portland cement stabilized blow sand backfill shall be mixed and placed by the "wet" method as described above.

(3) Crushed stone screening (crusher fines) shall be wetted uniformly throughout with sufficient moisture to assure proper compaction before being placed in the trench.

The moistened crushed stone screening (crusher fines) shall be placed in maximum lifts of twelve (12") inches and consolidated using vibratory type compaction equipment except when it has been demonstrated that the compaction equipment employed will adequately compact deeper lifts in which case the maximum depth of a lift shall be limited by the capabilities of the equipment used.

Tests to determine the compacted density of the backfill shall be ordered by the Engineer if in his opinion the compaction is not adequate. Test showing a minimum compacted density of 90% modified proctor will be deemed adequate compaction.

5. INSTALLATION OF DUCTILE IRON PIPE

5.1 Pipe Laying - General

A. All pipe and accessories shall be unloaded, handled, laid, jointed, tested for defects and for leakage and chlorinated in the manner herein specified.

B. The pipe, fittings, valves, and accessories shall be inspected upon delivery and during the progress of the work and any material found to be defective will be rejected by the engineer and the contractor shall remove such defective material from the site of the work.

C. The contractor shall be responsible for all material furnished by him and he shall replace at his own expense all such material that is found to be defective in manufacturer or has become damaged in handling after delivery.

D. All pipe, fittings, valves, and other accessories shall, unless otherwise directed, be unloaded at the point of delivery, hauled to and distributed at the site of the work by the contractor. Loading and unloading, of pipe and fittings shall be by hoisting or by sliding, or rolling on skidways in such a manner as to avoid shock or damage to the material. Under no circumstances shall pipe or fittings be dropped. Pipe handled on skidways must not be skidded or rolled against pipe already on the ground.

The pipe, fittings and accessories shall be placed along the site in such a manner as to be kept as free as possible from dirt, sand, mud, and other foreign matter.

E. All pipe shall be laid and maintained to the lines and grades shown on the plans
or as established on the ground by the engineer.

F. Wherever it is necessary to deflect pipe from a straight line either in a vertical or horizontal plane to avoid obstructions, to plumb valves and hydrants, or where vertical or horizontal curves are shown or permitted, the degree of deflection at each joint shall not exceed the maximum deflection recommended by the manufacturer of the particular kind of pipe being laid and the degree of deflection shall be approved by the engineer.

G. After the trench grade has been completed and all bell holes dug and the grade inspected, the pipes and accessories my be placed in the trench. All pipe, fittings, valves, and hydrants shall be carefully lowered into the trench piece by piece by means of derricks, ropes, or other suitable tools or equipment, in such a manner as to prevent damage to the material in any way. Under no circumstances shall pipe or accessories be dropped or dumped in the trench.

H. Before lowering into trench the pipe shall be again inspected for defects and the pipe while suspended shall be lightly hammered to detect cracks. Any defective, damaged or unsound pipe and materials shall be rejected.

I. All foreign matter or dirt shall be removed from the inside of the pipe and from all bells, spigots or parts of the pipe used in forming the joint, before the pipe is lowered into the trench, and it shall be kept clean by approved means during and after laying.

5.2 Laying and Jointing Ductile Iron Pipe

A. Unless otherwise directed, pipe shall be laid with bells facing in direction of laying; and for lines on appreciable slopes, bells shall, at the discretion of the engineer, face up grade. Cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or the cement lining.

B. The jointing shall be completed for all pipe laid each day. No open joints will be left in the trench overnight. At times when pipe laying is not in progress, the open ends of pipe shall be closed by approved means. No trench water shall be permitted to enter the pipe.

C. No pipe shall be laid in water, or when the trench conditions or weather is unsuitable for such work, except by written permission of the engineer.

D. Rubber Gasket joints for cast iron or ductile iron pressure pipe and fittings shall conform to AWWA Standard C-lll.

E. Before laying the pipes, all lumps, blisters and excess coal tar coating shall be removed from the bell and spigot ends of each pipe; the outside of the spigot and the inside of the bell shall be wire brushed and wiped clean and dry. Pipe ends shall be kept clean until joints are made.

F. The pipe and fittings shall be properly aligned and free to move in any direction while bolting, and the bolts shall be gradually tightened at a uniform rate around the entire flange.

G. Flange joints where used shall be bolted with flange bolts of best quality mild steel and of the size and length required by AWWA C-ll5: Bolts and nuts shall be provided with standard hexagonal heads. Gasket rings shall be used and shall be made of best quality rubber composition sheet packing one-eighth (l/8) inch thick, of a brand and quality approved by the engineer.

H. Standard plugs shall be inserted into the bells of all dead end pipes, tees, or crosses and spigot ends shall be capped. Plugs or caps shall be jointed to the pipe or fittings in the same manner used in joining the pipe.

6. SPECIFICATIONS FOR INSTALLING PRETENSIONED CONCRETE CYLINDER PIPE

6.l General

The applicable portions of the specifications for installing ductile iron pipe shall apply except as amended or supplemented herein.

6.2 Pipe Laying

A. Pipe and fittings shall be handled with care at all times to avoid damage. They shall be lifted by hoists or slide or rolled on skid-ways in such manner as to avoid shock. Under no circumstances shall they be dropped. Pipe must not be skidded or rolled against other pipe or object.

B. Just before making the joint, the bell and spigot rings shall be thoroughly cleaned by wire-brushing until clean and dry. The gasket and the inside surface of the bell shall be lubricated with a light film or soft vegetable soap compound (flax soap) to facilitate telescoping the joint. The rubber gasket shall be stretched uniformly as it is placed in the spigot groove to insure a uniform volume of rubber around the circumference of the groove.

C. The joint shall be telescoped by pulling directly along the centerline of the pipe so that the spigot enters squarely into the bell. After the spigot has been telescoped into the bell, the bell end of the pipe being laid shall be moved in accordance with the plans to secure proper grade and alignment. After the joint is in place, a thin metal feeler gauge shall be used to check the position of the rubber gasket around the circumference of the joint.

D. The inside joint recess shall be filled immediately prior to placing the pipe together by buttering the bell end with mortar. After the joint is engaged, the joint mortar of pipe l8" in diameter and larger shall be finished off smooth by hand. The mortar in pipe smaller than l8" in diameter shall be smoothed and cleaned with a swab.

E. After the spigot has been telescoped into the bell, the joint checked and found satisfactory, a canvas wrapper shall be placed around the pipe, covering the joint. The canvas type wrapper shall be of the quality manufactured by the Mar-Mac Manufacturing Company or approved equal burlap type, and shall be hemmed at each edge to allow threading with a steel strap to securely fasten the wrapper around the pipe by means of a stretcher and sealer.

The wrapper shall have a minimum width of 7" and sufficient length to encircle the pipe leaving enough space between the ends at the top to allow the cement mortar to be poured. The entire joint shall be poured with cement mortar and rodded or agitated to eliminate voids and settlement. Prior to pouring the cement mortar the joint shall be thoroughly cleaned and saturated with clean water. Any joint showing shrinkage or excessive cracking shall be cleaned and remade. In hot weather,

additional measures may be required to obtain the best quality of joint, such as additional wet burlap, curing membrane, or immediate careful and well controlled backfilling of the joint with damp earth.

F. The mortar used at the exterior joint shall consist of one part Portland cement to 2-l/2 parts fine, sharp, clean sand and mixed with water to the consistency of thick cream. Mortar required at the joint shall not be placed in freezing weather unless adequately protected from freezing.

G. The joints for pipe to be installed in casing shall be made as for pipe laid in trench except that the outside portion of the joint shall be wrapped in a special polyurethane wrap impregnated with unhydrated cement manufactured for this purpose, prior to being jacked into the casing pipe. The wrap shall be "Flex-Protex" as manufactured by Mar-Mag Mfg. Corporation or approved equal. The interior of the joints shall be mortared after the pipe to be installed in casing has been jacked into place. The pipe shall not be moved after interior mortaring is completed. After the water line has been installed in the casing the ends of the casing shall be sealed using concrete or cement mortar.

H. Steel cylinder reinforced concrete pipe shall not be pressure tested until it has been in place a minimum of l4 days.

I. The contractor shall fill the steel cylinder reinforced concrete pipe under slight pressure and allow approximately 24 hours for water absorption by concrete lining before performing pressure test.

7. SETTING VALVES, VALVE BOXES, FIRE HYDRANTS AND FITTINGS

7.1 General

Valves and fittings shall be set at the locations shown on the plans or at locations as established by the engineer, and shall be set and jointed to the pipe in the manner heretofore specified for pipe installation. All valves buried in the ground shall have a cast iron valve box set over the valve and set to grade. All valves shall be set vertical, unless otherwise specified, and shall be thoroughly inspected and checked for operation before installation.

7.2 Valve Boxes

Cast Iron valve boxes shall be firmly supported and maintained centered and plumb over the wrench nut of the valve, with box cover flush with the surface of the ground or street paving.

Valve boxes shall be supported by a ring of concrete as shown on the plans and Detail Drawings. This ring shall be Class "A" concrete having a minimum thickness of six (6") inches and shall extend a minimum of twelve (12") inches in all directions from the outside diameter of the valve box and shall be supported on thoroughly compacted backfill.

7.3 Setting Fire Hydrants

A. Fire hydrants shall be located at points shown on the plans, the exact location of the hydrant to be established by the engineer. All hydrants shall be set plumb, to the grade as established by the engineer, and shall have their nozzles parallel with and/or at right angles to the curb, with the pumper nozzle facing the curb. The hydrants shall be supported in such a manner as not to cause a strain on the fire hydrant lead or branch.

The bowl of the hydrant shall be well braced against unexcavated earth at the end of the trench with concrete blocking. The concrete blocking shall be placed so as not to interfere with the hydrant drains and so that the joints or flanges are accessible.

B. Each hydrant shall be connected to the main with a six (6) inch ductile iron branch controlled by an independent six (6) inch gate valve. Each hydrant shall be set upon a stone or concrete slab not less than four (4) inches thick and not less than one square foot of surface area. Where solid rock exists in the bottom of the trench and same is excavated to the proper depth to form a foundation for the hydrant, the slab of stone or concrete may be omitted.

C. There shall be placed around the base of the hydrant not less than seven (7) cubic feet of sound broken stone or clean gravel, or other suitable material to provide reservoir capacity so that the hydrant will completely drain when closed. The gravel or broken stone shall reach from the bottom of the trench to at least six (6) inches above the waste opening in the hydrant. Each hydrant shall be operated by the contractor to prove to the inspector that the drain hole has not been plugged with concrete or other material.

8. **ANCHORAGE OF BENDS, TEES AND PLUGS, ETC.**

Reaction or thrust blocking shall be applied to all pipe lines at all tees, plugs, caps, valves, fire hydrants, and at bends deflecting ll-1/4 degrees or more. Concrete shall be used for blocking the pipe and fittings. Concrete for thrust block shall have a minimum compressive strength of 3,000 psi and shall conform to Texas Highway Department Class "A" concrete. Before thrust blocking is placed the element to be blocked shall be carefully wrapped in polyethylene sheeting having a minimum thickness of 3 mils. The blocking shall be placed between solid ground and the fitting to be anchored; the area of bearing on pipe and on the ground in each instance shall be that required by the engineer. The blocking shall be so placed that the pipe and fitting joints will be accessible for repair.

9. DISINFECTION OF PIPE LINES

The contractor shall furnish all labor, equipment, and materials necessary to the disinfecting of the new pipe lines which shall be disinfected before being placed in service. The lines shall be disinfected by the application of a chlorinating agent. The chlorinating agent may be a liquid chlorine, liquid chlorine gas water mixture, or a calcium hypochlorite solution, which shall be fed into the lines through a suitable solution feed device, or other methods approved by the engineer. The chlorinating agent shall be readily dissolvable and of a type that will rapidly mix with the water as it is loaded into the water line. Tablets or other solid form shall not be used unless they are dissolved before being placed into the line. The chlorinating agent shall be applied at or near the point from which the line is being filled, and through a corporation stop or other approved connection inserted in the horizontal axis of the newly laid pipe. The water being used to fill the line shall be controlled to flow into the section to be disinfected very slowly, and the rate of application of the chlorinating agent shall be in such proportion to the rate of water entering the pipe that the chlorine dose applied to the water entering the line shall be at least 50 parts per million. The treated water shall be retained in the pipe lines for a period of not less than twenty four (24) hours. At the end of the retention period all treated water shall be thoroughly flushed from the lines until the replacement water in the lines shall have a chlorine residual of not more than 0.2 parts per million. Where it is necessary to place the new lines in service in less than 24 hours, the concentration of chlorine may be increased to 300 ppm and the lines flushed and placed in service in 3 hours. Disinfecting procedures shall conform to AWWA C 60l.

l0. HYDROSTATIC TESTS

All pipe lines constructed under this contract before being accepted, shall be tested at l20% design pressure as described in the following paragraphs. This test shall apply to all newly laid pipe or any valved sections thereof.

The required test pressure (l80 pounds per square inch) shall be maintained over a continuous period of not less than eight (8) hours.

Each valved section of pipe shall be slowly filled with water, being certain that all air is expelled from the pipe by using hydrants, blow-offs or taps at points of highest elevation in the line. The specified pressure shall be applied by means of a pump and flow meter (gpm and amount) connected to the pipe in a manner satisfactory to the engineer. The contractor shall furnish all necessary equipment, materials and labor to satisfactorily make the hydrostatic tests.

After the line section to be tested has been brought to pressure, a visual inspection shall be made of all joints, fittings, valves, and appurtenance. Any leaks thus located shall be corrected before continuing with the test.

If the test indicates a leakage in excess of a rate equal to twenty-five (25) gallons per inch of nominal diameter of pipe line per mile per day (maximum 600 gallon per mile per day total leakage) the cause of such leaks shall be determined and corrected and the line retested until satisfactory results are obtained.

11. **REMOVING AND REPLACING PAVEMENT**

A. When it is necessary to cut existing paving to install utilities the paving shall be repaired as soon after the backfill is consolidated or the cement stabilized backfill has reached sufficient strength as practical. The repair shall be made using Texas Highway Department Type "D" Hot Mix Asphaltic Concrete and shall have a minimum thickness equal to the thickness of the existing surface.

B. Edges along the trenches and around pits shall be saw cut to remove damaged edges and/or surface. Saw cuts shall be straight and parallel to or at right angles to the street or alley center line in so far as practical. Meandering, zig-zag or notched saw lines will not be permitted. The saw cuts shall be such that a minimum of 6" of surface is removed beyond the edges of the trench.

C. The edges of the saw cut and surface of the backfill material shall be tack coated prior to the placing of hot mix asphaltic concrete. The tack coat shall be either RC-250 cut back asphalt or RS2h emulsified asphalt or approved equal. When emulsified asphalt is used for tack coat the asphaltic concrete shall not be placed until the break of the emulsion is complete and all free water has evaporated or has been removed.

D. After the tack coat is cured the hot mix asphaltic concrete shall be placed uniformly throughout the repair area. The edges of the repair shall be squared up and the hot mix asphaltic concrete thoroughly compacted. Any large aggregate that is separated from the mix during the leveling process shall be removed from the surface and disposed of off the project. Care shall be taken that none of the mix over laps the old paving. Any mix that has "scabbed" onto the paving shall be removed before the section is reopened to traffic.

Sufficient mix shall be placed so that the finished repair is from one eight (1/8") inch to one quarter (1/4") inch above the old paving surface to allow for further consolidation by traffic.

12. **TUNNELING UNDER UTILITY LINES, ETC**.

Where pipes, conduits or concrete curbs, gutters or other obstructions are encountered in the construction, the cost of tunneling under such obstructions shall be included as a part of the cost of the pipe line, or other pay items, complete in place.

13. **HIGHWAY CROSSING**

A. The City of Midland will obtain any required permits from the State Highway Department for installation of the water line along and across the highway right-of-way. It shall be the contractor's duty and responsibility to coordinate the time of making the crossing and the manner of handling traffic.

B. Installations of the casing pipe shall be accomplished by boring or open cut trench as indicated on the drawings and in accordance with the Texas Department of Transportation permit and requirements. Equipment used shall be of such size and capacity as to allow the placement of the casing to proceed in a safe and expeditions manner. Installation of the casing and the excavation and removal of the materials

within the casing shall proceed simultaneously.

The boring shall proceed from a pit provided for the boring equipment and workmen. Excavation and location of the pit shall be approved by the Engineer. Boring without the concurrent installation of the casing pipe will not be permitted. The use of water or other fluids in connection with the boring operation will be permitted only to the extent of lubricating cuttings. Jetting will not be permitted. Overcutting in excess of one inch shall be remedied by concrete pressure grouting the entire length of the installation. All joints for casing pipe installed in bore shall be welded. Care shall be taken to keep the casing pipe on the proper line and grade.

C. After the casing pipe has been installed and is accepted by the Engineer, the pipe shall be shoved through the casing. The pipe shall be pushed or pulled through the casing by exerting pressure on the barrel of the pipe and not on the bell, and shall be done in such a manner that the joint is always in compression during the shoving operation. Hardwood, or other suitable material skids shall be banded with stainless steel bands to each joint of pipe In accordance with the pipe manufacturers recommendation. The hardwood skids shall be of sufficient dimensions to allow the bell of the pipe to clear the casing pipe by at least one-half inch. The length of the skid shall be in accordance with the pipe manufacturers recommendations. A minimum of three bands shall be used to secure the skids to the pipe. The skids shall be such that the carrier pipe will be centered in the casing pipe. The design of skids and bonding techniques shall be submitted to the Engineer for approval prior to use.

In general waterline installation in the casing pipe shall conform to AWWA C 600-Section 6 requirements.

After completion of pipe installation in casing, the ends of the casing shall be sealed off by use of concrete grout. The minimum compressive strength of the grout shall be 2,000 psi in 28 days.

14. **SHORING & SHEETING**

14.1 Description

This item shall govern for the Trench Safety Systems required for the construction of all trench excavation to be utilized in the project and including all additional excavation and backfill necessitated by the safety system. A trench shall be defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. The depth is five feet or more.

Trench Safety Systems include but are not limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, dewatering or diversion of water to provide adequate drainage.

l4.2 Construction Methods

Trench safety systems shall be accomplished in accordance with the detailed specifications set out in the provisions of Excavation, Trench, and Shoring, Federal Occupational Safety and Health Administration (OSHA) Standards, 29CFR, Part 1926, Subpart P, as amended, including Proposed Rules published in the Federal Register (Vol. 52, No. 72) on Tuesday, October 31, l989. The sections that are incorporated into these specifications by reference include Sections 1926-650 through 1926-652. Legislation that has been enacted by the Texas Legislature, being Tex. Rev. Civ. Stat. Ann. arts. 1015q, 2368a.6 (Vernon Supp. 1988) with regard to Trench Safety Systems, is hereby incorporated, by reference into these specifications.

A reproduction of the OSHA Publication 2226 is attached for the convenience of the Contractor. The City assumes no responsibility for the accuracy of the reproduction or that it reflects current law. The Contractor is responsible for obtaining a copy of this section of the Federal Register for his use.

If the contractor elects to use a trench protective system that, in the Proposed Rules, requires "Design by a qualified person or a qualified engineer," [For example see 1926.652(b) (3) and 1926.652(c) (4)], "a qualified person or qualified engineer" shall be a Professional Engineer registered in the State of Texas. The Contractor is responsible for obtaining boring and soil analysis as required for the planned design. The trench excavation is to be designed in conformance with OSHA standards and regulations.

14.3 Safety Program

The Contractor shall submit a safety program specifically for the construction of trench excavation. The trench safety program shall be in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

14.4 Inspection

The Contractor shall make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. Daily inspection is to be made by a "competent person" provided by the Contractor. If evidence of possible cave-ins, or slides, is apparent, all work in the trench shall cease until the necessary precautions have been taken by the Contractor to safeguard personnel entering the trench. It is the sole duty, responsibility and prerogative of the Contractor, not the owner or the Engineer, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project. The Contractor shall maintain a permanent record of daily inspections.

14.5. Safety Restrictions - work near high voltage lines

The following procedures will be followed regarding the subject item on this contract:

A. Warning signs painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

B. All equipment except back hoes or dippers that may be operated within ten feet of high voltage lines shall have an insulating cage-type of guard about the boom or arm and insulator links on the lift hook connections.

C. When necessary to work within six feet of high voltage electric lines, notification shall be given the power company who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

D. The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

l5. MEASUREMENT AND PAYMENT

l5.l General

The unit price or lump sum price bid on each item, as stated in the proposal, shall include furnishing all labor, superintendence, machinery, equipment, and materials necessary to complete the various items of work in accordance with the plans and specifications. Cost of work or materials shown on the plans and called for in the specifications and on which no separate payment is made shall be included in the bid price on the various pay items.

l5.2 Water Lines

A. Measurement

The length of pipe lines for the various sizes, classes and types to be paid for will be determined by measurement along the center lines of the pipe installed, measurement being made from the center of fitting to center of fitting or end of pipe, without any deduction for the length of intermediate fittings or valves including pipe installed in casing.

B. Payment

Furnishing and installing approved type pipe of the various sizes and classes shown on the plans or as required will be paid for at the unit price bid per linear foot for furnishing and installing the various sizes and classes of approved pipe complete in place. The unit price bid shall be complete compensation for furnishing and installing the pipe complete in place including all excavation, backfilling, testing and disinfection of lines and shall include any and all incidental work not otherwise included in the bid items or otherwise provided for in the specifications.

l5.3 Solid Rock Excavation

All excavation for pipe trenches shall be unclassified and no extra compensation will be made for solid rock excavation. The contractor is expected to make boring of his own and satisfy himself to the character of material which will be encountered.

l5.4 Gate Valves or Butterfly Valves

A. Measurement

Gate valves or butterfly valves will be counted in the field after installation by the size and type specified and actually installed.

B. Payment

The unit price bid for each type and size valve shall be complete compensation for furnishing and installing the valves, complete in place, including the furnishing and installation of cast iron valve boxes on all valves to the finished grade of the adjacent surface. All valves in paved areas shall be set to finish pavement grades

l5.5 Fire Hydrants

A. Measurement

Fire hydrants will be counted in the field after installation in accordance with the plans and specifications.

B. Payment

The unit price bid shall be complete compensation for furnishing and installing the fire hydrants, complete in place, each, including lead pipe the gravel drain, concrete blocking, extension or additional bury depth as required for a complete installation.

I5.6 Service Connections

A. Measurement

The number of service connections of the type and size specified to be paid for will be counted in the field after complete installation.

B. Payment

The unit price bid shall be complete compensation for furnishing and installing the service connections, complete in place, including the meter box and lid, service line, corporation stop, meter stop and incidentals required for a complete installation.

I5.7 Ductile Iron Fittings

A. Measurement

The weight of the various ductile iron fittings and specials were estimated by using the standard weights for cast iron fittings as established by the American Water Works Association or American Standard Association. Measurement of ductile iron fittings will be made by counting the actual number of fittings installed and multiplying the number of fittings by the catalog weights for those types of fittings actually installed. Allowance will be made for glands and bolts.

B. Payment

The ductile iron fittings or specials required in the construction of the various size pipe lines as shown on the plans or as required will be paid for at the unit price bid per ton for furnishing and installing the ductile iron fittings complete in place. The unit price shall also include all materials, excavation, backfilling, concrete blocking and other incidental work required for the complete installation.

I5.8 Steel Cylinder Concrete Pipe Fittings

A. Measurement

No separate measurement or count of fittings and specials for steel cylinder concrete pipe will be made.

B. Payment

No separate payment will be made for fittings or specials for steel cylinder concrete pipe used on this project, but the cost of same shall be included in the price bid per linear foot for the various classes and sizes of pipe in the bid proposal.

l5.9 Casing Pipe In Bored Hole Or Open Cut

A. Measurement

Measurement of the casing pipe, of the type and size specified, shall be made by the linear foot of casing installed complete in bored hole or installed complete in open cut.

B. Payment

The unit price bid per linear foot for casing in bored hole or for casing in open cut shall be complete compensation for furnishing and installing the casing, complete in place, including all pits, boring equipment, materials and labor required for a complete installation. Payment for carrier pipe installed in the casing will be made as stated under Waterlines above.

l5.l0 Paving Cut and Repair

A. Measurement

Measurement of paving cut and repair will be made by the square yard for replacing pavement of the type specified. The area of the pavement replaced shall be determined by actual measurements on the ground; however, measurement will be limited to areas within widths of cuts as shown on the plans unless additional widths are authorized by the engineer. Any pavement removed or damaged outside of the aforementioned limits shall be replaced as prescribed with these specifications, but will not be measured for payment.

B. Payment

The unit price bid, per square yard, shall be complete compensation for cutting and removing the pavement, and constructing the concrete base and surfacing of the type specified, all as specified herein and as shown on the plans.

15.ll Trench Safety Systems, Sheeting and Shoring

A. Measurement

Trench Safety Systems shall be measured by the linear foot along the centerline of trench including manholes and other line structures.

B. Payment

Payment for Trench Safety Systems, measured as prescribed above, shall be made at the unit price bid per linear foot of "Trench Safety Systems: Payment of all work prescribed under this item shall be full compensation for the Trench Safety Systems including all Engineering cost and any additional excavation and backfill required, for furnishing, placing, maintaining and removing all shoring, sheeting, or bracing; for dewatering or diversion of water; for all jacking and jack removal; and for all other labor, materials, tools, equipment and incidentals necessary to complete the work.

Revised 08/07

GRAVITY FLOW PIPE SEWERS AND FITTINGS
FOR WASTE WATER AND STORM WATER

PART I – GENERAL

1.01 SCOPE

A. The work covered by this specification shall include the furnishing of all material, labor and equipment to construct, complete in place, all Gravity sewers including jointing, gaskets, fittings, castings, mortar, concrete, the placing of sewer pipe, and the construction of manholes and other appurtenance, all in accordance with the details shown on the plans and these specifications for the drainage of sanitary and/or storm sewage.

B. Sanitary and storm sewer lines constructed under these specifications shall be straight in grade and alignment between manholes. Manholes shall be constructed at any change in grade and at any change in alignment. In general manholes are to be constructed at 300 feet intervals or less with the maximum distance between manholes being 350 feet when approved by the Engineer.

1.02 QUALITY ASSURANCE

A. The Contractor, at the Engineer's request, shall furnish a certificate from the manufacturer of the pipe and fittings that the manufacturer is fully competent and capable of manufacturing sewer pipe, fittings, and accessories of the type, size and grade proposed for use in this project that are of uniform texture and strength that will fully comply with these specifications and have so manufactured this class of pipe in sufficient quantities to be certain that it will meet all normal field conditions of usage. The manufacturer must have adequate equipment and quality control facilities to be sure that each extrusion casting or run of pipe is uniform in texture, dimensions, and strength.

B. All PVC, HDPE, or plastic resin based pipe and fittings shall be covered during storage to protect them from excessive heat and direct sunlight.

C. All pipe and accessories shall be stored above ground and fully supported so that they will not bend or deflect excessively under their own weight.

D. Pipe in any way damaged or deformed during storage shall not be incorporated into this project, but at the direction of the Engineer, shall be permanently removed from the job site and project area.

1.03 TYPE OF PIPE

A. Pipe for sanitary sewers 15 inches in diameter and less shall be PVC. Pipe for storm drains 15 inches in diameter and less may be corrugated steel pipe when called for on the plans and in the bid proposal. Pipe 18 inches in diameter and larger shall be of the type shown on the plans and bid proposal.

B. The contractor may be allowed to bid a choice of two or more of the pipe materials when pipe 18 inches in diameter and larger are proposed for use on a project. When such choice is allowed the permissible choices will be clearly stated on the plans and/or bid proposal and a blank space will be provided for the contractor to write in the type of pipe proposed for use on the project. When such blank spaces are provided, the contractor must choose one of the permitted pipe materials as specified in part 2 “Materials” of these specifications and write in the type of pipe bid. Failure to write in the type of pipe bid may be reason to disqualify the bid. One or more types of pipe 18 inches in diameter and larger may be excluded from consideration on any given project by notes on the plans and/or the bid proposal.

PART 2 – MATERIALS

2.01 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS FOR SANITARY AND STORM SEWERS

A. GRAVITY SEWERS

(1) Pipe and fittings in nominal diameters from 4-inch through 15-inch shall be manufactured in accordance with ASTM D3034, “Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings” and pipe and fittings in diameter 18” through 36” shall be manufactured in accordance with ASTM F-679 or ASTM F-794, closed profile, subject to the modifications and limitations below.

B. MODIFICATIONS AND LIMITATIONS

(1) The concrete slab manhole tops shall be reinforced with number 4 steel reinforcing bars spaced at 12 inches on center each way. Additional diagonal bars shall be placed on 4 sides around the manway opening. The diagonal bars shall be number 4 rebar with a minimum length equal to the diameter of the manway opening plus 4 inches. The steel reinforcing mat shall be placed in the bottom of the slab with 1-1/2 inches protective covering.

(2) The term Dimension Ratio (DR) or standard dimension ratio (SDR) is the ratio of the average outside pipe diameter to the minimum wall thickness rounded to the nearest 0.5. The maximum DR for PVC sewer pipe shall be 35. PVC pipe sewers that will have less than 4 feet of cover shall be DR26.

(3) PVC pipe manufactured under ASTM F679 or F794 shall have a wall thickness that will meet or exceed the D.R. and stiffness specified herein. The minimum pipe stiffness for pipe having a DR of 26 shall be 115 psi. The minimum pipe stiffness for DR 35 pipe shall be 46 psi.

(4) Where DR 26 pipe is specified, all necessary fittings shall be the same as for SDR 35 PVC pipe.

(5) Minimum wall thickness for ASTM D-3034 PVC pipe shall be as follows:

Nominal Size (in.)	Min. Wall Thickness (in.)	
	DR 26	DR 35
4	0.162	0.120
6	0.241	0.180
8	0.323	0.240
10	0.404	0.300
12	0.481	0.360
15	0.588	0.437

The minimum wall thickness for PVC pipe meeting ASTM F-679 or F-794 requirements shall be the thickness as set forth in said ASTM specification that will meet or exceed the pipe stiffness and DR required.

(5) The identification markings as shown in Section 12 of ASTM 3034 shall note the specified DR of 26 where applicable.

(6) All pipe and fittings shall have the dimensions for inside diameter, outside diameter, etc. as shown in ASTM D3034 and/or ASTM F-679 except that the inside diameter DR 26 may be reduced by the added wall thickness.

(7) The pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density, and other physical properties.

(8) The Contractor shall provide wyes, tees, bends, adapters, and any other fittings called for in the specifications and/or shown on the plans or directed by the Engineer.

(9) The standard length of ASTM, D-3034 SDR 35 or SDR 26 PVC pipe under this specification shall be 20 feet with a minimum of 10 feet, except that all pipe used in service lines shall not exceed 10 feet in length unless otherwise approved by the Engineer. The standard laying length for ASTM F-679 PVC pipe shall be 13 feet. The Engineer must approve other laying lengths.

C. SEWER LATERALS AND CONNECTIONS

Pipe and fittings for service lines shall be the same material and thickness class as required for the main sewer. Schedule 40 PVC pipe may be used for 4” service lines when PVC pipe meeting requirements of ASTM 3034, SDR 35 is required.

D. JOINING SYSTEMS

(1) PIPE JOINTS

The pipe shall be joined with an integral bell, bell and spigot type rubber gasket joint. Each integral bell joint shall consist of a formed bell complete with a single rubber o-ring gasket. Gaskets shall be manufactured in accordance with ASTM F477 and shall be installed in accordance with the pipe manufacturer's instructions using all the necessary materials, lubricants and equipment recommended by the manufacturer.

For pipe 18" through 36" gaskets shall be factory installed and chemically bonded to the bell end of the pipe.

Lubricant shall be water soluble, non-toxic and have no deteriorating effects on gasket or pipe materials and shall not support the growth of bacteria. Lubricant shall be suitable for use at temperatures from 5^{o} to 120^{o} F (-15^{o} to 50^{o} C). Containers shall be labeled with the manufacturer's name and identified as PVC pipe joint lubricant. Each lubricant container shall have printed instructions for usage and joint assembly.

Field welded joints will not be allowed.

(2) FITTING JOINTS

All fittings shall utilize rubber gasket joints of the same type design and specifications as pipe joints.

(3) PIPE SPIGOT

The pipe spigot shall have a bevel and an insertion stop mark. The assembled joint shall be designed so the gasket shall be radially compressed to assure a positive water-tight seal for all installation conditions recommended by the manufacturer and under all combinations of production tolerances for the joint components. Each size joint shall be qualified to no leakage under various test conditions in conformance with ASTM Specification D-3212, "Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals."

E. INSPECTION AND TESTING

(1) INSPECTION REQUIREMENTS

Certification: as the basis of the acceptance of the material, the manufacturer will furnish a certificate of conformance to these specifications. The manufacturer will furnish other conformance certification in the form of affidavit of conformances, test results, and copies of test reports.

(2) PHYSICAL TEST REQUIREMENTS

For each 4,000 linear feet of pipe manufactured of each class and size of pipe, the following certified test data shall be required:

1. The basic dimensions shall be measured.
2. The allowable crush load (lbs/ft ^{2}) shall be calculated.
3. Impact resistance, fusion quality and ductility shall be tested.

F. MARKING AND DELIVERY

Each pipe shall be identified with the name of manufacturer, nominal size, cell classification, ASTM designation F794, Uni-Bell Plastic Pipe Association designation Uni-B-9, the pipe stiffness designation “PS-46 psi” and manufacturer’s date code.

1. MANHOLE CONNECTIONS

The Contractor shall provide smooth pieces of pipe for connecting sewer line into manholes. The Contractor shall be required to assist the manhole gasket supplier with the nominal outside diameter of these smooth pieces of pipe, as manufactured. There shall be only one plain end thickness for each diameter of pipe specified for the project.

2. DELIVERY

All pipe couplings and fittings shall be prepared for standard commercial shipment.

The pipe shall be inspected upon delivery to the job site for final acceptance. The contractor shall be responsible for all material furnished by him and he shall replace, at his own expense, all such material that is found to be defective in manufacture or which has become damaged in handling until final acceptance has been made. Pipe, which exhibits excessive ovalty or curvature, shall be rejected.

PVC pipe and fittings shall be covered during storage to protect them from excessive heat and direct sunlight.

All pipe and accessories shall be stored above ground and fully supported so as not to bend or deflect excessively under its own weight.

2.01(a) Metallic Marking Tape (For PVC Sewer Pipe)

2.01 (a).1 General

When non-metallic pipelines are to be installed, then the Contractor shall furnish and lay, above the pipeline, a continuous strip of metallic identification tape.

2.01 (a).2 Tape Material

The metallic identification tape shall be at least two inches (2”) in width and shall be of corrosive resistant metal of sufficient thickness to be stable and reflect electronic signals to electronic pipeline detector when buried to a dept of twenty-four (24”) below normal ground level.

The metallic tape shall be painted green on one side and shall have 1-inch high letters painted continuously on the same side of the tape which read, “CAUTION: BURIED SEWER LINE BELOW” or other words to this effect.

The marking tape shall be “Detectable Marking Tape”, as manufactured by the Omega Marking Company, or equal approved by the Engineer.

2.01(a).3 Construction Methods

The Contractor shall backfill over non-metallic pipelines to a depth which is less than twenty-four (24”) and not more than twelve inches (12) from the top of the cut of the ditch section in which the pipeline is laid. Contractor shall stop the backfilling material to a generally uniform level. All machine tamping, jetting and other compaction activities shall be accomplished up to this point of height in the backfilling the marking tape is placed in the trench.

The Contractor shall then lay the marking tape in the pipe trench and shall be held in position by the spot placement of backfill materials over it to keep it from sliding t the sides and/or from being blown about in the ditch by the wind. The tape shall be lid with the painted side, which shall also be the side with the identification lettering on it, in the “up” position. The tape shall be laid in the flat position and kept there until backfill is accomplished.

The Contractor shall then complete the backfilling operation in such a manner that the marking tape is not cut, crimped, ruptured or separated by the backfilling work.

2.01(a).4 Measurement and Payment

No separate pay item will be provided for furnish and placing the marking tape. This item shall be considered subsidiary to the non-metallic pipe being placed.

2.02 CORRUGATED STEEL PIPE (CSP) FOR STORM SEWERS AND CULVERTS ONLY

1. PIPE

A. STEEL SHEET STOCK

(1) Corrugated steel pipe shall be manufactured using galvanized steel sheet AASHTO M 218 or aluminized steel sheet AASHTO M 274.

(2) The lining for smooth lined corrugated steel pipe shall be polymer coated on both sides. The minimum thickness of the polymer coating shall be 10 mils.

B. PIPE DESIGNATION

(1) Pipe furnished shall be manufactured in accordance with AASHTO Specification M 36.

(2) Corrugated steel pipe shall be one or more of the following type as designated in AASHTO M 36.

Type I - Full circular cross section having helical corrugations.

Type IA - Full circular smooth lined pipe constructed of an outer shell having helical corrugations with a smooth sheet lining attached to the outer shell at helical lock seams.

Type IR - Full circular cross section with helical rib protruding outward.

Type II - Type I pipe formed into a pipe arch.

Type IIA - Type IA pipe formed into a pipe arch.

The type of pipe furnished on this project will be as shown on the plans and in the bid proposal.

When no type of pipe is called for on the plans or in the bid proposal helically corrugated circular single wall pipe (Type I or Type IR) shall be furnished.

C. MANUFACTURERS CERTIFICATION

(1) The pipe manufacturer will be required to certify the adequacy of the pipe furnished for the application and design life of the project.

(2) The design life for storm sewers constructed under this specification is 50 years.

(3) The pipe manufacturer will be required to run soil pH, soil resistivity and such other test as they deem necessary to design pipe thickness and protective coatings required to assure the adequacy of the pipe supplied.

D. CORRUGATION AND MINIMUM THICKNESS

(1) Thickness used in this specification refers to the bare steel thickness before coating is applied. The minimum thickness for any single wall corrugated steel pipe furnished under this specification is 16 gage.

(2) All corrugated steel pipe furnished under these specifications shall have helical corrugations.

(3) Circular corrugated steel pipe 48” in diameter and smaller shall have 2-2/3” x ½” corrugation and shall be a minimum of 16 gage in thickness.

Circular corrugated steel pipe larger than 48” in diameter may have either 2-2/3 x ½” or 3” x 1” corrugations. The minimum thickness for corrugated steel pipe larger than 48” in diameter and having 2-2/3 x ½” corrugation shall be as follows:

54” Diameter - 12 gage
60” Diameter - 10 gage
66” through 90” Diameter - 8 gage

The minimum thickness for circular corrugated steel pipe having 3” x 1” corrugation and diameters of 54” through 90” shall be 14 gage.

(4) For smooth lined corrugated steel pipe the minimum thickness for the lining shall be 20 gage and the minimum thickness for the outer shell shall be 18 gage.

The corrugations for the outer shell shall be 2-2/3” x ½” for pipe 48” diameter and smaller. Larger diameter pipe may use 3” x 1” corrugations in the outer shell. The sum of the thickness for the outer shell and the liner shall be a minimum of one thickness unit greater than the thickness that would be required for single wall pipe of the same diameter or span.

(5) Spiral rib steel pipe (Type IR) shall have outward projecting spiral corrugations of ¾” x 1” at 11-1/2” on center in accord with AASHTO specification M 36 or ¾” x ¾” at 7-1/2” on center as described in AASHTO specification M 196.

The minimum thickness for spiral rib pipe 48” in diameter and smaller shall be 16 gage.

The minimum thickness for spiral rib pipe 54” and 60” in diameter shall be 14 gage.

The minimum thickness for spiral rib pipe 66” and 72” in diameter shall be 12 gage.

The minimum thickness for spiral rib pipe larger than 72” in diameter shall be as shown on the plans.

(6) The corrugations and minimum thickness of corrugated steel pipe arch shall be in accord with the following table:

EQUIV. Dia. (in.)	2-2/3" x ½" Corrugations Span (in.)	Rise (in.)	Gage	3" x 1" Nominal Size Span (in.)	Rise (in.)	Gage
15"	17	13	14			
18"	21	15	14			
24"	28	20	14			
30"	35	24	14			
36"	42	29	14	40	31	16
42"	49	33	12	40	36	14
48"	57	38	10	53	41	12
54"	64	43	10	60	46	12
60"	71	47	8	66	51	12
66"	77	52	8	73	55	12
72"	83	57	8	81	59	12
78"				87	63	12
84"				95	67	12
90"				103	71	12

When 2-2/3" x ½" corrugations are called for on the plans and/or on the bid schedule the substitution of 3" x 1" corrugations will be allowed only upon the demonstration by the contractor that there is sufficient head room to accommodate the higher rise for arch pipe of this cross section.

E. END TREATMENT AND JOINING

(1) The ends of all corrugated steel pipe furnished for this project shall be rolled to provide circumferential corrugations for coupling. The end corrugations for all pipe 48" in diameter and less shall be 2-2/3 x ½". The end corrugations for single wall helically corrugated steel pipe or for smooth lined corrugated steel pipe 54" in diameter and larger shall be the same pitch as the pipe furnished and may be either 2-2/3" x ½" or 3" x 1". The end corrugations for spiral rib (Type IR) corrugated steel pipe shall be 2-2/3" x ½" or 3" x 1" for pipe 54" and larger in diameter.

(2) Coupling bands shall be made of the same material as the pipe and shall be not more than 3 nominal sheet thicknesses lighter than the pipe joined and in no case less than .052 inch.

Jointing devices for joining corrugated steel pipe shall have a gasket and shall produce a joint meeting the infiltration/exfiltration requirements of these specifications.

If it should be necessary to cut a joint of Helically corrugated pipe and join the unreformed end to another section of pipe or fitting extra width bands will be required and special care must be taken to insure a water tight connection.

Locking bands shall be corrugated and shall securely fit into at least one full annular corrugation. The corrugations on the locking band must match the corrugations on the pipe being joined.
The minimum width for locking bands is as follows:

for 2-2/3 x ½ inch corrugations	10-1/2 inches
3 x 1 inch corrugation	12 inches

For helical corrugations that have not been reformed the coupling bands must be at least 2 inches wider than the widths listed above.

Unless shown otherwise on the plans all bolts for coupling or locking bands shall be ½ inch in diameter. Bands 12 inches wide or less shall have a minimum of 2 bolts. Bands wider than 12 inches shall have a minimum of 3 bolts.

Bolts must be galvanized in accordance with AASHTO Designation M232 or ASTM A164 Type RS.

(3) Gaskets for corrugated steel pipe shall be closed cell expanded rubber and shall be formed into a continuous band. Gaskets may be either “O” ring or flat band as recommended by the pipe manufacturer. Flat band gaskets shall be a minimum of 7” wide and 3/8” thick. “O” ring gaskets shall be 13/16” diameter minimum for pipe 36” in diameter or less and 7/8” for pipe larger than 36” diameter and having ½” deep corrugations. “O” ring gaskets shall be a minimum of 1-3/8” diameter for pipe having 1” deep corrugations. When “O” ring gaskets are furnished, an additional flat gasket shall be furnished and placed between the overlapping ends of the coupling band. This flat gasket shall completely fill the gap between the “O” rings. All gasket materials shall be capable of producing a water tight joint that will meet the leakage requirements of these specifications.

2. CORRUGATED STEEL MANHOLE FITTINGS, AND CLEAN OUTS

A. FABRICATION

(1) Corrugated steel manholes and fittings shall be constructed of the same material and type of pipe furnished for the storm sewer line with the exception that manhole risers shall be helical corrugated single wall circular pipe when used with pipe arch sewers or smooth lined corrugated steel pipe. The thickness of the manhole riser shall be the same as would be required for the same type and diameter pipe if it were used for the storm sewer.

(2) Cleanouts for use on shallow storm sewer and inlet leads shall be manufactured from pipe meeting the requirements of these specifications. Cleanouts shall be constructed to the dimensions and in accord with the details shown on the plans.

B. CONNECTION TO MANHOLES AND CLEANOUTS

(1) Stub outs from manholes and cleanouts for connection to storm sewers and inlet leads shall have annular corrugations and shall be compatible with the type and size of pipe being connected. Stub outs provided for connection to PVC pipe storm sewers and inlet leads shall be sized so that the PVC pipe can be inserted into the stub leaving the least amount of annular space between the PVC pipe and the CSP practical. The PVC pipe shall be connected using an approved molded rubber or PVC sleeve connector clamped to both pipes with stainless steel straps.

The connector shall be a flexible coupling as manufactured by Fernco, 300 S. Dayton St., Davison, MI., or approved equal.

.

C. LEAKAGE

Manholes, fittings and cleanouts shall meet the leakage requirements of these specifications.

D. SHOP DRAWINGS

The contractor shall submit shop drawings of all manholes, fittings and cleanouts for approval prior to their fabrication. A minimum of 5 sets of drawings for each manhole, each fitting and each cleanout shall be submitted.

E. CONCRETE SLAB TOPS

A reinforced concrete slab top shall be constructed for each manhole and cleanout. The slab shall extend to one foot (1') outside the riser section on all sides and shall have an eccentric 2' diameter opening for the manway located at the outside edge of the riser section. For manholes and cleanouts designated for standard manhole rings and covers the concrete top shall be 8 inches thick and shall be finished smooth to receive the manhole ring.

For manholes designated to receive pressure type manhole rings and covers the concrete slab top shall be a minimum of 12 inches thick and shall have L bolts imbedded in the concrete to fit the requirements of the manhole ring furnished. The slab shall be finished smooth to receive the manhole ring. The manhole ring shall be securely bolted to the slab and sealed using "Ram Nek" or an approved equal bitumastic sealer between the manhole ring and the concrete slab.

The concrete slab manhole tops shall be reinforced with number 4 steel reinforcing bars spaced at 12 inches on center each way. Additional diagonal bars shall be placed on 4 sides around the manway opening. The diagonal bars shall be number 4 rebar with a minimum length equal to the diameter of the manway opening plus 4 inches. The steel reinforcing mat shall be placed in the bottom of the slab with 1-1/2 inches protective covering.

F. PRESSURE MANHOLE RING AND COVER

(1) Pressure type manhole rings and covers shall be Western Iron Works No. 380-24P or approved equal. The manhole cover shall be sealed with an "O" ring gasket in a ring groove and shall be secured to the ring by six (6) 5/8-inch stainless steel bolts.

(2) The ring shall have six (6) 1-1/4 inch bolt holes in the flange for securing the ring to the concrete slab top on the manhole.

3. CORRUGATED STEEL PIPE SLOTTED DRAIN

(1) Corrugated steel pipe slotted drains shall be fabricated from full circle corrugated steel pipe conforming to these specifications.

(2) C.S.P. Slotted drains shall be of a type as manufactured by "Contech Construction Products, Inc.", "Texas Corrugators", "Caldwell Culvert Company" or approved equal.

(3) The upstream end of CSP slotted drains shall be equipped with a bend and a ring and cover of the some size as the pipe from which the slotted drain was fabricated to allow cleaning equipment to be inserted into the slotted drain. The ring and cover shall be Nenah Foundry Co. R-5901 open grate or R-5900 solid lid or approved equal. Unless shown otherwise on the plans the open grate shall be furnished.

(4) When slotted drain is to be connected to PVC leads, molded rubber or PVC flexible connector as specified for connections to manholes and cleanouts shall be furnished.

4. DAMAGED COATING

A. PROTECTION OF PIPE

(1) Pipe fittings and specials shall be handled and stored in a manner that will minimize damage to the coating.

(2) The fabrication process shall be designed to minimize the burning of coatings during welding.

(3) Pipe and/or fittings showing excessive abuse or damage will be rejected.

B. REPAIRING DAMAGE

(1) Pipe on which the metallic coating has been burned by welding or has been otherwise damaged in fabricating or handling, shall be repaired. The repair shall be done so that the completed pipe shall show careful finished workmanship in all particulars.

(2) The damaged area shall be cleaned to bright metal by blast cleaning, power disk sanding, or wire brushing. The cleaned area shall extend at least ½ inch into the undamaged section of the coating. The cleaned area shall be coated within 24 hours and before any rusting or soiling.

(3) Zinc-rich paint shall be applied to a dry film thickness of at least 0.005 inches over the damaged section and surrounding cleaned area. Zinc-rich paint shall be used for repair of damage to all types of metallic coating -zinc, aluminum, and aluminum-zinc alloy.

2.03 CAST-IN-PLACE CONCRETE SEWER PIPE (NON-REINFORCED) FOR STORM SEWERS ONLY

1. DESCRIPTION

This item shall cover machine cast-in-place monolithic non-reinforced concrete pipe, which shall consist of Portland cement concrete placed in a prepared trench at such locations and grades shown on the plans and intended to be used for the conveyance of storm water. Items and item numbers referred to in this specification are the items as given in the "Texas State Department of Highways and Public Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges."

2. MATERIALS

The cast-in-place pipe shall be constructed of Class "C" concrete. The concrete shall meet the requirements of Item 421, "Concrete for Structures," and Special Provision thereto, except as otherwise noted herein or on the plans. Type III Portland Cement shall be used.

The minimum compressive strength for concrete used in this item is 4000 psi. Backfilling operations may proceed when the concrete has reached 2000 psi compressive strength.

The coarse aggregate grading for pipe diameters 48 inches or less shall conform to that of Aggregate Grade No. 3, one inch (1") maximum size aggregate under Item 421. For pipe diameters over 48 inches, Coarse Aggregate No. 2, one and one third inch (1-1/3") maximum size aggregate shall be used.

No concrete having a slump in excess of 2" will be permitted for use in pipes with diameters of 48 inches and over. For pipes with diameters less than 48 inches, no concrete having a slump in excess of 3" will be permitted for use. At the option of the Contractor, sections of precast reinforced concrete pipe (D-load) may be substituted for cast-in-place concrete pipe. Pipe and installation shall conform to the requirements of Item 465, "Pipe Sewers." Backfill shall be in accordance with the requirements for other storm sewers in these specifications using crusher fines (chat).

3. PIPE MAKING EQUIPMENT

The pipe shall be constructed with equipment specially designed for constructing cast-in-place monolithic concrete pipe. The equipment shall be acceptable to the Engineer and the Contractor may be required to furnish evidence of successful operation in other work of the equipment he proposes to use. Equipment not suitable to produce the quality of work required for the pipeline will not be permitted to operate on the project.

4. DIMENSIONS AND TOLERANCES

The design shell thickness shall be as specified in Table 1.

TABLE I

Internal Diameter inches	Min. Shell Thickness inches
18	2
24	2-1/2
30	3
36	3-1/2
42	4
48	5
54	5-1/2
60	6
66	6-1/2
72	7
84	8
96	9
108	10
120	11

Variation in the internal diameter shall not exceed plus or minus 3 percent. The maximum allowable deviation form the true grade of the design invert of the pipe shall not exceed ½ inch either side of true grade. Where deviation from true grade occurs, true grade shall be re-established at a maximum departure of one-eighth inch per foot.

5. EXCAVATION AND BACKFILL

Excavation shall be in accordance with the requirement for other types of storm drains, except as modified herein. The trench shall be excavated in the lines and grades shown on the plans or as directed by the Engineer. The width of the trench shall be sufficient to accommodate travel of the pipe machine only. The bottom of the trench shall be shaped to the nominal outside circumference of the pipe. Excavation shall be performed from the outlet to the inlet. If the trench is over-excavated for the bottom 210 degrees of the pipe the excess area shall be filled with concrete. If rock is encountered, it will be removed at least 6 inches below the bottom of the pipe and the trench refilled with material sufficiently compacted to

allow operation of the machine and provide a smooth firm surface. The sidewall of the pipe shall be placed against undisturbed material.

Backfill material will be a crusher fine (chat) as described elsewhere in these Specifications. No backfill other than permitted for curing purposes shall be placed until the line has been inspected and approved by the Engineer. The trench may be completely backfilled after the pipe has been in place at least 24 hours and concrete strength requirements have been reached. Light traffic, axle load less than 6,000 pounds, may be routed over the pipe after backfill has been completed for twenty-four (24) hours. Unrestricted traffic may be permitted over the pipe after the backfill has been in place for forty-eight (48) hours.

All backfill material shall be mechanically compacted to 95% modified proctor or as directed by the Engineer.

6. CONSTRUCTION

All surfaces against which concrete are to be placed shall be free from standing water, mud, and debris. Absorptive surfaces against which concrete are to be placed shall be moistened thoroughly so that moisture will not be drawn from the freshly placed concrete.

The concrete shall be placed in one operation around the full circumference of the pipe by means of a traveling form. The forms shall be of sufficient strength to withstand vibrating or tamping the concrete and to permit workmen to walk on the forms without causing springing or bulging at any point.

As the traveling form moves forward, forms shall be placed inside the newly formed pipe to support a minimum of 230 degrees of the upper portion of the pipe.

The concrete shall be vibrated, rammed, tamped or worked with suitable appliances until the concrete has been consolidated to the maximum practicable density, free of rock pockets, and closes snugly against all surfaces or forms and provides a bond between the pipe shell and supporting earth.

When placing operations cease for any reason, the end of the pipe shall be left rough with a slope of approximately 45 degrees. The ends of the pipeline shall be covered with canvas or other suitable cover material to prevent excessive loss of moisture from the interior of the pipe already placed.

When starting pipe laying operation from a previously laid cast-in-place pipe or section of pre-cast pipe, a construction joint shall be made by excavating a “bell” completely around the end of the existing pipe and constructing a concrete collar to extend at least one foot either side of the joint with a minimum thickness equal to that of the wall of the pipe. The end of the existing pipe shall be clean and damp before continuing pipe making operations. Cleaning of the construction joint shall consist of removing all latency, loose or defective concrete, coatings, and any other deleterious materials.

All forms shall be clean and shall be placed at the trench side at the location of their proposed use for inspection by the Engineer. Forms, which are defective in any way, will not be used, and upon condemnation they shall be removed from the site of the work. The forms shall not vary more than ½ inch from the lower edge of a straightedge laid parallel to the centerline of the form, and shall be free of any holes larger than 5/8 inch in greatest dimension. The pipe machine shall be thoroughly clean and serviced prior to the placing of the concrete. Particular attention will be given to all parts of the machine with which concrete comes into contact.

Concrete chutes or trunks shall be provided to reach within 1 foot of the pipe machine hopper. The end of the chute or trunk shall discharge the concrete at the center of the hopper. Provisions shall be maintained to minimize segregation of the concrete mix in all phases of the operation.

Delays in placing shall be handled as follows or as otherwise directed. The concrete hopper on the pipe laying machine shall be kept ½ full at all times, provided, however, that when placing operations cease or are delayed for any reason for more than 20 minutes, the pipe machine shall be pulled forward until all the concrete is exhausted and until the top troweling skirt is clear of the concrete. If the pipe laying operation proceeds within one hour of the time of the last placement, no further steps need to be taken. However, if longer than one hour has elapsed, then a construction joint must be made as previously described. The end of the pipe shall be left rough and at the natural slope when the machine is moved forward.

All junctions of pipe shall be provided for at the time the cast-in-place pipe is placed.

Inside forms shall be removed from the pipe not sooner than 4 hours nor longer than 24 hours after placement of the concrete. Care shall be taken when removing forms to prevent damage to the pipe. The inside of the pipe shall be carefully inspected for imperfections in placement, and any required repairs or smoothing shall be made immediately to provide a uniform interior surface. No wash, mortar or concrete shall be applied to a surface not properly moistened or cleaned. Visible cracks shall be brushed with cement paste or chipped out and pointed up with cement mortar. Any cracks that appear to go through the shell shall be grooved and filled with mortar. All construction operations and methods for providing a watertight pipeline shall be the responsibility of the Contractor. Mortar shall consist of one part cement; two parts well graded sand passing 1/8-inch sieve. Wash shall consist of four parts cement, one part fire clay. The finished surface of the concrete pipe shall be substantially free of fractures, cracks and surface roughness.

7. CURING CONCRETE

Immediately after the concrete is placed the exposed surface of the concrete shall be cured by covering the top with a sheet of polyethylene film sealed with dirt along the edges. During the curing period following the placement of the concrete, the ends of the pipeline and all other openings into the pipeline shall be covered with canvas or other suitable material, except at locations where work is actually in progress. The inside surface of the pipeline shall not be cured.

8. MANHOLES AND BENDS

Manhole bases shall be hand formed on top of the pipe as soon as the pipe-placing machine has passed. Where required, the extra width for manholes shall be excavated ahead of the pipe placing operation. The base for the manhole shall be formed to receive a standard precast concrete barrel section and shall be shaped and smoothed so that the joint can be sealed water tight by use of “Ram Nek” or other approved joint sealing material.

Bends may be formed and cast in place or fabricated using precast reinforced concrete pipe (load D). Design and shop drawings shall be submitted to and approved by the Engineer before the bends are fabricated or cast.

9. MEASUREMENT

Measurement of manholes shall be as specified elsewhere in these specifications. Measurement of bends shall be as for other storm sewer pipe. The method of pipe measurement shall conform to that for other types of storm drainpipe in the section or storm drains in these specifications.

10. PAYMENT

Payment for cast-in-place non-reinforced pipe sewers, measured as prescribed above, will be made at the unit price bid per linear foot for the various sizes of “Pipe Sewers (Cast-in-Place)” complete in place. Payment for manholes shall be as specified elsewhere in these specifications.

Such payment shall be full compensation for furnishing all concrete materials, precast reinforced concrete pipe used in place of cast-in-place pipe, and for all other materials, tools, labor, equipment, and incidentals required to perform the applicable work prescribed herein.

When precast reinforced concrete pipe at the Contractor’s option is used in a line of cast-in-place pipe the additional excavation for the pipe will be subsidiary.

2.04 CENTRIFUGALLY CAST FIBERGLASS REINFORCED RESIN PIPE SEWERS

A. DIRECT BURY PIPES

1. GENERAL

All pipes, joints and fittings shall be manufactured in accordance with the requirements of the applicable standard given below except as noted herein:

Service	Standard
Non pressure Sanitary Sewer	ASTM D3262
Sewer Force Main and Effluent Lines	ASTM D3754

Pipes shall be centrifugally cast, fiberglass-reinforced polyester resin as manufactured by Hobas USA, Inc. or approved equal.

Minimum pipe stiffness when tested in accordance with ASTM D2412 shall be 46 psi.

2. MATERIALS

The manufacturer shall use only approved polyester resin systems for which he can provide a proven history of performance in these particular applications. The historical data shall have been acquired from a composite material of similar construction and composition as the proposed product.

The reinforcing glass fibers used to manufacture the components shall be of highest quality commercial grade of E-glass filaments with binder and sizing compatible with impregnating resins. Sand shall be minimum 98% silica with a maximum moisture content of 0.2%

3. DIMENSIONS

Pipe outside diameters shall be in accordance with AWWA Standard C151 and C950. For diameters larger than covered in those documents, OD's shall be as shown in Table 1.

TABLE I

*WP/s		0/46		50/46		100/46		150/46		200/46	
Nomin Pipe Sz. (in.)	Pipe OD (in.)	Min. wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt. (lb/ ft)	Min. Wall (in.)	Wgt (lb/ ft.)
18	19.50	.42	20	.41	20	.40	19	.38	18	.37	18
20	21.60	.46	25	.45	24	.43	23	.42	22	.40	21
24	25.80	.54	35	.53	34	.51	33	.49	31	.47	30
30	32.00	.66	54	.65	53	.62	51	.60	49	.57	47
36	38.30	.78	77	.77	76	.74	73	.71	70	.68	67
42	44.50	.90	104	.88	101	.85	98	.82	94	.78	89
48	50.80	1.02	134	1.00	131	.96	126	.93	122	.88	115
54	57.10	1.14	169	1.12	166	1.08	160	1.04	155	.99	147
60	62.90	1.26	209	1.23	204	1.19	197	1.14	188	1.09	180
66	69.20	1.38	249	1.35	243	1.30	234	1.25	228		
72	75.40	1.50	298	1.47	292	1.41	280	1.36	270		
78	81.60	1.62	352	1.58	343	1.52	331	1.47	320		
84	88.00	1.74	409	1.70	399	1.64	385				
90	94.30	1.86	468	1.82	458	1.75	440				
96	100.6	1.98	531	1.94	520	1.87	501				

- **Maximum nominal working pressure in psi/pipe stiffness in psi**

Pipe shall be supplied in nominal lengths of 20 feet. Actual laying length shall be the nominal plus or minus 2 inches. At least 90% of the total footage of each size and class of pipe, excluding special order lengths, shall be furnished in nominal length sections.

4. **PRESSURE CLASS & TESTING FOR SEWER FORCE MAINS AND EFFLUENT LINES**

The pipe nominal pressure class (PN) shall be equal to or greater than the maximum sustained operating pressure of the line. The minimum pressure rating for non-pressure pipe shall be 15 psi.

The maximum transient (operating plus surge) pressure of the line shall not exceed the pipe nominal pressure class by more than 40%.

Pipe hoop tensile strength for pressure pipe shall be verified as specified in the applicable standard (D3754 or C950) or by random burst testing at the same sampling frequency. All pipes shall be capable of withstanding a test pressure of 2 times the maximum sustained operating pressure of the line without leaking or cracking. This performance shall be periodically verified at the factory for pressure pipe at least once per lot as defined in D3754, section 7.1.

A. JOINTS

Unless otherwise specified, the pipe shall be field connected with fiberglass sleeve couplings that utilize elastomeric sealing gaskets made of EPDM rubber compound as the sole means to maintain joint water tightness. The joints must meet the performance requirements of ASTM D4161.

B. FITTINGS

Flanges, elbows, reducers, tees, wyes, laterals and other fittings shall, when installed, be capable of withstanding all operating conditions. Acceptable configurations include contact molded or metered fiberglass or properly protected standard ductile iron.

Unbalanced thrust forces shall be restrained with thrust blocks or other approved suitable methods. Fiberglass tees, wyes, laterals, or other similar fittings shall be fully encased in reinforced concrete designed to withstand the pressure forces.

2.05 POLYETHYLENE SEWER PIPE

A. SCOPE

(1) This specification covers Polyethylene (PE) pipe with a corrugated outer wall and a smooth interior wall, for use with non-pressure sanitary sewer systems. The PVC fittings and joints are included in the specification.

B. MATERIAL AND MANUFACTURING

1. PIPE MATERIALS

The pipe shall be made from clean virgin Polyethylene compounds having a cell classification of 324420C as defined by ASTM D-3350.

2. FITTING MATERIALS

The fittings shall be made from clean virgin polyvinyl chloride (PVC) compounds having a cell classification of 12454B, 1245C or 13343C as defined by ASTM D-1784.

Pipe shall be manufactured by simultaneous extrusion of the corrugated and smooth walls with the smooth inner wall fused to the outer corrugated wall.

Fittings shall be molded or fabricated.

3. JOINING MATERIALS

a. Gaskets
b. Elastomeric gaskets shall meet the requirements of ASTM F-477.
c. Lubricants

The lubricants used for assembly shall have no detrimental effect on the gasket or the pipe, and shall be per published recommendations of the pipe manufacture.

4. MATERIAL CERTIFICATION

A manufacture's or an independent laboratory certification shall be furnished to the purchaser/engineer that the products were manufactured, sampled, tested, and inspected at the time of manufacture in accordance with this specification.

C. PIPE DIMENSIONS

Pipe dimensions shall meet the following requirements when tested in accordance with ASTM D-2122.

Nominal Size	Avg. O.D.	Avg. I.D.
4	4.790 (121.7)	4.00 (101.6)
6	6.930 (176.0)	6.00 (152.4)
8	9.145 (232.2)	8.00 (203.2)
10	11.405 (289.7)	10.00 (254.0)
12	14.450 (367.0)	12.00 (304.8)
15	17.530 (445.3)	15.00 (381.0)
18	21/150 (537.2)	18.00 (457.2)

D. INSTALLATION

1. Joint Tightness

Minimum joint performance shall show no leakage when tested in accordance with ASTM D-3212.

2. Supplier Assistance

A manufacturers representative of the above referenced pipe material shall be present at the beginning of the installation as required by the Design Engineer or Contractor and shall remain on site until released by the Design Engineer or Field Inspector/Engineer.

2.06 INLETS FOR STORM SEWERS

A. CURB TYPE INLETS

(1) Curb inlets shall be constructed at the locations and to the lines and grades or shown on the plans or as directed by the Engineer.

(2) Curb inlets shall be constructed of reinforced class “C” concrete in accordance with Section 1-B “Concrete Structures” and the plans and detail drawings.

(3) The curb section and the curb inlet shall conform to the curb and gutter section in which it is placed in so far as it is possible.

B. GRATE TYPE INLETS

(1) Grate inlets shall be constructed at the locations and the lines and grades as shown on the plans or as directed by the Engineer.

(2) Concrete boxes for grate inlets shall be constructed of reinforced Class “C” concrete in accordance with Section 1-B “concrete Structures” and the plans and detail drawings.

(3) Grates shall be constructed of ASTM A-48 gray iron having minimum tensile strength of 35,000 psi or ductile iron having a minimum tensile strength of 60,000 psi and a yield strength of 40,000 psi.

The size, style, shape, type, weight and class shall be as shown on the plans.

Grate frames shall be as manufactured for the grate by the grate fabricator. If more than one type or style or frame is available, the type and/or style shall be as indicated on the plans.

C. COMBINATION INLETS

(1) Combination curb and grate inlets shall be constructed at the locations and to the lines and grades as shown on the plans or as directed by the Engineer.

(2) Combination inlets shall be constructed in accordance with the applicable requirements for “Curb type inlets” and “Grate type inlets” above.

D. INLET LEADS

(1) Inlet leads may be PVC pipe or CSP as shown on the plans and called for in the bid proposal.

(2) Inlet leads shall be constructed in accordance with the specifications for type of material used and the plans and detail drawings.

(3) Where two or more leads are joined together to form a single lead to the storm sewer they shall be joined at a cleanout unless shown otherwise on the plans.

(4) Inlet leads shall be connected to the storm sewer at a manhole. The leads shall enter the manhole at a point that will match the .8 points of the two pipes as near as practical.

E. CLEANOUT FOR STORM SEWER INLET LEADS

Cleanouts at the juncture of inlet leads shall be constructed in accordance with the dimensions and requirements shown on the plans and detail drawings.

F. CORRUGATED STEEL SLOTTED DRAINS

(1) Corrugated steel slotted drains shall be as specified in section 2.02-3 of these specifications and shall be furnished in the lengths and diameters as shown on the drawings and in the bid proposal.

(2) Corrugated steel slotted drains are approved for nuisance water inlets only and are sized to allow for considerable clogging before they will cease to function in this capacity.

2.07 MANHOLES

1. GENERAL

A. **CONCRETE MANHOLES ARE NOT TO BE USED FOR SANITARY SEWERS AFTER DECEMBER 31, 2002. FIBERGLASS MANHOLES ARE TO BE USED FOR ALL SANITARY SEWERS**. Concrete manholes can be used for storm water sewers.

All manholes furnished for this project shall be precast unless noted otherwise on the plans and or bid proposal.

Precast manholes shall conform to the requirements of ASTM Specification C-478 with the modifications given in this article.

Concrete used for precast manholes shall have a minimum 28-day compressive strength of 4,000 psi and shall have a minimum cement content of 7 sacks per cubic yards.

All manhole sections shall be furnished with tongue and groove type joints suitable for sealing water tight with rubber or bituminous joint sealer or gaskets.

B. When cast in place components for manholes are called for on the plans the concrete used shall have a minimum 28 day compressive strength of 4,000 psi and a minimum cement content of 7 sacks per cubic yard and shall conform to the requirements of ASTM Specification C-478 with wall thickness as shown on the plans and detail drawings.

Aggregate for the concrete shall meet the sodium sulfate and magnesium sulfate test as required in ASTM Specification C-33.

C. Mortar for filling and shaping the inverts in precast manhole bases and for mortaring precast grade rings and cast iron rings and covers shall consist of one part Portland cement ASTM C150 Type 1 to 3 parts washed sand mixed with just enough water to make a workable mix.

D. Manholes for corrugated steel pipe may be precast concrete or corrugated steel as described in Article 2.02. The type and material shall be as shown on the plans and called for on the bid proposal.

2. PRECAST MANHOLES

A. Manhole base sections shall be cast with an integral floor and shall be constructed in accordance with the details shown on the plans.

B. Manhole riser sections shall be constructed in accordance with the plans and details and these specifications. When pipe openings are required in manhole riser sections they shall be of the same type and meet the same requirements as the pipe openings in the precast bases.

Manhole riser sections for each manhole shall be furnished in the proper combination of lengths to construct the manhole in conjunction with the other components to the finished grade shown on the plans.

C Eccentric cone sections shall be constructed in the same manner as other components except the top of the cone will have a flat surface to accommodate the manhole ring and cover or grade adjusting rings instead of a tongue or groove.

Generally openings will not be required in the wall of the cone section of the manhole.

D. Manhole grade rings shall comply with all the requirements for manhole riser sections except they shall be cast smooth both sides without tongues and/or grooves.

Manhole grade rings shall be sized to fit the smooth small end of the cone section and shall be cast in heights of 2", 4" or 6".

E. Joint seals for precast concrete manholes shall be a bitumastic sealer such as Ram-Nek or approved equal, a soft rubber sealer such as Butyl-Lok or approved equal or an approved "O" ring gasket or a combination of the above if required to achieve a water tight joint.

F. All water tight Storm Sewer Manholes constructed on this project shall have Neenah R-1755-C watertight manhole rings and covers or approved equal.

No separate payment will be made for the protective plastic manhole linings or for the water tight manhole rings and covers but the cost of these items shall be included in the price bid for water tight Storm Sewer Manholes.

In addition to the markings required by ASTM Specification C-478, all components of each manhole shall be, marked with location identifying information such as manhole number or line number and station value where manhole is to be installed. If the manhole has openings for installation of branch lines above the base section, each manhole section shall be clearly marked with the sequence of installation to assure the branch opening will be at the correct elevation.

3. FIBERGLASS MANHOLES

A. SCOPE

Fiberglass reinforced polyester manholes shall be manufactured from commercial grade polyester resin or other suitable polyester or vinyl resins, with fiberglass reinforcements and in accordance with the latest edition of ASTM D 3 753 (Standard Specification for Glass-Fiber Reinforced Polyester Manholes). Fiberglass manholes shall be used with fiberglass or plastic sewer pipe.

B. MATERIALS

1. **Resin:** The resins used shall be a commercial grade unsaturated polyester resin.

2. **Reinforcing Materials**: The reinforcing materials shall be commercial Grade "E" type glass in the form of mat, continuous roving, chopped roving, roving fabric, or a combination of the above, having a coupling agent that will provide a suitable bond with the resin and leave a resin rich surface.

3. **Surfacing Materials**: If reinforcing materials are used on the surface exposed to the contained substance, they shall be a commercial grade chemical-resistant glass organic surfacing mat having a coupling agent that will provide a suitable bond with the resin and leave a resin rich surface.

4. **Fillers and Additives**: Fillers, when used, shall be inert to the environment and wet well construction. Additives, such as thixotropic agents, catalysts, promoters, etc., may be added as required by the specific manufacturing process to be used. The resulting reinforced plastic material must meet the requirement of this specification.

C. FABRICATION

1. **Exterior Surface**: The exterior surface shall be relatively smooth with no sharp projections. Handwork finish is acceptable if enough resin is present to eliminate fiber show. The exterior surface shall be free of blisters larger than ½ inch in diameter, de-lamination and fiber show.

2. **Interior Surface**: The interior surface shall be resin rich with no exposed fibers. The surface shall be free of crazing, de-lamination, blisters larger than ½ inch in diameter, and wrinkles of 1/8 inch or greater in depth. Surface pits shall be permitted up to 6 per square foot if they are less than ¾ inch in diameter and less than 1/16 inch deep.

3. **Defects not permitted**:

Exposed fibers: glass fibers not wet out with resin.
Resin runs: runs of resin and sand on the surface
Dry areas: areas with glass not wet out with resin.
De-lamination: separation in the laminate.
Blisters: light colored areas larger than ½ inch in diameter.
Crazing: cracks caused by sharp objects
Pits or Voids: air pockets.
Wrinkles: smooth irregularities in the surface.
Sharp projection: fiber or resin projection necessitation gloves for handling.

D. PHYSICAL REQUIREMENTS

1. **Load Rating**: The complete manholes shall have a minimum dynamic-load rating of 16,000 ft-lbs. when tested in accordance with this standard. In order to establish this rating, the complete manhole shall not leak, crack, or suffer other damage when load

tested to 40,000 ft-lbs. and shall not deflect vertically downward more than ¼ inch at the point of load application when loaded to 24,000 lbs.

2. **Stiffness**: The manhole cylinder shall have a minimum pipe stiffness value as shown below when tested in accordance with A.S.T.M. 3753 8.5 (note 1)

Depth Ft.	F/dy.psi
3 – 6.5	0.75
7 – 12.5	1.26
13 – 20.5	2.01
21 – 25.5	3.02
26 – 35	5.24

3. **Soundness:** In order to determine soundness, apply an air or water pressure test to the manhole test sample. Test pressure shall not be less than 3 psig or greater than 5 psig. While holding at the established pressure, inspect the entire manhole for leaks. Any leakage through the laminate is cause for failure of the test. Refer to A.S.T.M. 3753 8.6.

4. **Chemical Resistance**: The fiberglass manhole and all related components shall be fabricated from corrosion proof material suitable for atmospheres containing hydrogen sulfide and dilute sulfuric acid as well as other gases associated with the wastewater collection.

5. **Physical Properties**:

	Hoop Direction	Axial Direction
a. Tensile Strength (pi)	18,000	5,000
b. Tensile Modulus (pi)	0.6×10^6	0.7×10^6
c. Flexural Strength (psi)	26,000	4,500
d. Flexural Modulus (psi)	1.4×10^6	0.7×10^6
e. Compressive (psi)	18,000	10,000

6. **Minimum Wall Thickness**: Shall be 0.48” nominal at all depths of the manholes.

E. TEST METHODS: All tests shall be performed as specified in A.S.T.M 3753 latest edition, section 8. Test method D-790 (see note 5) and test method D-695.

F. QUALITY CONTROL: Each completed manhole shall be examined for dimensional requirements, hardness, and workmanship. All required A.S.T.M 3753 testing shall be completed and records of all testing shall be kept and copies of test records shall be presented to customer upon formal written request within a reasonable time period.

G. CERTIFICATIONS: As a basis of acceptance the manufacturer shall provide a independent certification which consist of a copy of the manufacturer’s test report and accompanied by a copy of the test results that the manhole has been sampled, tested,

and inspected in accordance with the provisions of this specification and meets all requirements.

H. SHIPPING AND HANDLING: Do not drop or impact the fiberglass manhole. Fiberglass manhole may be lifted by inserting a 4" x 4" x 30" timber into the top of manhole with cable attached or by a sling or "choker" connection around center of manhole, lift as required. Use of chains or cables in contact with the manhole surface is prohibited.

I. CONCRETE:

1. **Fiberglass Bottom**: Manholes may have fiberglass bottoms that are a minimum of 6" below the OD of the pipe invert when concrete is used to form the invert. Manufactured fiberglass inverts and bench areas are allowed, or concrete may be used to form bench area and invert. Concrete is to be used on top of anti-flotation ring and around the reducer section as required for buoyancy.

2. **Concrete Bottom**: Lower manhole into wet concrete until it rests at the proper elevation, with a minimum of 4 inches of fiberglass manhole inserted into the wet concrete below flow line, then move manhole to plumb. The concrete shall extend a minimum of one foot from the outside wall of the manhole and a minimum of 6 inches above incoming lines. On the inside concrete shall form the bench and invert area and rise a minimum of 4 inches above incoming lines. If required by Engineer concrete may be used around reducer section for buoyancy control.

BACKFILL:

1. **Backfill Material**: Unless shown otherwise on drawings and approved by the Engineer, sand, crushed stone, or crushed gravel shall be used for backfill around the manhole for a minimum distance of one foot from the outside surface and extending from the bottom of the excavation to the top of the reducer section. Suitable material chosen from the excavation may be used for the remainder of the backfill. The material chosen shall be free of large lumps or clods, which will not readily break down under compaction. This material will be subject to approval by Engineer.

2. **Backfill Procedure**: Backfill shall be placed in layers of not more than 12 loose measure inches and mechanically tamped to 95% Modified Proctor Density, unless otherwise approved by Engineer. Backfill shall be placed in such a manner as to prevent any wedging action against the fiberglass manhole structure.

K. MARKING and IDENTIFICATION: Each manhole shall be marked on the inside and outside with the following information:

Manufacturer's name or trademark
Manufacturer's factory location
Manufacturer's serial number
Total length

4. MANHOLE RINGS AND COVERS

A. Manhole rings and covers furnished for this project shall be pattern No. 300-24 as produced by Western Iron Works, Inc., 21 E. 6th St., San Angelo, Texas 76903-5493 or Bass and Hays Foundry, Inc., 238 South Bagdad Rd., Grand Prairie, Texas 75050, or approved equal.

B. WATER TIGHT MANHOLE COVERS

(1) Water tight manhole rings and covers furnished for this project shall be number R-1755-C as manufactured by Neenah Foundry Company, P.O. Box 729, Neenah, Wisconsin 54957, or approved equal.

(2) When watertight replacement sanitary sewer manhole rings and covers are called for on the plans and in the bid proposal they shall be Neenah Foundry Co. No. R-1755-C or approved equal.

No separate payment will be made for adjusting to grade of the replacement watertight manhole rings and covers. The contractor shall schedule this work to coincide with other manhole and water valve adjustments and any costs that might be involved shall be included in the price bid for replacement water tight manhole rings and covers.

(3) Manhole vents shall be used in conjunction with watertight rings and covers spaced every third manhole or as indicated on the plans. Vents shall be constructed as indicated on City design and construction standards.

C. Pressure type manhole rings and covers may be required for certain storm sewer applications. When pressure type manhole rings and covers are called for on the plans and/or bid schedule they shall be Western Iron Works Pattern #380-24P or approved equal. The manhole cover shall be sealed with an “O” ring gasket in a ring groove and shall be secured to the ring by six (6) five-eighths inch (5/8”) stainless steel bolts. The ring shall have six (6) one and one quarter inch (1-1/4”) bolt holes in the flanges for securing the ring to the concrete slab top on the manhole.

D. All manhole covers except grate type shall have two blind pick holes or pick bar cast into them. The blind pick holes or pick bars shall be placed on opposite sides of the cover.

E. All manhole covers except grate type shall have cast into their tops in letters 2 inches high minimum one of the following:

CITY OF MIDLAND
SANITARY SEWER
OR
CITY OF MIDLAND
STORM DRAIN

which ever is applicable.

2.08 GRANULAR MATERIALS

A. GRANULAR MATERIAL GRADATION CLASSIFICATIONS:

Granular materials furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified, shall consist of any natural or synthetic mineral aggregate such as sharp grained sand, crushed gravel, crushed rock, crushed stone, or slag, and shall conform to the following specifications and/or gradation.

Note all materials used for these purposes shall be crushed and shall have at least two broken faces. Pea gravel will NOT be allowed.

	Foundation	Bedding	Encasement	Backfill
ASTM C33 Grade #57	x			
ASTM C33 Grade #67	x			
ASTM C33 Grade #8		x	x	
THD 1982 Item 302 Type D Grade 4		x	x	
THD 1982 Item 302 Type D Grade 5			x	
Crusher fines**			*x	x

*100 percent of crusher fines that are to be used within 12 inches of the top of pipe must pass the ¾" sieve.

** Approximate Gradation for Crusher Fines.

Sieve Size	% Passing
2 inch	100
# 4	35 - 100
# 10	20 - 100
# 40	5 - 35
#200	4 - 10

Crushed stone material proposed as an alternate for use on this project and not meeting the above specifications must be approved in writing at least 48 hours prior to the time scheduled for opening bids.

B. GRANULAR MATERIAL USE DESIGNATIONS:

Granular materials provided for Foundation, Bedding, Encasement, or Backfill use as required by the contract, either as part of the pipe item work unit or as a separate contract item, shall be classified as to use in accordance with the following:

MATERIAL USE DESIGNATION	ZONE DESIGNATION
Granular Foundation	Placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support.
Granular Bedding	Placed below the midpoint of the pipe prior to pipe installation, to facilitate proper shaping and achieve uniform pipe support. Also for Class B bedding where specified.
Granular Encasement	Placed below an elevation one half foot (6") above the top of pipe, after pipe installation, for protection of the pipe and to assure proper filling of voids and thorough consolidation of backfill.

In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

PART 3 – EXECUTION

3.01 LOCATION OF WORK

A. The work will be located as shown on the plans.

B. It may be necessary for the Engineer to shift lines as reasonable amount to avoid an obstruction to the construction or to reduce right of way difficulties. The Contractor will not be allowed any additional compensation due to shift of lines. Additional compensation will be allowed only for lengthening of lines.

3.02 PROTECTION OF SURFACE STRUCTURES

A. All surface structures and features located outside the permissible excavation limits for underground installations, together with those within the construction areas which are indicated in the Plans as being saved, shall be properly protected against damage and shall not be disturbed or removed without approval by the Engineer.

B. Obstructions such as street signs, guard posts, mail boxes and other items of prefabricated construction may be temporarily removed during construction provided that essential service is maintained in a relocated setting as

approved by the Engineer and that non-essential items are properly stored for the duration of construction. Upon completion of the underground work, all such items shall be replaced in their proper setting. This removal, relocation and replacement shall be at the sole expense of the Contractor.

In the event of damage to any surface structures or improvements, either privately or publicly owned, in the absence of construction necessity, the Contractor will be required to replace or repair the damaged property to the satisfaction of the Engineer and without cost to the Owner.

3.03 INTERFERENCE OF UNDERGROUND STRUCTURES

A. When any underground structure interferes with the planned placement of the pipeline or appurtenances to such an extent that alterations in the work are necessary to eliminate the conflict or avoid endangering effects on either the existing or proposed facilities, the Contractor shall immediately notify the Engineer and the Owner of the affected structure. When any existing facilities are endangered by the Contractor's operations, he shall cease his operations at the site and take such precautions as may be necessary to protect the in place structures until a decision is made as to how the conflict will be resolved.

B. Without specific authorization from the Engineer, no essential utility service shall be disrupted, nor shall any change be made in either the existing structures or the planned installations to overcome the interference. Alterations in existing facilities will be allowed only to the extent that service will not be curtailed unavoidably and then only when the encroachment or relocation will satisfy all applicable regulations and conditions.

C. Wherever alterations are required as a result of unforeseen underground interference not due to any fault or negligence of the Contractor, the Engineer will issue a written order covering any additional or extra work involved and specifying the revised basis of payment, if any. Any alterations made strictly for the convenience of the Contractor shall be subject to prior approval and shall be at the Contractor's expense.

D. No extra compensation will be allowed for delays caused by the interference of underground structures.

3.04 SEPARATION BETWEEN SANITARY SEWERS AND WATER MAINS

A. Sanitary sewers and service lines shall be installed so that the separation between the sewer and water mains is not less than 9 feet in all directions. The 9 feet shall be measured between the nearest outside edges of the pipe.

B. When the required 9 foot minimum separation cannot be maintained and a sanitary sewer must be constructed parallel to a water main, the sanitary sewer shall be constructed of ductile iron or PVC pipe meeting AWWA specification or having NSF approval for potable water pipe, with a pressure rating of 100 psi for both the pipe and the joint. The sanitary sewer line shall

be installed in a separate trench and may be placed no closer than 2 feet vertically and 4 feet horizontally from the water main, with the separation being measured from the nearest outside walls of the pipes. The sanitary sewer shall be constructed lower than the water main.

C. When a sanitary sewer must cross a water main and the 9 feet required separation cannot be maintained, the sanitary sewer may be constructed with a minimum clear separation between the outside diameters of the two pipes of 6 inches if that part of the sanitary sewer within 9 feet of the water main is constructed of ductile iron pipe or PVC pipe meeting AWWA specifications, having a 150 psi pressure rating and equipped with pressure type joints. One length of the sewer pipe must be centered on the water main and where possible, the sanitary sewer should pass under the water line.

D. When the 9 foot required separation cannot be maintained and a sanitary sewer force main must be constructed parallel to a water main, the sanitary sewer force main shall be constructed of ductile iron or PVC pipe meeting AWWA specifications and having a pressure rating of 150 psi and equipped with pressure type joints. The force main must be constructed with a minimum vertical separation of 2 feet and a minimum horizontal separation of 4 feet measured between the outside diameters of the pipes. The force main must be constructed lower than water main.

Table I showing separation of water and sewer lines and construction materials allowed:

TABLE 1
SEPARATION OF WATER AND SEWER LINES

Condition	Location	Material		Separation (Min.)		Comments
		Water	Sewer	Vert.	Horiz.	
NEW WATER AND NEW SEWER SYSTEM						
New Water & New Sewer Gravity Sanitary Sewer Parallel to Water Main	Water above Sewer	Std.	CI DI PVC 150 PSI	2’	4’	Separate Trenches
Gravity Sanitary Sewer Crossing Water Main	Water above Sewer or Sewer above Water	Std	CI DI PVC. 150 PSI	6”	NA	Center one joint of sewer pipe on water main
Gravity Sewer Crossing Water Main	Water above Sewer	Std	ABS, Clay Conc. composite	2’	NA	Cement stabilize sand initial backfill zone each side of crossing. Center of sewer for 9 ft one joint of sewer pipe on water Main
NEW WATER AND EXISTING SANITARY SEWER						
New Water Parallel Existing Sewer	Water above Sewer	Std.	Clay, Conc. ABS CI DI PVC	2’	4’	If sewer shows no sign of leakage, then leave sewer alone. If Sewer shows signs of leakage, then repair or replace.
New Water Crossing Existing Sewer	Water above Sewer	Std	Clay, ABS Conc. composite	2”	NA	If sewer shows no sign of leakage, then leave sewer alone if sewer shows signs of leakage then repair or replace.
New Water Crossing Existing Sewer	Sewer above Water	Std	Clay, ABS Conc. composite	2’	NA	Replace existing sewer with one joint CI,DI,PVC-150 Centering over waterline
New Water Parallel to Existing Sewer	Sewer above Water	Std	Clay, ABS Conc. composite	2’	4’	Replace existing sewer with CI, DI, PVC – 150 PSI or Cement Stabilized sand back- fill initial Backfill none of sewer where parallel closer than 9 ft., or Encase the water in 150 PSI Pipe two nominal sizes larger.

EXISTING WATER AND NEW SANITARY SEWER						
New Sewer parallel Existing Water	Water above Sewer Or Sewer above Water	Std	CI DI PVC 150 PSI	2'	4'	Separate trenches
New Sewer crossing Existing Water	Water above Sewer or Sewer above water	Std	CI DI PVC 150 PSI	6"	NA	Center one joint of sewer pipe on water main.
New Sewer crossing Existing Water	Water Above Sewer	Std	Clay, ABS Conc. composite	2'	NA	Cement Stabilize sand initial backfill zone of sewer for 9 ft each side of crossing. Center one joint of sewer pipe on water main.

3.05 EXCAVATION

A. Excavation of every description and of whatever materials encountered shall be made to the alignment and depth shown on the plans or as directed by the Engineer. Excavation shall be made by open cut. Sides of trenches shall be kept as nearly vertical as possible and the trench shall be so braced, sheeted and drained that workmen may work safely and efficiently therein. The trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench.

B. The trench width may vary with and depend upon the depth of trench, the diameter of pipe to be laid and the nature of the material to be excavated; but in any case shall be of ample width to permit the pipe to be laid and jointed properly and the backfill to be placed and compacted properly. The minimum width of unsheeted trench shall be 18 inches. The maximum clear width of trench at the top of the pipe shall be not more than two (2) feet greater than the outside diameter of the pipe for pipes up to 33" diameter except by consent of the Engineer. Whenever, for any reason, the maximum trench width is exceeded, the Contractor shall provide, at his own expense, pipe of higher class and/or bedding adequate to sustain the increased soil load as calculated by the Engineer.

C. Trenches shall be undercut to provide for the class bedding specified and/or shown on the plans. Bell holes shall be excavated to insure the pipe resting for its entire length upon the bedding material. Where trenches are under-cut beyond the depth required for bedding the trench shall be brought to grade by using crushed aggregate as specified for foundation herein. The use of loose native soil will NOT be permitted for this purpose.

D. No pipe shall be laid in water. Where the ground water table is at or above trench bottom, the Contractor shall de-water the trench to permit the pipe to be laid on a solid foundation.

   Costs for de-watering by whatever method selected shall be considered incidental to the price bid per foot of pipe.

   The Contractor shall discharge pumps to the natural drainage channels, or if permitted, to other sewer or drains.

Where sewer pipelines are located in or across streambeds or drainage ditches, the Contractor shall divert the stream flow and de-water each section as the work progresses.

E. Temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstructions encountered in the progress of the work shall be furnished by the Contractor at his own expense under the direction of the Engineer.

F. Whenever wet, soft or unstable soil, incapable of properly supporting the pipe, manholes or other structure is encountered in the trench, a further depth and/or width shall be excavated and refilled to trench bottom grade with gravel or other approved suitable material thoroughly compacted to assure a firm foundation for the pipe.

G. Rock, boulders and large stones shall be removed to provide a clearance of at least six (6) inches below the outside barrel of the pipes, valves, or fittings and to a clear width of six (6) inches on each side of all pipe and appurtenances for pipe 15 inches in diameter or less, and a clear width of nine (9) inches on each side of all pipe and appurtenances for pipe larger than 15 inches in diameter. Adequate clearance for properly joining pipe laid in rock trenches shall be provided at bell holes. The space between the rock at the bottom of the trench and the bottom of the pipe barrel shall be filled with compacted bedding material.

H. The Engineer shall be notified of any need for blasting to remove materials which cannot be broken up mechanically, and there shall be no blasting operations conducted until the Engineer's approval has been secured. Blasting operations will be allowed only when proper precautions are taken to protect life and property, and then shall be restricted as the Engineer directs. The Contractor shall assume full responsibility for any damage caused by blasting, regardless of the requirements for notification and approval. The Contractor shall secure any required permits for blasting and shall conduct blasting operations in conformance with all applicable State and local laws, regulations and ordinances.

I. In the event the Contractor desires to employ tunneling in locations other than as shown on the Plans in order to avoid replacement of sidewalks, etc., he shall do so only upon receipt of specific permission from the Engineer. Tunneling of this nature shall be considered incidental.

J. Excavated materials will be classified for reuse as being either suitable or unsuitable for backfill or other specified use.

3.06 SPECIAL SAFETY PROVISIONS

1. TRENCH SAFETY SYSTEMS

A. DESCRIPTION

This item shall govern for the Trench Safety Systems required for the construction of all trench excavation to be utilized in the project and including all additional excavation and backfill necessitated by the safety system. A trench shall be defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. The depth is five feet or more. Trench Safety Systems include but are not limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, de-watering or diversion of water to provide adequate drainage.

B. CONSTRUCTION METHODS

Trench safety systems shall be accomplished in accordance with the detailed specifications set out in the provisions of Excavation, Trench, and Shoring, Federal Occupational Safety and Health Administration (OSHA) Standards, 29CFR, Part 1926, Subpart P, as amended, including Proposed Rules published in the Federal Register (Vol. 52, No. 72) on Tuesday, October 31, 1989. The sections that are incorporated into these specifications by reference include Sections 1926-650 through 1926-652. Legislation that has been enacted by the Texas Legislature, being Tex. Rev. Civ. Stat. Ann. Arts. 1015q, 2368a.6 (Vernon Supp. 1988) with regard to Trench Safety Systems, is hereby incorporated, by reference into these specifications.

A reproduction of the OSHA Publication 2226 is attached for the convenience of the Contractor. The City assumes no responsibility for the accuracy of the reproduction or that it reflects current law. The Contractor is responsible for obtaining a copy of this section of the Federal Register for his use.

If the contractor elects to use a trench protective system that, in the Proposed Rules, requires “Design by a qualified person or a qualified engineer,” [For example see 1926.652 (b) (3) and 1926.652 (c) (4)], a “qualified person or qualified engineer” shall be a Professional Engineer registered in the State of Texas. The Contractor is responsible for obtaining boring and soil analysis as required for the planned design. The trench excavation is to be designed in conformance with OSHA standards and regulations.

C. TRENCH SAFETY PROGRAM

The Contractor shall submit a safety program specifically for the construction of trench excavation. The trench safety program shall be in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.

D. INSPECTION

The Contractor shall make daily inspections of the Trench Safety Systems to ensure that the systems meet OSHA requirements. Daily inspection is to be made by a "competent person" provided by the Contractor. If evidence of possible cave-ins, or slides, is apparent, all work in the trench shall cease until the necessary precautions have been taken by the Contractor to safeguard personnel entering the trench. It is the sole duty, responsibility and prerogative of the Contractor, not the owner or the Engineer, to determine the specific applicability of the designed trench safety systems to each field condition encountered on the project. The Contractor shall maintain a permanent record of daily inspections.

2. SAFETY RESTRICTIONS - work near high voltage lines

The following procedures will be followed regarding the subject item on this contract:

A. Warning signs painted yellow with black letters that are legible at twelve feet shall be placed inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows:

"WARNING - UNLAWFUL TO OPERATE THIS EQUIPMENT WITHIN SIX FEET OF HIGH VOLTAGE LINES."

B. All equipment except back hoes or dippers that may be operated within ten feet of high voltage lines shall have an insulating cage-type of guard about the boom or arm and insulator links on the lift hook connections.

C. When necessary to work within six feet of high voltage electric lines, notification shall be given the power company who will erect temporary mechanical barriers, de-energize the line, or raise or lower the line. The notifying department shall maintain an accurate log of all such calls to the Power Company, and shall record action taken in each case.

D. The Contractor is required to make arrangements with the Power Company for the temporary relocation or raising of high voltage lines at the Contractor's sole cost and expense.

3.07 PIPE LAYING

A. All gravity pipe shall be laid using approved grade boards, furnished and set by the Contractor at no additional cost to the Owner, according to the grade stakes established by the Engineer. The maximum spacing of grade boards shall be fifty (50) feet. No sewer shall be laid unless there is a minimum of three grade boards set to check the proper grade and alignment ahead. The Contractor shall provide and use a suitable grade rod to insure the proper grade of the pipe.

B. The Contractor may use the laser beam method of setting a line and grade for the sewer by using the laser beam coaxially through the center of the sewer being laid. The laser beam projector is to be rigidly mounted to its support platforms, with a two-point suspension, or equivalent, assuring that all ground and equipment vibrations are kept to an absolute minimum. The Contractor shall furnish all equipment including equipment necessary to control atmospheric conditions in the pipe to keep line and grade to acceptable standards of accuracy. Competent experienced people who have been properly trained to operate the equipment used must operate the laser beam system.

C. The Contractor shall stake check pegs at all manholes throughout the job. Check pegs midway between manholes and any other checkpoints deemed necessary to assure accuracy of the equipment shall be provided by the contractor.

D. Each piece of pipe and special fitting shall be carefully inspected before it is placed and no defective pipe shall be laid in the trench. Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells uphill. No pipe shall be laid except in the presence of an inspector representing the Engineer. Any pipe laid except in the presence of an inspector representing the Engineer shall be subject, at the contractor's expense, to a television camera inspection and survey by the city. Trench bottoms found to be unsuitable for foundations after pipe laying operations have started shall be corrected and brought to exact line and grade with approved compacted granular material as specified for foundation in Item 2.07 A. of these specifications.

E. Pipe laying shall proceed up-grade with spigot or tongue ends pointing in the direction of flow. The spigot shall be centered in the bell, and pipe shoved into position, and brought into true alignment. It shall be secured there with bedding material carefully tamped under and on each side of it, excepting at bell holes. Care shall be taken to prevent dirt from entering the joint space.

F. Any defective or damaged pipe discovered after the line is laid or any gravity pipe, which has had its grade or joint, disturbed after laying shall be removed and replaced or relayed. The section of line in which such damaged or displaced section is discovered shall be retested after corrections are made.

G. Where excavation for buildings or other portions of the work have been carried below the line and grades of the pipe, thorough tamping of approved crushed stone backfill and the use of adequate bracing and blocking under the pipe will be required to insure against settling and shearing of the pipe. In areas where noted on plans, Portland cement stabilized material or concrete shall be used for backfill to provide adequate bracing for pipe and protection of structures.

H. All manhole connections for PVC or other Polymer based pipe shall be made using "A Lok Gaskets" or "Kor-N-Seal" boots or other approved water stop devices. Only Portland cement grout that expands upon curing or approved non-shrink grout will be incorporated into any manhole connection.

I. Connections to manholes for other types of pipe shall be in accord with the pipe manufacturers specifications and other applicable requirements of these specifications. The resulting joint shall meet the leakage test requirements of these specifications.

J. The exposed end of all pipes shall be fully protected with a stopper or bulkhead at the end of each day's work to prevent earth, debris, small animals, or other substances from entering the pipe. The interior of the sewer shall be carefully freed from all dirt, jointing compound, or superfluous material of every description as the work progresses.

3.08 CONNECTION AND ASSEMBLY OF JOINTS

1. JOINING PVC OR OTHER POLYMER BASED PIPE

A. The type of joint and the material to be used shall be as shown on the plans or specified herein. Factory cast compression joints shall be free of dirt and lubricated before inserting the barrel into the bell. After the spigot is centered in the bell, the pipe shall be shoved home solidly by using a wood block and bar. The Contractor shall keep the ends of the pipe closed to prevent dirt and other material from entering the pipe during placement. All joints must be water tight, and any leaks or defects discovered must be repaired immediately. Any pipe, which has been disturbed after being laid, must be taken up, the joint cleaned and properly relayed as directed by the Engineer.

Lubricant used shall be as recommended by the pipe manufacturer.

B. Field-cut pipe must be beveled for insertion into the gasketed bell or coupling. Bevels can be made with a hand or power tool. Bevels shall be made to pipe manufacturer's specifications. If pipe manufacturers specifications are not available the bevel may be made at 15 degrees to the longitudinal axis of the pipe through one half (l/2) the wall thickness.

C. After pipe has been cut and beveled, a new full insertion mark located as recommended by the pipe manufacture shall be made using a felt tip pen. The contractor may determine the location of the insertion mark by measuring the mark location on a factory marked joint of pipe if manufacturer's specifications are not available.

2. JOINTING CORRUGATED STEEL PIPE

A. Gaskets for corrugated steel pipe shall be "O" Ring or sleeve types. Sleeve gasket shall be carefully placed on one joint of pipe. When the pipe is aligned and brought end to end the gasket shall be carefully centered over the joint between the ends of the pipe. "O" ring gasket shall be installed in accordance with the manufacturer's recommendation.

B. When "O" ring gaskets are furnished a flat gasket shall be furnished and placed between the overlapping portions of the band. The gasket shall extend the full width of the band and shall be of sufficient depth to assure a watertight joint.

C. The coupling band shall be carefully centered over the joints and tightened to the pipe manufacturer specifications. Care shall be taken during the tightening process to assure a snug uniform fit for the entire circumference of the pipe.

3. PROTECTING AND COVERING JOINTS

A. The contractor shall keep the ends of the pipe closed during the time of construction to prevent the entry of dirt, debris, small animals and other foreign objects.

B. Joints shall not be covered until approved by Engineer or his representative. Connections, which are for future use, shall be properly capped.

3.09 CONNECTIONS TO EXISTING STRUCTURES

A. Where shown on the plans, the contractor shall connect the new sewer to existing manholes. If no stub out is present in the existing manhole for such connection, the contractor shall construct such connection by making a hole in the side of the existing manhole using a coring machine or other approved method and installing a “KOR N Seal” boot as manufactured by N.P.C. Systems, Inc. or other approved water tight manhole connector.

The contractor shall use caution in constructing the connection to the existing manhole. Damage to the manhole that, in the opinion of the Engineer, would impair the use and/or function of the manhole shall be just cause to require the contractor to reconstruct the manhole at contractor’s expense. Such damage shall include but not be limited to cracking of the manhole riser section, spalling around the connection significantly reducing manhole wall thickness or excessive oversize in the opening for the new connection requiring any filler other than the manhole connector and/or non-shrink grout specified.

The contractor shall make such changes in the invert of the manhole as may be necessary to provide a smooth flow of the water through the manhole. Any connection to existing structures required in the Plans shall be accomplished by the Contractor and shall be incidental item with no direct compensation being made unless listed as a pay item in the bid proposal.

B. If the work consists of the construction of a sewer that is to replace an existing sewer, all of the existing service lines shall be kept in operation and connected to the new line.

C. Connections shall be made to all existing sewer lines in the vicinity of the work by removing a section of the sewer for the existing line and inserting in the space a tee branch of proper size, or by the construction of a manhole, regulator chamber of other structure as shown on the Drawings.

D. Connections to building services shall be made in a neat and workman like manner. Clean out plugs shall be installed wherever feasible, by making the connections with a standard wye or tee-wye. When clean out plugs are installed they should be located as near the right of way line as practical.

3.10 BACKFILL OPERATIONS

1. GENERAL

A. All pipeline excavations shall be backfilled in a manner that will restore pre-existing conditions as the minimum requirement and fulfill all supplementary requirements indicated in the Plans and Specifications. The backfilling operations shall be started as soon as conditions will permit on each section of pipeline, so as to provide continuity in subsequent operations and restore normal public service as soon as practicable on a section-by-section basis. All operations shall be pursued diligently, with proper and adequate equipment, to assure acceptable results.

B. For this specification backfill is defined as any material placed in the trench above the bedding zone other than the pipe or conduit and appurtenance.

For flexible pipe the backfill between the bedding material and the crown of the pipe shall be crushed stone suitable for encasement as specified in article 2.07 of the specifications. When Portland cement stabilized backfill is used above the pipe zone; the crushed stone encasement shall extend to 1' above the crown of the pipe.

C. Depositing of the backfill shall be done so the shock of falling material will not injure the structure. Grading over and around all parts of the work shall be done as directed by the Engineer.

D. Whenever soil types which are determined by the Inspector to be undesirable for backfill are excavated from the trench, such material shall be hauled away and deposited at locations shown on the plans or as directed by the Engineer at no additional compensation.

E. Backfill materials placed in the pipe zone shall be carefully placed in relatively uniform depth layers spread over the full width and length of the trench section in a manner and/or sequence that will provide simultaneous support on both sides of the pipeline. Each layer shall be compacted effectively, by approved mechanical of hand methods, until there is no further visual evidence of increased consolidation. Above the pipe zone the backfill material shall be placed uniformly across and along the trench in depth suitable for the compaction method used and compacted to a minimum of the density specified for the material used and the trench location. Compaction of the in place layer shall be completed acceptably before placing material for a succeeding layer thereon.

The manner of placement, layer thickness, compaction equipment, and procedure effectiveness shall be subject to approval of the Engineer. Water jetting or flooding shall NOT be used to compact trench backfill.

F. Compaction of materials placed within the pipe bedding and encasement zones shall be accomplished with portable or hand equipment methods, so as to achieve thorough consolidation under and around the pipe and avoid damage to the pipe. Above the pipe zone, the use of heavy roller type compaction equipment shall be limited to safe pipe loading.

G. The maximum loose thickness of each backfill layer placed above the pipe zone shall be 12 inches, except that 16 inches will be permitted for Granular Materials placed above an elevation one foot above the top of pipe, and with the provision that, by authority of the Engineer and in consideration of the demonstrated capability of special type vibratory compactors, these maximums may be increased at his discretion. “Hydro tamps”, “vibra tamps” or other heavy compacting equipment shall not be used until the backfill has reached a depth of four (4) feet above the top of the pipe.

H. All surplus or waste materials remaining after completion of the backfilling operations shall be disposed of in an acceptable manner within 24 hours after completing the backfill work on each particular pipeline section. Disposal at any location within the project limits shall be as specified, or as approved by the Engineer; otherwise, disposal shall be accomplished outside the project limits at the Contractor’s discretion. The backfilling and surplus or waste disposal operations shall be a part of the work required under the pipeline installation items, not as work that may be delayed until final cleanup.

I. For the duration of the warranty period of the project, the Contractor shall assume full responsibility and expense for all backfill settlement and shall refill and restore the work as directed to maintain an acceptable surface condition. All additional materials required shall be furnished without additional cost to the Owner.

2. BACKFILL IN PUBLIC RIGHTS-OF-WAY AND OTHER AREAS WHERE SETTLEMENT IS CRITICAL

A. GENERAL REQUIREMENTS

(1). Backfill above the pipe zone in public rights-of-way and under paved parking lots, near structures or other utilities where settlement can cause damage shall be made using Portland cement stabilized backfill or crushed stone screenings (crusher fines).

The pipe zone is defined as that portion of the trench extending from the bottom of the trench to 12” above the crown of the pipe or conduit.

(2) Backfill around structures such as manholes, junction boxes, transformer boxes and valve boxes shall be made using Portland cement stabilized backfill material or crushed stone screening (crusher fines).

(3) The minimum depth of stabilized backfill or crusher fines shall be twelve (12”) inches.

When utilities are being constructed under existing paving, the stabilized backfill or crusher fines shall extend from top of the pipe zone to the top of the base course.
When utilities are being constructed under existing unpaved streets that are not scheduled for immediate pavement construction, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the existing roadway surface.

When utilities are being constructed in streets that are scheduled for immediate paving, the stabilized backfill or crusher fines shall extend from the top of the pipe zone to the bottom edge of the eight (8") inches of subgrade, or, if the paving contractor has constructed a portion of the roadway prior to the construction of the utilities the backfill shall extend to the top of the course the contractor has finished, or the top of the base course, which ever is lower.

If the final course of asphaltic concrete has been placed, the street or alley surface shall not be cut for utility installation.

In streets where stabilized backfill is required only to the bottom of the subgrade course, the minimum depth of stabilized backfill may be reduced to six (6") inches in which case the maximum depth of the "pipe zone" shall be limited to six (6") inches above the top of the utility line or conduit.

B. BACKFILL MATERIALS

(1) Portland cement stabilized backfill shall consist of caliche base material, blow sand or native soil stabilized by the addition of Portland cement. Crushed stone or concrete aggregate shall NOT be used.

When Portland cement stabilized backfill is to be used, the contractor shall submit a mix design prepared by an approved commercial laboratory for approval before the trenching operation is begun. When native soil is to be used samples may be taken along the proposed route by boring or other approved means. Samples must be representative of the full trench depth.

The mix design shall be such that the minimum 7-day compressive strength is 150 psi when tested according to test method Tex 418-A.

The minimum cement content for Portland cement stabilized backfill shall be 1 sack per cubic yard.

Cement used in Portland cement stabilized backfill shall be Type I or Type II conforming to the requirements of ASTM Designation C150.

Caliche used for Portland cement stabilized backfill shall be crushed material conforming to Texas State Department of Highways and Transportation 1982 Standard Specifications for Construction of Highways, Streets and Bridges Item 248 Type F, Grade 2.

Blow sand used for Portland cement stabilized backfill shall be clean, free from organic matter, clay lumps, rock and other deleterious matter.

Native soil used for Portland cement stabilized backfill shall be clean, free of clods and organic matter, and free of rock in excess of 2".

(2) Crushed stone screening (crusher fines) used for back fill shall be sharp grained particles of crushed stone conforming to the requirements of Article 2.07 of these specifications.

(3) Trencher excavated rock material shall be screened so that the largest diameter material is less than 2". The screened rock material used for backfill shall have sufficient moisture added so that the backfill will bind with the fines. The rock material backfill shall be tamped or compacted in two (2) foot lifts. A sheeps foot roller shall not be used unless there is two (2) feet or more compacted backfill above the pipe bedding.

C. BACKFILL CONSTRUCTION

(1) Portland cement stabilized caliche backfill or Portland cement stabilized native soil backfill may be constructed using either the "dry" method or the "wet" method.

(a) The dry method of stabilized backfill construction consists of dry mixing of the cement and caliche or soil to produce a homogenous mixture then adding and mixing sufficient water for proper compaction and hydration of the cement. The water content of the mixture will be approximately one to two percent above the optimum moisture for soil compaction. The mixing may be accomplished by using batch mixers or on the job site by "blade mixing" or other suitable method to produce the desired backfill material. The mixed material shall be placed in lifts of up to a maximum of 12 inches and compacted to ninety-five (95%) modified proctor densities by use of suitable compacting equipment.

(b) In the "wet" method of cement stabilized backfill construction, the materials shall be mixed in an approved concrete batching plant or mixer to the consistency of concrete and placed as concrete would be placed. The slump of the backfill material shall be such that all voids will be filled, approximately four (4") to six (6") inches. The backfill shall be consolidated by rodding or by the use of mechanical vibrators.

Portland cement stabilized blow sand backfill shall be mixed and placed by the "wet" method as described above.

Crushed stone screening (crusher fines) shall be wetted uniformly throughout with sufficient moisture to assure proper compaction before being placed in the trench. The moistened crushed stone screening (crusher fines) shall be placed in maximum lifts of twelve inches and consolidated using vibratory type compaction equipment except when it has been demonstrated that the compaction equipment employed will adequately compact deeper lifts in which case the maximum depth of a lift shall be limited by the capabilities of the equipment used.

Tests to determine the compacted density of the backfill shall be ordered by the Engineer if in his opinion the compaction is not adequate. Test showing a minimum compacted density of 90%-modified proctor will be deemed adequate.

3. BACKFILL OUTSIDE OF PUBLIC RIGHTS-OF-WAY WHERE SETTLEMENT IS NOT CRITICAL

A. In areas outside of public rights-of-way and in the absence of special work item requirements the backfilling shall be accomplished with the use of suitable materials selected from the excavated materials to the extent available and practical. Should the materials available from the trench section be unsuitable or insufficient, the required additional materials shall be furnished from outside sources at the Owners expense.

B. Suitable material shall be defined as a mineral soil reasonably free of foreign materials (rubbish, debris, etc.) frozen clumps, oversize stone, rock, concrete or bituminous chunks and other unsuitable materials, that may damage the pipe installation, prevent thorough compaction, or increase the risks of after settlement unnecessarily. Material selection shall be such as to make the best and fullest utilization of what is available, taking into consideration particular needs of different backfill zones. Material containing stone, rock, or chunks of any sort shall only be utilized where and to the extent there will be no detrimental effects.

C. The backfill material placed in this area shall be compacted by suitable means to a minimum density equal to the density of the undisturbed surrounding soil. City Engineer MUST approve water flooding as a means of compaction.

4. TRENCH BACKFILL BEHIND CURB AND GUTTER

A. When utilities are placed behind the curb in paved streets and other landscaped areas the backfill shall be the same as elsewhere in the right-of-way or other applicable location except that in grassed areas and in flower beds the top six (6") inches of backfill shall be good quality top soil. When utilities are placed behind the curb in grassed or landscaped areas where no sidewalk is to be constructed and the edge of the trench is a minimum of 2 feet from the back of curb or where sidewalk is to be constructed and the minimum distance from both the back of curb and the edge of the sidewalk to the edge of the trench is 2 feet the contractor may elect to use suitable native soil for backfill. The native soil backfill shall be compacted to 95% modified proctor density to within 6" of the top of curb height. The top 6" of backfill shall be good topsoil and shall be compacted to the density of the adjacent soil.

B. Sidewalks shall be repaired by removing and replacing the complete section or sections that have been damaged. Strip patching through sidewalks will not be permitted.

The replacement sidewalk shall be of the same design and section as the walk removed and shall be of equal or better workmanship.

C. When utilities are placed in paved areas behind curbs the pavement shall be repaired as specified for street pavement.

D. Grassed areas and flowerbeds shall be restored as nearly as possible to the original condition. Care shall be taken to avoid damage to sprinkler systems.

Mail boxes and other appurtenance in the construction area. Any damage to said items shall be repaired immediately.

E. All repairs made behind the curb shall be to the satisfaction of the property owner responsible for their maintenance and/or to the satisfaction to the City Engineer.

3.11 INLET STRUCTURES AND LEADS AND CLEANOUTS FOR STORM SEWERS

A. Corrugated Galvanized Steel Slotted Drains for Nuisance water inlets only.

(1) Slotted drains shall be the sizes and lengths as shown on the plans and constructed at the locations as shown on the plans or at locations to be established on the job site.

(2) Slotted drains shall not be installed under asphalt pavement but shall have a section of concrete gutter constructed around it as shown on the detail drawings.

Slotted drains shall be protected from the entrance of debris, concrete or HMAC by closing the slot with one or two layers of heavy duct tape or similar material. In addition, the slot for slotted drain shall have a 2-½ inch or ¾ inch board attached to use as a guide for placing and edging the concrete.

Unless otherwise approved or directed by the Engineer the removal of tape and planking from the slotted drain should be accomplished as part of the final clean up.

B. Curb inlets, grate inlets and combination inlets

(1) General

Curb inlets, grate inlets and combination inlets may be pre-cast or cast-in-place at the contractor's option unless specifically shown otherwise on the plans and bid proposal.

(2) Pre-cast inlet boxes

(a) Construction and finish for pre-cast inlet boxes shall conform to details shown on the plans and all applicable requirements for pre-cast manholes.

(b) Tops for curb inlets and combination inlets may be cast in place or pre-cast. Extra care will be required in setting pre-cast tops to assure curb and gutter match.

(c) Pipe connections, bedding, setting and backfill for pre-cast inlets shall be in accord with the applicable requirements for pre-cast manholes article 3.12 of these specifications.

(3) Cast in place inlets

(a) Cast in place inlets shall be constructed of class "C" reinforced concrete as specified in item 1-B "Concrete for Structure" in these specifications.

(b) Forms for cast in place inlets shall be straight, clean and in good condition. Forms shall be properly cleaned and oiled before concrete is placed.

(c) Construction joints may be placed in cast in place inlets at locations shown on the plans. When construction joints are used, extra care will be required to assure that the joints are watertight.

(d) Cast in place inlets may be cast without outside forms if the soil conditions are such that true vertical walls can be cut and will stand during construction without sloughing or otherwise incorporation foreign materials into the concrete.

(e) When inlets are cast without outside forms, a plastic sheet lining may be required to prevent excessive loss of moisture from the concrete and/or to prevent incorporation of foreign material into the concrete.

A. Inlet Leads

(1) Inlet leads shall be constructed of corrugated steel pipe, PVC pipe or other material as called for on the plans and in the bid proposal.

(2) Construction of inlet leads shall be in accord with the applicable requirements for the type of pipe used.

(3) Junctions where two or more inlet leads are joined shall be made at clean outs or manholes.

B. Cleanouts

(1) Clean outs shall be constructed in accord with the plans and detail drawings.

(2) Construction and connections shall be in accord with the applicable specifications for construction of corrugated steel pipe manholes.

3.12 SANITARY SEWER SERVICES AND PLUGGED STUBS

A. Sanitary Sewer Services:

(1) On new sewer main construction all sewer laterals shall be constructed as part of the initial installation. Sewer wye fittings for sewer laterals in new construction shall be molded or fabricated with all gasketed connections. Four (4") inch laterals shall be installed at all single-family residences and duplex. Laterals installed for apartment complexes, commercial and industrial areas shall be a minimum of six (6") inches. Depth of laterals will be determined by depth of sewer main and applicable building codes. Laterals shall be installed using tee wyes or wyes and bends so that they will be at 90 degrees to the sewer main. Laterals shall extend to 3' minimum beyond the property line of the served lot or tract. The contractor shall install sewer laterals according to the typical sewer lateral detail and the most current revisions of the Plumbing Code.

(2) Taps into existing lines shall use a gasketed fitting in conjunction with a full circle repair sleeve coupling, except that taps into existing ductile iron sewer may be made using the Genco Model DF sewer pipe saddle (The General Engineering Co., Frederic, MD Drawing No. R-3220-D dated 12/29/82) or approved equal.

(3) Cemented mitered connections without socket reinforcement shall not be permitted. The contractor will be permitted to use fittings, which are prefabricated, using pipe sections, molded saddles and PVC solvent cement, provided the solvent cement used in fabrication has cured for at least 24 hours prior to the installation. All solvent cement fittings shall e manufactured in the shop under controlled conditions.

(4) All caps and plugs shall be braced, staked, anchored, wired on or otherwise secured to the pipe to prevent leakage under maximum anticipated thrust from internal abnormal operating conditions or test pressures from water or air.

(5) It shall be the duty of the Contractor to keep a record of sewer service wye locations with respect to the nearest downstream manhole, but the Engineer will record ties on the end of all sewer services at the property line. When installing sewer services the Contractor shall, before backfilling, contact the Engineer or his representatives, and assist him in making ties to the end of the service in the open trench. At least two ties shall be made for each service, and if backfilling proceeds before such ties are made, the Contractor shall dig up the end of all such services, with no additional compensation, for the purpose of making ties. During backfilling the Contractor shall furnish and place a vertical steel post or 2 inch by 2 inch wooden stake set flush with finished ground surface, and extending down to the end of the sewer service, a nail shall be placed in the top of the stake to allow location of the service by metal finder.

(6) The main sewer service connection shall consist of installing an in-line wye section in the main sewer line at designated locations. Saddle wye installations will be permitted only when specifically called for. Orientation of service connection fittings shall be as shown in the standard drawings unless otherwise directed by the Engineer.

(7) Where the depth of cover over the main sewer invert is greater than 8 feet (or such other maximum as may be indicated), the service connection shall be extended outward then upward by use of bends to prevent excess loading on the sewer main in accordance with the details shown in the drawings.

(8) The Contractor shall provide the necessary wyes, tees and bends to bring the service to the proper place at the property line.

(9) Wherever service line connections to the main sewer are permitted or required to be made by the open cutout method in the absence of a built-in tee or wye fitting, the connection shall be made by using an approved type coring machine or by other approved methods producing a uniform, smooth circular cut-out as required for proper fit. The cutout discs shall be retrieved and shall not be allowed to remain within the main sewer pipe. The saddle tee shall be securely fastened to the main sewer pipe by means of epoxy resin or other approved adhesive. The entire connection fitting shall be encased in concrete to a minimum thickness of six inches and as may be shown in the standard drawings.

(10)Wherever service line connections to the main sewer are required to be made by means of built-in branch tee or wye fittings, the Contractor shall, in the absence of such fitting, remove a section of the main sewer pipe and replace it with the required branch tee wye or wye section connected by means of an approved sleeve coupling.

(11)Connections of service lines to the main sewer are required to be made by means of built-in branch tee or wye fittings, the Contractor shall, in the absence of such fitting, remove a section of the main sewer pipe and replace it with the required branch tee wye or wye section connected by means of an approved sleeve coupling.

(12)The end of all service connections shall be plugged with PVC plug and sealed with plastic joint material.

(13)Crushed stone bedding and backfill material, concrete encasement and protection, etc., for service line installation shall be the same as for the sewer lines.

(14)No service connections or laterals shall be covered until they have been inspected and located by the Engineer.

B. INSTALLATION OF PLUGGED STUBS ON SANITARY SEWERS

Plugged pipe stubs for future connections to manholes and sewerage structures shall be installed where shown on the Drawings or directed by the Engineer. The pipe stubs shall be installed in accordance with the specifications and details shown on the Drawings for connecting the type of pipe used to manholes.

3.13 MANHOLES

1. General

The manholes shall be constructed at the locations shown on the plans or as directed by the Engineer and in accordance with the details shown on the plans and as specified herein. After the excavation has been completed, the subgrade for the manhole base shall be graded and leveled. A crushed stone foundation having a minimum thickness of 6 inches shall then be placed on the subgrade. The crushed stone foundation shall be leveled and consolidated before the section of the manhole is placed. Pre-cast base sections shall sit in place level and plumb and to the lines and grade as shown on the plans. Cast in place bases shall be placed around the existing sewer line in accord with the plans and detail sheet. When pre-cast manhole bases are used, riser construction may proceed when the base is set on line and grade. When cast in place manhole bases are used, riser construction may proceed when the base has set sufficiently to support the weight of the riser.

Manholes shall be of the type and material shown on the plans and called for in the bid proposal and shall conform to these specifications.

All lift holes shall be filled with approved non shrink grout and bituminous material before final acceptance. Use of bituminous material or other flowable material alone to plug lift holes will not be permitted. Voids in the invert around the sewer pipe on the

inside wall of the manhole shall be grouted with cement rich grout, to conform to the rest of the wash, in accordance with the standard manhole details.

The backfill around the manhole shall be done in accordance with the details shown on the plans and trench backfill specifications.

The Contractor shall take whatever precautions necessary to protect the manholes that are under construction. At the end of the day or at such time as the Contractor deems necessary, all manholes not completed shall be covered, sealed, plugged, etc. to prevent the inflow of storm water or other objectionable material, and to prevent animals and humans from getting into the manhole.

2. PRE-CAST CONCRETE

A. Pre-cast tub bottom sections of manholes shall be set on a crushed stone foundation or bedding according to the details shown on the plans. Care shall be exercised to assure true alignment and grade for the pipe openings.

The invert of the manhole shall be constructed of cement rich grout and shall be formed to true lines; grades and curvature to assure smooth flow through the manhole. The invert shall have a steel trowel finish.

Joints for pre-cast concrete manhole riser sections shall be made Watertight by use of bitumastic or rubber sealers or “O” ring gaskets. Both sides of the tongue and groove joint shall be painted with a bitumastic primer before assembly.

The bitumastic or rubber sealer shall be clean and pliable and shall deform under the pressure of joint closure to assure a complete water tight seal. Care shall be exercised to assure proper alignment of the joint. The walls of the completed manhole shall be straight and vertical.

B. Pre-cast eccentric cone sections and precast slab manhole tops with eccentrically located manway shall be set with the manway adjacent to the up stream side of the manhole. The joints between the cone or slab top and the manhole riser shall be sealed in the same manner as the joints between the riser section. Care shall be taken in placing the cone and or slab tops to assure the manhole ring and cover can be set to match the finished paving.

C. Pre-cast grade rings will be used, when required, to bring the manhole ring and cover up to the finished grade. Grade rings may be set using cement rich grout or bitumastic seal and such as Ram-Nek or approved equal. When cement rich grout is used, care shall be taken that the space between the cone or slab top and the first grade ring and between the grade rings are completely filled without voids.

When bitumastic sealer is used the joints shall be constructed in the same manner as the joints between the riser sections.

When pre-cast manholes with PVC or other approved polymer lining are called for on the plans and bid proposal and are furnished under this contract they shall be constructed as other pre-cast concrete manholes.

In addition the joints in the lining shall be sealed by hot air welding, use of epoxy coating, or other approved means.

3. CAST IN PLACE MANHOLE BASES

A. Cast in place manhole bases shall be used only where shown on the plans or as directed by the Engineer and shall be constructed in accord with the details shown on the plans.

B. Special care shall be taken in casting the surfaces that will mate with the first risersection to assure a smooth even fit and a watertight joint.

C. The first riser section to be used with cast in place manhole bases shall be castwithout tongue or groove. The joint between the riser section and the cast in place base shall be sealed with a bitumastic or rubber sealant in the same manner as the joints in the pre-cast riser sections.

D. Care shall be taken in forming the invert of the manhole around existing sewers to assure adequate opening for the insertion of a “go – no go” mandrel or other testing equipment and cleaning tools.

4. MANHOLE RING AND COVER

A. The tops of the manhole frame and cover (ring) shall be built to the grade shown on the plans. The cast iron frame shall be firmly embedded in mortar.

B. When pressure type manhole rings and cover are specified on storm sewer manholes they shall be bolted to the concrete slab top using the “L” bolts cast into the slab for this purpose. The joint between the ring and the concrete slab top shall be made watertight using a bitumastic or rubber seal and conforming to the requirements of these specifications.

5. CORRUGATED STEEL MANHOLES

A. Corrugated steel manholes shall be constructed in accord with the details shown on the plans and in accord with the applicable requirements for the construction of corrugated steel pipe sewers.

B. Care shall be taken during the placing of backfill around corrugated steel pipe manholes to maintain the horizontal and vertical alignment of the manhole.

C. Since full contact of the flat top slab with the cement stabilized backfill is critical the backfill shall be finished smooth and to the proper grade. A thin layer of cement rich grout shall be placed on the cement stabilized backfill immediately prior to placing the concrete slab top. The grout shall be sufficient t fill all voids between the backfill and the slab and of a consistency to be forced into the voids under the weight of the slab.

3.14 TESTING GRAVITY SEWER MAINS AND MANHOLES

A. Upon completion of the sewer construction including all wyes and service laterals and before any house drains or services are connected, all sewers shall be cleaned and lamped. All runs of sewer between manholes shall be straight and true. Leakage tests shall be made to determine the amount of ground water infiltration into the sewers. Infiltration tests shall be made when groundwater level is 18 inches or more above the top of the outside of the pipe. Measurement will be taken by means of a weir placed in the lines. The maximum allowable rate of leakage shall be 25 gallons per inch diameter per mile of pipe per 24 hours, for any section of pipe with a maximum total leakage of 200 gallons per mile per 24 hours for sanitary sewers with the exception that the maximum leakage for storm drains shall be 200 gallons per inch of diameter per mile per 24 hours with a total maximum leakage of 6,000 gallons per mile per 24 hours.

When the groundwater is not at sufficient height for infiltration testing the Contractor shall use exfiltration to test the sewer lines.

B. In lieu of the infiltration or exfiltration tests the Contractor may perform air tests on the sewers.

C. If the infiltration, exfiltration, or air tests fail to meet requirements specified herein, the Engineer reserves the right to request television work to be done to locate leaks. The Contractor shall furnish all materials and equipment necessary to accomplish all infiltration, exfiltration, air or television testing.

The Contractor shall receive no additional compensation for this testing or inspection work or for repairs of corrective work required to be done to the sewers. The exfiltration tests shall be used in areas where no ground water is present.

D. Test Procedure Hydrostatic (Exfiltration)

(1) The test section shall be bulk headed and the pipe subject to a hydrostatic pressure produced by a head of water at a depth of three (3) feet above the invert of the sewer at the upper manhole under test. In areas where ground water exists, this head of water shall be three feet above the existing water table.

(2) This head of water shall be maintained for a period of one hour during which it is presumed that full absorption of the concrete manhole body has taken place and thereafter for a further period of one (1) hour for the actual test of leakage. Fiber glass manholes are exempt from the one hour absorption requirement. During this one (1) hour test period, the measured maximum allowable rate of exfiltration for any section of sewer shall be the same as allowed for the infiltration test.

E. TEST PROCEDURE AIR

(1) Where the Contractor elects to air test, he shall perform these tests with equipment similar to Air-Loc equipment manufactured by Cherne Industrial, Inc. Hopkins, Minnesota.

(2) The air test shall be made when the sewer is clean. The line shall be plugged at each manhole with pneumatic balls. Low pressure air shall be introduced into the plugged line until the internal air pressure reaches 4.0 psig greater than the average

back pressure of any ground water pressure that may submerge the pipe. At least two (2) minutes shall be allowed for the air temperature to stabilize before readings are taken and the timing started.

(3) When testing pipes 14 inches and less in diameter between consecutive manholes, the portion being tested shall pass if it does not lose air at a rate to cause the pressure to drop from 4.0 to 3.0 psig (greater than the average back pressure of any groundwater that may submerge the pipe) in less time than listed as calculated from Table 1.

When testing pipes greater than 15 inches in diameter between consecutive manholes the portion being tested shall pass if it does not lose air at a rate to cause the pressure to drop from 3.5 psig 3.0 psig (greater than the average back pressure of any groundwater that may submerge the pipe) in less time than that shown in or calculated from Table II.

TABLE I
Specification Time Required for a 1.0 PSIG Pressure Drop for Size and Length of Pipe indicated for Q = 0.0015

Specification Time for Length (L) Shown (min: sec)											
1	2	3	4 (xL)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.
4	3:46	597	.380	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854	5:40	5:40	5:40	5:40	5:40	5:40	5:42	5:42
8	7:34	298	1.520	7:34	7:34	7:34	7:34:	7:36	8:52	10:08	11:24
10	9:26	239	2.374	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768	51:17	75:55	102.34	128:12	153:50	179:29	205:07	230:46

1. Pipe Diameter (in.)
Minimum Time (min:sec)
Length for Minimum Time (ft.)
Time for Longer Length (sec)

NOTE: When using column 4 multiply the number in column 4 opposite the pipe diameter by the length of pipe of that diameter and sum the times for the various pipe size in the run being tested. Computations shall include lengths for service connection laterals.

Table II
Specification Time Required for 0.5 PSIG Pressure Drop for Size and Length of Pipe Indicated for Q + 0.0015

Specification Time for Length (L) Shown (min: sec)											
1	2	3	4 (xL)	100 ft.	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.	450 ft.
4	1:53	597	.190	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187	4:43	4:43	4:43	4:57	5:56	6:55	7;54	8:54
12	5:40	199	1.709	5:40	5:40	5:40	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54

30 33 36	14:10 15:35 17:00	80 72 66	10.683 12.926 15:384	17:48 21:33 25:39	26:43 32:19 38:28	35:37 43:56 51:17	44:31 53:52 64:06	53:25 64:38 75:55	62:19 75:24 89:44	71:13 86:10 102:34	80:07 96:57 115:23

1 Pipe Diameter (in.)
2 Minimum Time (min:sec)
3 Length for Minimum Time (ft.)
4 Time for Longer Length (sec)

NOTE: When using column 4 multiply the number in column 4 opposite the pipe diameter by the length of pipe of that diameter and sum the times for the various pipe size in the run being tested. Computations shall include lengths for service connection laterals. All service plugs shall be secured in place to prevent displacement during testing operation.

F: DEFLECTION TEST

Deflection tests shall be performed on all flexible pipe, the tests shall be conducted after the backfill has been in place at least 30 days. No pipe shall exceed a deflection of 5 percent. The deflection tests shall be run using a Go-No-Go mandrel having a diameter equal to 95 percent of the inside diameter of the pipe. The tests shall be performed without mechanical pulling device, any pipe not meeting the deflection test shall be excavated and re-bedded at no cost to the owner.

The Contractor at no additional cost to the owner shall furnish the Go-No-GO Mandrel.

Upon completion of all tests, the Contractor shall provide personnel to remove each manhole cover in the presence of the Engineer's representative for inspection and depth measurement.

G. TESTING SANITARY SEWER MANHOLES

All sanitary sewer manholes shall be tested for water tightness by one of the following methods.

Manholes, except those in streets scheduled for immediate paving, shall be complete, having all adjusting rings and cover rings in place and shall be backfilled prior to testing.

Manholes in streets scheduled for immediate paving shall be complete as described above except those acceptance tests shall be made at the top of the cone section.

(1.) Vacuum Test

a. General

This item will govern the testing of all sanitary sewer manholes. All connections to manholes including drop connections shall be in place before testing.

b. Equipment

Equipment for vacuum testing manholes shall be:
MANHOLE VACUUM TESTER as manufactured by:

P.A. Glazier, Inc.
P.O. Box 1002
Worcester, MA. 01613

Or

THE CHERNE AIR-LOC MANHOLE TESTER as manufactured by:

Cherne Industries, Inc.
5700 Lincoln Dr.
Minneapolis, MN 55436-1695

Or approved equal.

c. Preparation for Testing

All connections to the manhole; except plugged stubs for future line extensions, shall be plugged using suitable pneumatic plugs. Line plugs shall be placed at a point outside of the manhole wall (approximately 8" to 10" into the sewer pipe). Drop connections shall be plugged at a point up stream from the drop.
All plugs, pipe connections and plugged stub outs shall be adequately braced to prevent them being drawn into the manhole when vacuum is applied.

d. Testing

The contractor shall set the test equipment in place and operate it in accord with the manufacturer instructions. A copy of these instructions shall be kept on the job site and shall be available to the inspector when tests are performed. When equipment is properly set up a vacuum of 10" of mercury (Hg) shall be drawn and the vacuum line valve closed. After the vacuum pump is shut off the hose shall be disconnected before the test is started.

Note: Vacuum must be at 10" Hg when test is started. The contractor may wish to draw up to 10.5" Hg vacuum and then bleed back to 10" Hg before starting the test. The test shall pass when the minimum time for the vacuum to drop from 10" Hg to 9" Hg is greater than the time shown in the following table:

TABLE 1: Minimum test times for various manhole diameters.

	DIAMETER		
Depth Feet	48"	60"	72"
8'	0:20	0:26	0:33
10'	0:25	0:33	0:41
12'	0:30	0:39	0:49
14'	0:35	0:46	0:57
16'	0:40	0:52	1:05
18'	0:45	0:59	1:13
20'	0:50	1:05	1:21
* ADD	0:05	0:06.5	0:08

Any manhole that fails the test shall be repaired and retested until it passes the test.

e. Contractors Optional Test

The contractor, at his option may wish to test manholes before they are backfilled to assure himself that the manhole is sound.
Manholes that fail the test prior to being backfilled may be repaired under vacuum by coating the area of the leak with a liquid quick setting grout allowing the grout to be drawn into the opening until the leak is stopped.

Manholes will not be accepted on the bases of this test.

f. Fiberglass Manholes

Fiberglass manholes may be tested in the same manner as concrete manholes except that all repairs to the fiberglass body of the manhole shall be made using materials furnished by the manufacturer. Repairs shall be made in accord with the manufacturer instructions.

g. No separate payment will be made for vacuum testing of manholes, but the cost shall be considered incidental to furnishing and construction of manholes as bid in the bid proposal.

2. HYDROSTATIC TESTING

a. General

This item shall govern the hydrostatic testing of manholes and may be used as an alternative to vacuum testing by the contractor.

All connections to manholes including drop connections shall be in place prior to testing manholes.

b. Testing

All connections to the manhole, except plugged stubs installed for future line extensions, shall be plugged upstream from the drop.

Plugs in pipe connections must be placed outside the manhole wall (approximately 8” to 10” into the pipe).

The manhole shall then be filled to the top of the cast iron ring (or top of the cone section for manholes in streets scheduled for immediate paving) and allowed to stand for a minimum of one hour to allow for absorption by the components of the manhole. The inspector may extend the absorption period if it appears that the manhole has not reached a stable state.

The manhole shall then be refilled to the top of the ring (or cone) and allowed to stand for up to 24 hours.

The manhole shall be checked at the end of 4 hours and will be deemed to have passed if no perceptible loss has occurred – if loss has occurred the manhole will be checked after the 24 hour period and will be considered to have passed if loss does not exceed the following schedule

Depth Ft.	Loss Inches
0 - 10’	.2
10 – 20’	.4
20 - 30’	.6

c. No separate payment will be made for Hydrostatic Testing of manholes but the cost shall be considered as incidental to furnishing and constructing manholes as bid in the bid proposal.

H. TELEVISING NEW SEWER LINES

It is the city’s intention to televise all new sanitary sewer lines for record purposes.

Immediately after the contractor completes all testing of sanitary sewer lines and manholes he shall leave all manholes accessible for televising and make allowances for the city’s camera crews working on the project site.

The contractor at his own expense before final acceptance must correct any defects discovered during the televising of sanitary sewers.

3.15 RESTORATION

A. Whenever any surface improvements such as pavement, curbing, pedestrian walks, fencing, or turf have been removed, damaged or otherwise disturbed by the Contractor’s operations, they shall be repaired or replaced to the Engineers satisfaction, to restore the improvement in kind and structure to the pre-existing condition. Each item of restoration work shall be done as soon as practicable after completion of installation and backfilling operations on each section of pipeline.

B. In absence of specific payment provisions, as separate Contract Items, the restoration work shall be compensated for as part of the work required under those Contract Items, which necessitated the destruction and replacement or repair, and there will be no separate payment therefor. If separate pay items are provided for restoration work, only that portion of the repair or reconstruction, which was necessitated by the contract, will be measured for payment. Any improvements removed or damaged unnecessarily shall be replaced or repaired at the Contractor’s expense.

C. Turf restoration shall be accomplished by sod replacement except where seeding is specifically allowed or required.

Caliche or gravel surfaced streets and driveway shall be restored to their original condition by salvaging and replacing the pre-existing caliche or gravel. If the Contractor does not salvage sufficient material during excavation operation, he will be required to furnish material to restore the surface to the depth of the original section. This caliche or gravel restoration shall be considered a part of excavation and backfill and no extra compensation will be made.

E. Bituminous and concrete surfaced streets and driveways will be restored to equal or better condition than existed prior to sewer construction. Measurement will be made of the actual quantities required to be replaced by the sewer construction and paid for at the price bid in the appropriate bid items in the proposal.

No measurement or payment will be made for work done outside the lines considered necessary for sewer construction. The Contractor will be required to replace damage outside these lines at his own expense.

F. Reconstruction of caliche base courses and concrete or bituminous surface courses shall be in substantial compliance with all applicable City of Midland Specifications pertaining to the item being restored.

3.16 CLEANUP

After completing each section of the sewer line, the Contractor shall remove all debris, construction materials, and equipment from the site of the work, grade and smooth over the surface on both sides of the line and leave the entire right-of-way in a clean, neat, and serviceable condition. No separate compensation shall be made for clean up.

3.17 PAYMENT

A. General

Payment in accordance with the following items, at the unit price bid for the work, shall constitute full and complete payment for the entire project including all incidental terms necessary for the complete and successful prosecution of the work in accordance with the intent of the plans and specifications.

Materials and work required to complete the project for which there is no bid item in the bid proposal shall be considered as incidental and the cost shall be included in the prices bid for the various items in the bid proposal.

Where payment is to be made on a unit price basis, it shall be made on the actual measured quantities as constructed in the work.

B. Sewer Pipe in Place

Unit prices bid shall cover furnishing and installation of pipe and jointing materials, including tests and all other necessary work and material to install the pipe complete in place at the depth specified. The unit of work shall be the lineal foot of the various types and sizes as shown in the proposal form. The pipe installation shall be measured

along the centerline of the sewer from center to center of manholes with no deduction in footage for manholes, wye branches, riser bases or other structure.

C. Foundation Corrections Materials

Payment for foundation correction materials shall be made at the unit price bid per cubic yard for material furnished and placed to pro vide adequate pipe base in unstable soil. The unit price shall include extra excavation below pipe grade, the material, placing and tamping.

Additional material required to backfill excess depth of excavation caused by neglect or error on the part of the Contractor or wet conditions, shall be furnished and placed at his own expense.

Removal of Street Surfacing

The Contractor shall receive no extra compensation for the removal of street surfacing including cutting of a straight edge.

E. Trench Safety Systems, Sheeting and Shoring

Measurement: Trench Safety Systems shall be measured by the linear foot of "Trench Safety Systems": Payment for work prescribed under this item shall be full compensation for the Trench Safety Systems including any Engineering and/or consulting fees and any additional excavation and backfill required, for furnishing, placing, maintaining and removing all shoring, sheeting, or bracing; for de-watering or diversion of water; for all jacking and jack removal; and for all other labor, materials, tools, equipment and incidentals necessary to complete the work.

F. Manholes

Payment will be made for the various types of manholes at the unit prices bid for the various types of manholes 0 to 6' deep which price shall include excavation, furnishing and installing all materials pumping where necessary, and backfilling and all incidentals for the complete manhole in place. Measurement for manholes over 6 feet in depth shall be made of the depth of manhole in excess of six (6) feet. Manholes will be measured from the invert to the top of the casting as set.

Payment will be made for the manhole depth in excess of 6 feet at the vertical foot price bid in the bid proposal for extra depth of manhole over 6 feet for each type of manhole furnished.

G. Drop Connections to Manholes

Payment shall be made for drop connections to manhole for each drop connection made as counted in the field at the price bid in the proposal.

Said payment shall be complete compensation for furnishing all materials and fittings and making all connections to the manhole including 2' of vertical depth as measured from the invert of the incoming line to the invert of the manhole.

H. Drop Section for Manholes

Drop sections shall be paid for on a vertical footage basis as measured from the invert of the incoming line to the invert of the manhole less 2 feet and shall be paid for at the price bid per vertical foot for the various size drop connections in the bid proposal.

The price bid per vertical foot includes all fittings, granular material, if used and concrete and shall be full compensation for the complete in service drop connection.

I. Service Lines

Service lines will be measured from centerline of the sewer main to the plug end and paid for at the unit price bid per linear foot of each type of pipe as specified and as shown on the typical details.

J. Barricading and Traffic Control

The lump sum price bid in the bid proposal shall be full compensation for furnishing flag persons when required and all barricades, signs and other barricading and traffic control devices and for furnishing barricading plans and erecting and maintaining all such devices and signs as required for the duration of the period.

Updated
08/07

MIDLAND
Engineering Services

ADDENDUM #01

TO ALL BIDDERS ON THE SUBJECT BID: **West Wadley Avenue Wastewater Line Extension**

ADDENDUM #01

DATE: November 6, 2020

1. Q/A and Clarification
2. Non-Mandatory Pre-Bid Teleconference Meeting Agenda
3. Non-Mandatory Pre-Bid Teleconference Meeting Attendance

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Red Deer Construction LLC
Company Name

Bidder Authorized Signature

11/16/2020
Date

David Chandler III
Please Print Above Name

432-556-9768
Phone

West Wadley Avenue Wastewater Line Extension

Q/A and Clarification

During the Pre-Bid Meeting, the following questions were raised by one or more bidders. Below is a list of the questions along with the answers and clarifications.

Clarification: The deadline to ask or send questions for this project has been moved back to Tuesday, November 10, 2020 at 5:00 PM. A final addendum for this project will be issued Wednesday, November 11, 2020. The final addendum will include official responses to all questions asked prior to the November 10th deadline that are not addressed by this Addendum 01. Questions asked after the November 10th deadline will be directed to the information provided in the original bid documents or included in the addendums.

Clarification: The Bid Opening is Wednesday, November 18, 2020 at 2:00 PM as stated in the Non-Mandatory Pre-Bid Teleconference Meeting Agenda that is attached to this Addendum 01.

Clarification: All addendum acknowledgement forms must be included with the bid for the bid to be considered complete. Bidders have sole responsibility for making sure they have and acknowledge all addendums provided for this project bid.

West Wadley Avenue Wastewater Line Extension
Pre-Bid Teleconference Meeting Agenda
November 4, 2020; 2:00 PM

Teleconference Call In Number: (866) 528-2256
Access Code: 4450719

Discussion Items

1. Sign-In Sheet
   - Please email jferguson@midlandtexas.gov if you plan to attend the teleconference so your name and contact information can be added to the attendance roll and to ensure you receive a copy of the Addendum following the pre-bid teleconference meeting.

2. Personnel Overview
   - Matt Carr – City Engineer
   - Mike Pacelli – Traffic Engineer
   - Cory Moose – Assistant Utilities Director
   - Josh Ferguson – Engineering Manager – CIP, project engineer
   - Bobby Wojciechowski – Construction Manager, construction management & inspections
   - Rex Swearinger – Operations Planner, utility coordination
   - Taha Sakrani – Associate Traffic Engineer
   - Troy Clabaugh – Sr. Transportation Technician
   - Gabe McClelland – Transportation Manager
   - Jesus Perez – Project Manager
   - Natalie Burgard – Administrative Assistant, document processing
   - Erika Martinez – Purchasing Manager, conduct bid process and bid opening

3. Project Overview and Scope
   - This project will include the removal and installation of wastewater infrastructure and appurtenances as well as all equipment, labor, materials, etc. necessary to complete the work outlined in the Construction Drawings and Specifications, and to satisfactorily complete the work.
   - In general this project involves extending a new 18” wastewater main parallel to the future Wadley Avenue pavement alignment and boring the same wastewater main beneath TxDOT’s SH 158 Right-of-Way.

4. Bid Process
   - Pre-Bid Meeting Teleconference attendance is non-mandatory to bid on this project.
   - ATTENTION: All questions submitted before or after the Non-Mandatory Pre-Bid Meeting Teleconference must be submitted via email to the following email address: jferguson@midlandtexas.gov
   - Addendum distributed by email the Friday afternoon following the Pre-Bid Meeting.
     - The deadline to ask or send questions for the addendum is this Friday, November 6, 2020 at Noon.
     - Questions asked after the Noon deadline will be directed to the information already provided in the bid documents or included in the Addendum.
   - ATTENTION: Due to the Coronavirus (COVID-19) pandemic, the City of Midland’s City Hall is closed to the Public. All bidders are encouraged to mail bid packets to one of the addresses below rather than delivering them in person in the interests of maintaining social distancing:

USPS Mailing Address:
City of Midland, Texas
Attn: City Secretary's Office
P O Box 1152
Midland, TX 79702

– OR –

Physical Address for mail carriers other than USPS:
City of Midland, Texas
Attn: City Secretary's Office
300 North Loraine St, Suite 330
Midland, TX 79701

If bid packets are delivered in person then bidders must make arrangements in advance to drop the bid packets off at the north doors of City Hall before the bid opening deadline, and social distancing measures will be maintained for the health of all parties involved.

- **Bid Opening is Wednesday, November 18, 2020 at 2:00 PM** in the City Hall Council Chamber located on the 1st Floor of Midland's City Hall.
  - ATTENTION: The public bid opening will be shown via the City Council Meeting live feed in order to maintain social distancing due to COVID-19. This can be accessed from the following web address at the time of the bid opening: http://www.midlandtexas.gov/600/Watch-Council-Meetings
  - No late bids will be accepted.
  - Bidders must be willing to sign the contract as is.
  - Bidders must complete the conflict of interest forms if applicable.
  - Bidders must fill out all bid items in the Proposal. If bid items are left blank then the bid will be considered non-responsive.
  - Bidders have sole responsibility for making sure they have and acknowledge all addendums provided. If all acknowledgement forms are not included with the bid packet submittal then the bid will be considered non-responsive.

5. Notice to Proceed
   - Date of Notice to Proceed to be determined at the Pre-Construction Meeting.
   - Pre-Construction Meeting date will be set after the project bid is awarded.

6. Payment
   - Invoices should be submitted on or before the 1st day of each month and cover work completed up to the 25th day of the preceding month.
   - Invoice submittals need to be itemized and match the bid items listed in the bid packet Proposal.
   - Payment based on the portion of work completed only. No payment for material delivery.
   - 5% retainage until project completion, acceptance, and final payment.
   - Recommended that invoices state "Invoice Due Upon Receipt", or have a due date that is two (2) weeks after the date the invoice is submitted.

7. Project Schedule
   - City Inspector must be notified of all work occurring and be able to perform inspections on any construction or installation that occurs.
   - Typically Monday – Friday from 8:00 AM – 5:00 PM. No work earlier than 7:00 AM or later than 8:00 PM without City permission unless for emergency conditions.
   - Work will not occur on Sundays or legal holidays unless required for emergency situations.
   - Work will not occur on Saturdays unless requested by Contractor in writing at least 48-hours in advance and approved by the City Engineer.

8. Project Specifics
   - Bidders must provide documentation as part of the bid packet submittal proving that they possess either an active Water Operator D license, and active Wastewater D license, or an active Class 1 Collections license, and the Contractor must maintain at least one of these active licenses for the entirety of the project.

- A TxDOT permit will be required before any construction activity may occur in the TxDOT Right-of-Way. The City will obtain the required permit from TxDOT after the Notice to Proceed date is determined.
- There is an existing apartment complex adjacent to this project and SH 158. Vehicle access and utility service must be maintained to this existing development during construction, and any planned, unavoidable interruption of service or access must be coordinated with both the City and the property owner no less than two (2) business days in advance by the Contractor and receive approval from the City before such planned service or access interruptions may occur.
- Comply with all OSHA and other applicable safety requirements and regulations at all times.
- Construction staking is solely the responsibility of the Contractor.
- Construction testing is solely the responsibility of the Contractor.
- Contractor is responsible for Traffic Control for this project.
- There is a one (1) calendar year warranty period on this project. This includes all infrastructure installed.

9. Additional Information, Clarifications, and Corrections
   - Bidders are directed to bid the item quantities listed in the Bid Packet's Proposal, not the quantities listed in the design drawings.
   - If a Bidder wishes to deliver a bid submittal in person then they are directed to call City Purchasing to coordinate this.

10. Questions currently received by City and official responses:

Q: What is the anticipated start date for this project?
A: This is a high priority project for the City, and so the start date is expected to be as soon as possible once the project contract has been fully executed.

Q: Can we get more calendar days added to the contract for completion?
Reasons for more days:
On-grade sewer bores in this area of town always take longer than expected.
Excavation of the sewerline could use up more than half of the current contract time alone.
This does not leave enough time for pipe installation/backfill.
A: The City will revisit the construction calendar days for this project and provide a final response in the Addendum.

Q: Bid Items for 18" and 8" sewerline total 4,880 LF less the pipe installed in casing. Total bid items for open trench excavation totals 4,510 LF.
A: The City will check this bid item quantity and provide a final response in the Addendum.

11. Any Additional Questions?

Please direct all questions or comments following the Pre-Bid Meeting to Josh Ferguson with the City of Midland.

Engineering Services

Josh Ferguson
Office Phone: (432) 685-7290
Cell Phone: (432) 241-5078
Email: jferguson@midlandtexas.gov

Pre-Bid Teleconference Meeting Attendance

West Wadley Avenue Wastewater Line Extension
Date: 11-04-2020 - 2:00 PM

☑	Name *(Please Print)*	Company Name *(Please Print)*	Phone Number	Fax Number	Email
√	Josh Ferguson	City of Midland	(432) 241-5078		jferguson@midlandtexas.gov
✓	Carl Craigo	City of Midland			ccraigo@midlandtexas.gov
	Cory Moose	City of Midland			cmoose@midlandtexas.gov
	Michael Pacelli	City of Midland			mpacelli@midlandtexas.gov
	Bobby Wojciechowski	City of Midland			bwojciechowski@midlandtexas.gov
	Matt Carr	City of Midland			mcarr@midlandtexas.gov
	Taha Sakrani	City of Midland			tsakrani@midlandtexas.gov
	Jesus Perez	City of Midland			jperez@midlandtexas.gov
	Michael Williams	City of Midland			mwilliams@midlandtexas.gov
✓	Erika Martinez	City of Midland			emunoz@midlandtexas.gov
✓	Tyler Koch	J&H Services			tyler@jhservicesinc.com
✓	Alberto Caballero	Entrench			alberto@entrenchinc.com
✓	Ever Rodriguez	Entrench			ever@entrenchinc.com
✓	Emily Ford	Boler Equipment			emily@boler.net
✓	David Marion	Benmark			davidmarion@benmark.com
✓	Tyler Clutter	TEC			tylerclutter@tecexcavation.com
✓	James Hindman	TEC			jhindman@tecexcavation.com
✓	David Chandler	Red Deer			david@reddeerconstructiontx.com
✓	Trey Chandler	Red Deer			trey@reddeerconstructiontx.com
✓	Edgardo Madrid	Edgardo Madrid			edgardo@edgardomadrid.com

MIDLAND
Engineering Services

ADDENDUM #02

TO ALL BIDDERS ON THE SUBJECT BID: **West Wadley Avenue Wastewater Line Extension**

ADDENDUM #02

DATE: November 11, 2020

1. Q/A and Clarification
2. Revised Proposal
3. Revised Contract

PLEASE RETURN THIS ADDENDUM WITH YOUR BID BY THE CLOSING DATE.

All other terms and conditions shall remain the same.

Red Deer Construction LLC
Company Name

Bidder Authorized Signature

11/16/2020
Date

David Chandler III
Please Print Above Name

432-556-9768
Phone

West Wadley Avenue Wastewater Line Extension

Q/A and Clarification

During the Pre-Bid Meeting, the following questions were raised by one or more bidders. Below is a list of the questions along with the answers and clarifications.

Clarification: All information provided in Addendum 01 for this project remains in effect unless specifically addressed in this Addendum 02.

Clarification: All addendum acknowledgement forms must be included with the bid for the bid to be considered complete. Bidders have sole responsibility for making sure they have and acknowledge all addendums provided for this project bid.

Clarification: The Proposal section of the Bid Packet has been revised to increase the project time to be awarded to 150 calendar days and to correct the Wastewater Bid Item 9, 10, and 11 quantities for open trenching. Bidders are to remove all previous versions of the Proposal section in their entirety and replace them with the attached revision.

Clarification: The Contract section of the Bid Packet has been revised to increase the project time to be awarded to 150 calendar days. Bidders are to remove all previous versions of the Contract section in their entirety and replace them with the attached revision.

Clarification: Contractor must be willing to sign contract as is.

Clarification: Check that all insurance forms are in order when submitting bids.

Clarification: Check that all conflict of interest forms are completed if applicable.

Clarification: Contractor must fill out all bid items in the Proposal for the bid to be considered complete.

Clarification: Contractor is responsible for all construction staking.

Clarification: All invoice submittals are to be itemized and are to match the Proposal item listed.

Clarification: Utility covers matching City Details are now available. All utility covers and cover patterns are to match the City standard details.

Clarification: Contractor is responsible for all traffic control during this project.

Clarification: There is a one (1) calendar year warranty period on this project.

Clarification: It is recommended that Bidders use the USPS mailing address rather than the physical City Hall address for bid submittals that are mailed in as the physical address has experienced issues on occasion in the past. The USPS mailing address is unchanged from what is listed in the original bid packet and the pre-bid teleconference meeting agenda.

Clarification: Contractor is responsible for notifying all adjacent properties of any planned service interruptions no less than two (2) business days in advance of any such interruptions. Service interruptions are to be kept as short as is reasonably possible. This requirement does not apply in emergency situations.

Clarification: Contractor is responsible for maintaining access to all adjacent properties at all times, barring those times when actual construction activity necessary to complete the work is taking place in front of driveway approaches or similar points of access. When such work is not occurring then access must be restored by means of traffic rated steel plates or other equivalent means until such time as the work is completed.

Clarification: Saw-cutting is considered subsidiary to the bid items listed in the Proposal.

Clarification: The City of Midland will obtain the required utility permit from TxDOT to cross their Right-of-Way after the project bid is awarded and the construction schedule is known. Contractor is not allowed to begin any construction activity within TxDOT ROW until the City of Midland has obtained this permit and provided a copy to the Contractor.

Clarification: The City of Midland will not approve an alternate, permanent parallel wastewater main to make the connection to the existing wastewater system at the east end of the project site.

Clarification: Contractors may hire someone with the required, active Water Operator D license, active Wastewater D license, or active Class 1 Collections license if they wish. Documentation must still be provided as part of the bid packet submittal in such cases proving that the licensed individual has been hired and has an active license at the time of the bid submittal, and at least one of these active licenses must still be maintained by the Contractor or the individual they hired for the entirety of the project.

Clarification: There will be a higher emphasis on stabilization for this project than most typical City of Midland projects. This wastewater main will not be located under any future pavement but instead will be right on the edge of a major drainage channel just outside a major future arterial roadway, so this raises the need to ensure the project site is fully stabilized after construction considerably. It is for this reason that permanent stabilization measures are required for this project as indicated in the construction drawings and bid packet in addition to the more typical temporary construction erosion control measures.

Question: What is the pavement repair bid item? There is nothing about this in the plans.
Answer: There is a possibility that temporary pavement will be installed for the existing apartment complex next to SH 158 before this project construction is completed. In that case it may be necessary to remove and replace portions of the temporary pavement to ensure the apartment complex residents still have access.

Question: Is there any PSI or other rock information about the soil conditions in this area?

Answer: Not for this project. That said, there are currently various levels of excavation occurring fairly close to this project site for other projects and activities, so site inspections of these excavations may provide useful information about the existing soil conditions in this area.

Question: Bid Items for 18" and 8" sewerline total 4,880 LF less the pipe installed in casing. Total bid items for open trench excavation totals 4,510 LF.

Answer: Wastewater Bid Items 9, 10, and 11 quantities have been corrected in the revised Proposal attached to this Addendum 02. The difference between the total open trench length and the total pipe length is the sum of both the bore length under SH 158 and the bore pit length just before the crossing as the bore pit excavation is included as part of the bore pit bid item.

Question: Can we get more calendar days added to the contract for completion?

Answer: The total calendar days from the date of the Notice to Proceed to substantially complete this project is increased to 150 calendar days.

PROPOSAL

TO: Honorable Mayor and City Council
City of Midland
Midland, Texas

Gentlemen: The undersigned bidder, having examined the drawings, specifications and contract documents, the location of the proposed work, and being fully advised as to the extent and character of the work, proposes to furnish all material, equipment, and to perform all labor and work necessary for the completion of the construction of the work described by and in accordance with the attached drawings, specifications, and contract, for the following prices, to wit:

Project Name: West Wadley Avenue Wastewater Line Extension

Base Bid: Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	4 MO	Mobilization, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per month. (Pay Note M1)	$_____	$_____
2)	2 WK	Bypass Pumping, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per week. (Pay Note M2)	$_____	$_____
3)	1 LS	Bore Pit, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per lump sum. (Pay Note M3)	$_____	$_____
4)	1 LS	Receiving Pit, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per lump sum. (Pay Note M4)	$_____	$_____

Base Bid: Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
5)	180 LF	36" Bore For Casing Pipe, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note M5)	$_____	$_____
6)	180 LF	36" Steel Pipe Casing (1/4" Wall Thickness), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note M6)	$_____	$_____
7)	20 LF	16" Steel Pipe Casing (1/4" Wall Thickness), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note M6)	$_____	$_____
8)	4 MO	Erosion/Sediment Control, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per month. (Pay Note M7)	$_____	$_____
9)	4 MO	Traffic Control, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per month. (Pay Note M8)	$_____	$_____
10)	4 MO	Job Site Safety, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per month. (Pay Note M9)	$_____	$_____
11)	11,450 SY	Seeded Erosion Control Mats, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note M10)	$_____	$_____

Base Bid: Miscellaneous Items				
Item No.	Quantity	Description	Unit Price	Total Amount
12)	1 LS	Spray Watering, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per lump sum. (Pay Note M11)	$_____	$_____
13)	N/A	Material Mark-up, complete and in place, for the sum of: _____percent. (Pay Note M12)	%_____	$_N/A_____
14)	N/A	Labor Mark-up (Regular Work Hours), complete and in place, for the sum of: _____percent. (Pay Note M13)	%_____	$_N/A_____
15)	N/A	Equipment Rental Mark-up (Non-Standard Equipment Only), complete and in place, for the sum of: _____percent. (Pay Note M14)	%_____	$_N/A_____
Total Miscellaneous Items 1-15		$_____		

Base Bid: Demolition Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	120 LF	Removal & Disposal of Existing Wastewater Main, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note D1)	$_____	$_____
2)	1 EA	Removal & Disposal of Existing 48" Manhole, (0'-5' Deep), complete and in place, for the sum of: _____dollars and _____cents per each. (Pay Note D2)	$_____	$_____
3)	15 VF	Remove & Disposal of Existing 48" Manhole Additional Depth, (> 5' Deep), complete and in place, for the sum of: _____dollars and _____cents per vertical foot. (Pay Note D3)	$_____	$_____
4)	100 SY	Removal & Dispose of Existing Unclassified Pavement, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note D4)	$_____	$_____
5)	400 LF	Removal & Disposal of Existing Barbed-wire Fence, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note D5)	$_____	$_____
Total Demolition Items 1-5		$_____		

Base Bid: Wastewater Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	4,700 LF	18" ASTM F679 (PS 115), PVC, Wastewater Main, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note WW1)	$_____	$_____
2)	140 LF	8" SDR 26 ASTM D3034, PVC, Wastewater Main, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note WW1)	$_____	$_____
3)	240 LF	8" SDR 35 ASTM D3034, PS46, PVC, Wastewater Main, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note WW1)	$_____	$_____
4)	17 EA	48" Fiberglass Manhole & Cover, (0'-5' Deep), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per each. (Pay Note WW2)	$_____	$_____
5)	240 VF	48" Fiberglass Manhole Additional Bury Depth, (> 5' Deep), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per vertical foot. (Pay Note WW3)	$_____	$_____

Base Bid: Wastewater Items				
Item No.	Quantity	Description	Unit Price	Total Amount
6)	3 EA	8" Manhole Drop Structure (0'-5' Deep, External), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per each. (Pay Note WW4)	$_____	$_____
7)	15 VF	8" Manhole Drop Structure Additional Bury Depth (> 5' Deep, External), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per vertical foot. (Pay Note WW5)	$_____	$_____
8)	1 EA	8" Wastewater Main Plug, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per each. (Pay Note WW6)	$_____	$_____
9)	1,400 LF	Open Trenching of Wastewater Main (0'-16' Deep), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note WW7)	$_____	$_____
10)	2,180 LF	Open Trenching of Wastewater Main (16'-20' Deep), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note WW7)	$_____	$_____
11)	1,000 LF	Open Trenching of Wastewater Main (20'-24' Deep), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per linear foot. (Pay Note WW7)	$_____	$_____

Base Bid: Wastewater Items				
Item No.	Quantity	Description	Unit Price	Total Amount
Total Sewer Items 1-11		$_____		

Base Bid: Paving Items				
Item No.	Quantity	Description	Unit Price	Total Amount
1)	500 SY	2" Type D HMAC Asphalt Pavement Repair (PG70-22), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P1)	$_____	$_____
2)	100 GAL	Bituminous Prime Coat (MC-30 or AEP, 0.20 Gal / SY), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per gallon. (Pay Note P2)	$_____	$_____
3)	500 SY	Flowable Fill / 2-Sack Backfill, furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P3)	$_____	$_____
4)	500 SY	6" Base Rock Pavement Repair (Flexible Base), furnished, installed, complete and in place, for the sum of: _____dollars and _____cents per square yard. (Pay Note P4)	$_____	$_____
Total Paving Items 1-4		$_____		

Bid Price For:	
1. Miscellaneous Items	$_____
2. Demolition Items	$_____
3. Wastewater Items	$_____
4. Paving Items	$_____
Total Price	$_____

In addition to providing the individual prices for the items above, Contract shall write the total bid amount in the sum of

_____dollars

and _____ cents total.

The undersigned bidder hereby declares that he has visited the site of the work and has carefully examined the contract documents pertaining to the work covered by the above bid. The selected contractor will receive written notice to proceed.

Bidder agrees to substantially complete all work within _150_ calendar days after receipt of notice to proceed.

PUBLIC INFORMATION

To the extent that Bidder is submitting a bid for a contract described by Section 552.371 of the Texas Government Code, Bidder agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this bid, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

Enclosed herewith in this proposal is a cashier's check, cash or bid bond on a form approved by the City Attorney, for

_____dollars

and _____ cents total. ($_____)

which it is agreed shall be collected and retained by the owner as liquidated damages in the event this proposal is accepted by the Owner within thirty days (30) after the date advertised for the reception of bids and the undersigned fails to execute the contract and required bonds with the owner, under the conditions thereof, within (15) days after the date said proposal is accepted; otherwise said check or bond shall be returned to the undersigned on demand.

_____

Name of Contractor

Submitted By	Print Name and Title	
Mailing Address		
City	State	Zip

CONTRACT

THE STATE OF TEXAS §

COUNTY OF MIDLAND §

THIS CONTRACT, made and entered into this _____ day of _____, 20_____, by and between the City of Midland of the County of Midland and State of Texas, acting through its Mayor thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and _____ of the City _____, County of _____, State of _____, Party of the Second Part, herein-after termed CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the first Part (OWNER), and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follows: West Wadley Avenue Wastewater Line Extension _____ together with appurtenances and incidentals.

Conditions of the Contract and at his (or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendent, labor, insurance and other accessories and services necessary to complete the said construction in accordance with the conditions and prices stated in the Proposal attached hereto, and in accordance with the Notice to the Contractors, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore as prepared by Engineering and Transportation Department of the City of Midland, Texas, herein entitled the ENGINEER, together with the CONTRACTOR'S written Proposal, the General Conditions of the Contract, and the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire Contract.

The CONTRACTOR hereby agrees to commence work within fifteen (15) calendar days after the written notice to do so and to substantially complete the same within 150 calendar days after receipt of notice to proceed, subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this Contract, such payments to be subject to the General and Special Conditions of the Contract.

The SUM TOTAL of this Contract shall be: _____.

INSURANCE

Contractor shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):	
— Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
— Property Damage:	$500,000.00 per occurrence
Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on an occurrence basis. This insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Business Automobile Liability insurance provided by Contractor shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the

work that is the subject of this Contract. The insurance shall name the City as an additional insured and waive subrogation in favor of the City.

The Workers' Compensation coverage provided by Contractor shall inure to the benefit of employees injured during the course and scope of their employment by Contractor pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of the City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of the City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name the City as an additional insured on a claims occurred basis. City shall be provided the notice by Contractor's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Contractor shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Contractor shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of the City. The City shall not be required to provide any insurance whatsoever pursuant to this Contract.

The Contractor certifies that the certificate of insurance provided as required herein complies with the requirements of Senate Bill 425, passed during the 82nd regular session of the Texas Legislature, and effective January 1, 2012. The Contractor shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of the Contractor.

WAIVER OF ATTORNEY FEES

WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, CONTRACTOR AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE OWNER, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE CONTRACT. THE CONTRACTOR SPECIFICALLY AGREES THAT IF THE CONTRACTOR BRINGS OR COMMENCES

ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMEDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, THE CONTRACTOR AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH CONTRACTOR MIGHT OTHERWISE BE ENTITLED.

CONTRACTOR AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. THE CONTRACTOR ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. THE CONTRACTOR FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE OWNER AND THE CONTRACTOR. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

THE CONTRACTOR AND OWNER ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

SOVEREIGN IMMUNITY

By executing this Contract, the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

GOVERNING LAW AND VENUE

This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas.

COMPLIANCE – Contractor agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Contractor agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

VERIFICATION

To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Contractor hereby verifies that Contractor does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Contractor shall be deemed to have not made such verification.

RECORDS RETENTION AND PRODUCTION OF INFORMATION

To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Contractor shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to the City of Midland for the duration of the contract, (2) promptly provide to the City of Midland any contracting information related to the Contract that is in the custody or possession of Contractor on request of the City of Midland, and (3) on completion of the Contract, either (i) provide at no cost to the City of Midland all contracting information related to the Contract that is in the custody or possession of Contractor, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to the City of Midland.

PUBLIC INFORMATION

To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Contractor agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Parties of the First Part (Owner)

By: _____
Patrick Payton, Mayor

ATTEST:

_____
Amy Turner, City Secretary

APPROVED ONLY AS TO FORM:

By: _____
John Ohnemiller, City Attorney

By: _____
Party of the Second Part (CONTRACTOR)

By: _____
Title

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, on this _____ day of _____, 20__ personally appeared _____, an officer of _____, known to me to be the person and official whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as an act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this _____ day of _____, 20_____

_____
Notary Public

Form Revised October 2020

TCEQ Search Licensing or Registration Information

License Detail

To report a change of address, phone number, or email address, please fill out the form located at http://www.tceq.texas.gov/licensing/forms/contactupdate.

CN: CN601790835
Name: RAMIREZ, FELIPE SR
Address: 310 E PINE AVE
City: MIDLAND
State: TX
ZIP: 79705-7921
County: MIDLAND
Work Phone: 432-685-7270
432-685-7270

License(s)

There were 5 licenses found.

Program	License Type and Level	License Number	Last Issued Date	Exp. Date	License Status	BPAT Practical Skills	CE Hours
BPATOL	BACKFLOW PREVENTION ASSEMBLY TESTER	BP0016248	09/20/2017	11/25/2020	CURRENT	NO	0
WATEROL	WATER DISTRIBUTION OPERATOR B	WD0001879	05/09/2019	07/30/2022	CURRENT	N/A	41.5
WWOL	WASTEWATER COLLECTION OPERATOR III	WW0025072	03/05/2019	05/14/2022	CURRENT	N/A	41.5
MSWOL	MSW OPERATOR B	SW0001104	02/22/1990	02/21/1994	EXPIRED	N/A	N/A
WWOL	WASTEWATER COLLECTION OPERATOR II	WW0009537	10/01/1999	10/01/2002	EXPIRED	N/A	N/A

Note: The number of CE hours needed in order to renew a license is based on the term (length) of each license. Please go to the program page for the license you hold to determine the number of CE hours needed and to view the latest information and renewal requirements for your license.

Application(s) within the Last 2 Years

There were 2 applications found.

Program	Type and Level	App. Type	App. Status	App. Review Date	App. Expiration Date	Deficiency Letter Date	Total Hours
WATEROL	WATER DISTRIBUTION OPERATOR B	RENEWAL	LICISSUED	05/09/2019	08/29/2019	No Deficiency	740.5
WWOL	WASTEWATER COLLECTION OPERATOR III	RENEWAL	LICISSUED	03/05/2019	06/13/2019	No Deficiency	734

Course(s)

There were 183 courses found. **Note:** You may see the same course listed multiple times. This occurs because the course counted towards multiple license programs.

Program	Course Title	Course Code	Hours	Date	Provider
BPATOL	CUSTOMER SERVICE INSPECTIONS	173	10.0	02/09/2017	FW TEX RS
BPATOL	CROSS-CONNECTION CONTROL	43	10.0	02/09/2017	FW TEX RS

PACKET
11.2606
December 15, 2020

WATEROL	WATER UTILITY SAFETY	426	20.0	08/06/2009	PERM B RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	04/21/2009	TWUA DIST
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	11/18/2008	TWUA DIST
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	10/21/2008	TWUA DIST
WATEROL	SPECIAL TOPICS IN WATER & WASTEWATER(TWUA)	457	20.0	08/07/2008	PERM B RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	02/19/2008	TWUA DIST
WATEROL	(DEACT 4/14) UNDERGROUND FACILITY DAMAGE PREV	1183	1.0	08/21/2007	TEXAS811
WATEROL	SPECIAL TOPICS IN WATER & WASTEWATER(TWUA)	457	20.0	08/09/2007	PERM B RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	06/19/2007	TWUA DIST
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	02/20/2007	TWUA DIST
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	08/15/2006	TWUA DIST
WATEROL	SPECIAL TOPICS IN WATER & WASTEWATER(TWUA)	457	20.0	08/03/2006	PERM B RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	07/18/2006	TWUA DIST
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	06/20/2006	TWUA DIST
WATEROL	WATER UTILITY MANAGEMENT	550	20.0	02/16/2006	FW TEX RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	01/17/2006	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	09/20/2005	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	08/16/2005	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	06/21/2005	PERMIAN B
WATEROL	WATER UTILITY SAFETY	426	20.0	11/04/2004	W TEX RS
WATEROL	SPECIAL TOPICS IN WATER & WASTEWATER(TWUA)	457	20.0	05/06/2004	CWTEX RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	12/30/2003	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	09/30/2003	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	03/31/2003	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	12/31/2002	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	09/30/2002	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	06/30/2002	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	03/31/2002	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	12/31/2001	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	6.0	09/30/2001	PERMIAN B
WATEROL	(CORE) WATER DISTRIBUTION	605	20.0	11/09/2000	W TEX RS
WATEROL	(CORE) BASIC WATERWORKS OPERATION	92	20.0	08/03/2000	PERM B RS
WATEROL	WATER UTILITY CALCULATIONS	108	20.0	01/26/2000	TEEX ITSI
WATEROL	WATER UTILITY SAFETY	426	20.0	08/05/1999	TWUA
WATEROL	WATER UTILITY SAFETY	426	20.0	02/03/1999	TEEX ITSI
WATEROL	(CORE) WATER DISTRIBUTION	605	20.0	11/05/1998	W TEX RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	09/30/1998	PERMIAN B
WATEROL	(CORE) WATER DISTRIBUTION	605	20.0	08/05/1998	PERM B RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	06/30/1998	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	09/30/1997	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	06/30/1997	PERMIAN B
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	03/31/1997	PERMIAN B
WATEROL	SURFACE WATER PRODUCTION (DEACT 8/03)	474	20.0	03/19/1997	TEEX ITSI
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	14.0	12/31/1996	PERMIAN B
WATEROL	(CORE) WATER DISTRIBUTION	605	20.0	11/07/1996	W TEX RS
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	16.0	12/31/1995	PERMIAN B
WATEROL	WATER LABORATORY	285	20.0	06/01/1995	TEEX ITSI
WATEROL	PUMP & MOTOR OPERATION AND MAINTENANCE	396	20.0	02/01/1995	TEEX ITSI
WATEROL	MONTHLY MEETING TRAINING (W/WW)	33	14.0	12/01/1994	PERMIAN B
WATEROL	(CORE) WATER DISTRIBUTION	605	20.0	02/01/1994	TEEX ITSI

WWOL	SPECIAL TOPICS IN WATER & WASTEWATER(TWUA)	457	20.0	05/06/2004	CWTEX RS
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	12/30/2003	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	09/30/2003	PERMIAN B
WWOL	WASTEWATER COLLECTION	80	20.0	08/07/2003	PERM B RS
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	03/31/2003	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	12/31/2002	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	09/30/2002	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	06/30/2002	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	03/31/2002	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	12/31/2001	PERMIAN B
WWOL	WASTEWATER COLLECTION	80	20.0	11/08/2001	W TEX RS
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	6.0	09/30/2001	PERMIAN B
WWOL	WASTEWATER COLLECTION	80	20.0	08/09/2001	PERM B RS
WWOL	WATER UTILITY CALCULATIONS	108	20.0	01/26/2000	TEEX ITSI
WWOL	WATER UTILITY SAFETY	426	20.0	08/05/1999	TWUA
WWOL	WATER UTILITY SAFETY	426	20.0	02/03/1999	TEEX ITSI
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	2.0	09/30/1998	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	06/30/1998	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	09/30/1997	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	06/30/1997	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	4.0	03/31/1997	PERMIAN B
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	14.0	12/31/1996	PERMIAN B
WWOL	(CORE) BASIC WASTEWATER OPERATIONS	59	20.0	08/08/1996	PERM B RS
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	16.0	12/31/1995	PERMIAN B
WWOL	WASTEWATER COLLECTION	80	20.0	11/09/1995	W TEX RS
WWOL	(CORE) BASIC WASTEWATER OPERATIONS	59	20.0	08/03/1995	PERM B RS
WWOL	PUMP & MOTOR OPERATION AND MAINTENANCE	396	20.0	02/08/1995	TEEX ITSI
WWOL	MONTHLY MEETING TRAINING (W/WW)	33	14.0	12/31/1994	PERMIAN B
WWOL	EXCAVATION SAFETY/COMPETENT PERSON	204	8.0	09/23/1994	TWUA
WWOL	WATER UTILITY SAFETY	426	20.0	08/05/1993	PERM B RS
WWOL	APPLIED CONFINED SPACE SAFETY(8 HR W/WW)	42	8.0	11/11/1992	TEEX ITSI

Note: Approved training providers are responsible for submitting approved training to TCEQ. Please allow 30 days from the last date of the training session for a record to appear in the search results. If a course does not appear in your training record after that time, please contact the training provider of the missing course. You may find contact information for approved training providers at https://www.tceq.texas.gov/licensing/training/AllTrainingProviders.

© 2002-2020 Texas Commission on Environmental Quality

PACKET
11.2608
December 15, 2020

TCEQ Search Licensing or Registration Information

License Detail

To report a change of address, phone number, or email address, please fill out the form located at http://www.tceq.texas.gov/licensing/forms/contactupdate.

CN: CN605089184
Name: CHANDLER, DAVID E III
Address: 2025 S COUNTY ROAD 1066
City: MIDLAND
State: TX
ZIP: 79706-5649
County: MIDLAND
Work Phone: 432-556-9768

License(s)

There were 4 licenses found.

Program	License Type and Level	License Number	Last Issued Date	Exp. Date	License Status	CE Hours
OSSFOL	OSSF INSTALLER I	OS0033559	05/18/2018	05/31/2021	CURRENT	8
WATEROL	WATER OPERATOR D	WO0038413	03/13/2019	03/07/2022	CURRENT	0
WWOL	WASTEWATER TREATMENT OPERATOR D	WW0055213	03/13/2019	03/22/2022	CURRENT	0
WWOL	WASTEWATER COLLECTION OPERATOR II	N/A	N/A	N/A	VOID	N/A

Note: The number of CE hours needed in order to renew a license is based on the term (length) of each license. Please go to the program page for the license you hold to determine the number of CE hours needed and to view the latest information and renewal requirements for your license.

Application(s) within the Last 2 Years

There were 2 applications found.

Program	Type and Level	App. Type	App. Status	App. Review Date	App. Expiration Date	Deficiency Letter Date	Total Hours
WATEROL	WATER OPERATOR D	RENEWAL	LICISSUED	01/29/2019	04/06/2019	No Deficiency	60
WWOL	WASTEWATER TREATMENT OPERATOR D	RENEWAL	LICISSUED	02/05/2019	04/21/2019	No Deficiency	60

Course(s)

There were 8 courses found. **Note:** You may see the same course listed multiple times. This occurs because the course counted towards multiple license programs.

Program	Course Title	Course Code	Hours	Date	Provider
OSSFOL	(ONLINE) WATER UTILITY SAFETY (= 426)	1132	8.0	01/14/2019	TRWA
OSSFOL	ON-SITE INSTALLER I	417	13.0	05/08/2018	TEEX ITSI
WATEROL	(ONLINE) PUMP & MOTOR MAINTENANCE (TRWA)	397	20.0	03/01/2019	TRWA
WATEROL	(ONLINE) WATER UTILITY SAFETY (= 426)	1132	20.0	01/14/2019	TRWA

PACKET
11.2609
December 15, 2020

WEST WADLEY AVENUE WASTEWATER LINE EXTENSION
OCTOBER 2020

MAYOR

PATRICK PAYTON

COUNCIL MEMBERS

SCOTT DUFFORD	DISTRICT 1
JOHN NORMAN	DISTRICT 2
JACK LADD	DISTRICT 3
LORI BLONG	DISTRICT 4
MICHAEL TROST	AT LARGE
SPENCER ROBNETT	AT LARGE

Andrew L. Mellen — 10/19/2020
ENGINEER — SUBMITTED

INTERIM CITY MANAGER

ROBERT PATRICK

CITY ENGINEER — RECOMMENDED

DIRECTOR OF UTILITIES

CARL CRAIGO, P.E.

ENGINEERING SERVICES DIRECTOR — RECOMMENDED

ENGINEERING SERVICES DIRECTOR

JOSE E. ORTIZ

CITY ENGINEER

MATT C. CARR, P.E.

CONTACT:
JOSH FERGUSON, P.E.
CITY OF MIDLAND,
300 N. LORAINE ST., MIDLAND, TX 79702



VICINITY MAP
N.T.S.

CONTRACTOR_____

DATE CONTRACTOR BEGAN WORK_____

DATE WORK WAS COMPLETED_____

DATE WORK WAS ACCEPTED_____

FINAL CONTRACT COST_____

BID PLAN SET	
SHEET	DESCRIPTION
C100	COVER SHEET
C101	GENERAL NOTES
C102	EXISTING CONDITIONS / MASTER LAYOUT
C103	EXISTING CONDITIONS / MASTER LAYOUT
C110	EROSION CONTROL PLAN
C111	EROSION CONTROL PLAN
C112	EROSION CONTROL DETAILS
C113	EROSION CONTROL DETAILS
C200	WASTEWATER-A PLAN & PROFILE
C201	WASTEWATER-A PLAN & PROFILE
C202	WASTEWATER-A PLAN & PROFILE
C203	WASTEWATER-A PLAN & PROFILE
C204	WASTEWATER-A PLAN & PROFILE
C210	WASTEWATER-B / STUB OUT-1 PLAN & PROFILE
C300	WASTEWATER DETAILS
C301	WASTEWATER DETAILS
C302	WASTEWATER DETAILS

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

Δ	REVISIONS	BY	APPR.	DATE

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

COVER SHEET

WEST WADLEY AVENUE
WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/19/2020

811 Know what's below. Call before you dig.

APPROVED
[Date]

C100 OF 17

P:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C100 COVER SHEET.DWG
© COPYRIGHT 2020 ALL RIGHTS RESERVED
PACKET 11:2610
December 15, 2020

GENERAL NOTES:

a. ALL CONSTRUCTION IS TO COMPLY WITH CITY OF MIDLAND STANDARDS AND SPECIFICATIONS WHEREVER APPLICABLE. ALL OTHER STANDARDS AND REQUIREMENTS ARE TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE REGULATIONS, REQUIREMENTS, AND STANDARDS. WHEREVER CITY OF MIDLAND STANDARDS AND FEDERAL OR STATE REQUIREMENTS DIFFER THE MORE RESTRICTIVE STANDARD, REQUIREMENT, OR REGULATION WILL GOVERN.

b. ALL BEARINGS, DIMENSIONS, AND COORDINATES SHOWN IN THIS CONSTRUCTION DRAWING SET ARE RELATED TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE, NORTH AMERICAN DATUM 1983. ALL ELEVATIONS ARE RELATED TO NORTH AMERICAN VERTICAL DATUM 1988.

c. EXISTING UTILITIES, INFRASTRUCTURE, AND OTHER OBJECTS INDICATED IN THESE PLANS HAVE BEEN LOCATED USING CITY OF MIDLAND RECORDS, SITE INSPECTIONS, AND SPOT SURVEYS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THIS INFORMATION PRIOR TO CONSTRUCTION AND NOTIFYING ENGINEER OF ANY CONFLICTS BETWEEN EXISTING CONDITIONS AND PROJECT DESIGN.

d. CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ALL EXISTING FACILITIES THAT ARE ENCOUNTERED REGARDLESS OF WHETHER OR NOT THEY APPEAR IN THIS CONSTRUCTION DRAWING SET.

e. CONTRACTOR IS TO NOTIFY ALL AFFECTED PROPERTIES AT LEAST 48 HOURS IN ADVANCE OF ANY UNKNOWN OR PLANNED INTERRUPTION OF SERVICE OR ACCESS DUE TO ANY CONSTRUCTION ACTIVITY PERFORMED BY CONTRACTOR.

f. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A TRAFFIC CONTROL PLAN TO THE CITY OF MIDLAND FOR REVIEW AND APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY.

g. ANY ISSUES, CONFLICTS, OR DISCREPANCIES ENCOUNTERED IN THE FIELD THAT CONFLICT WITH THIS CONSTRUCTION DRAWING SET ARE TO BE BROUGHT TO ENGINEER'S ATTENTION PRIOR TO MAKING ANY DESIGN CHANGES IN THE FIELD.

h. OSHA REQUIREMENTS AND ALL OTHER APPLICABLE FEDERAL, STATE, OR CITY OF MIDLAND REQUIREMENTS ARE TO BE FOLLOWED AND COMPLIED WITH AT ALL TIMES.

DEMOLITION NOTES:

A. CONTRACTOR IS TO NOTIFY ENGINEER OF ANY ADDITIONAL DEMOLITION THAT MAY BE NEEDED AND RECEIVE WRITTEN CONFIRMATION THAT SUCH DEMOLITION IS APPROVED PRIOR TO ANY ADDITIONAL DEMOLITION TAKING PLACE.

B. CONSTRUCTOR IS TO TAKE CARE NOT TO DAMAGE OR REMOVE ANY EXISTING INFRASTRUCTURE OR PROPERTY, PUBLIC OR PRIVATE, THAT IS NOT INDICATED BY THIS CONSTRUCTION DRAWING SET. ANY SUCH DAMAGE OR REMOVAL MUST BE REPLACED OR REPAIRED BY CONTRACTOR AT THEIR SOLE EXPENSE TO EQUAL OR BETTER CONDITION.

C. ALL SAW-CUTTING IS TO HAVE CLEAN AND STRAIGHT EDGES AND IS CONSIDERED INCIDENTAL TO ALL PAVEMENT REMOVAL.

CONSTRUCTION NOTES:

1. SEE SHEETS C102, C103, AND C104 FOR CONTROL POINTS.
2. INCLUDE CONCRETE COLLARDS AROUND ALL WASTEWATER MANHOLE COVERS.
3. ALL CONCRETE REINFORCEMENT IS TO BE INSTALLED AT A RATE OF 1.5-LBS OF FIBER REINFORCEMENT PER EVERY 1.0-CY OF CONCRETE PLACED UNLESS OTHERWISE STATED IN CONSTRUCTION DRAWINGS.
4. ALL TRENCH PAVEMENT REPAIRS ARE TO INCLUDE 1.0' T-TOPPING ON EITHER SIDE OF TRENCH EXCAVATION.

PACKET

11.2611

December 15, 2020

Know what's **below.**
Call before you dig.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

	BY	APPR.	DATE
1			

REVISIONS

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

GENERAL NOTES

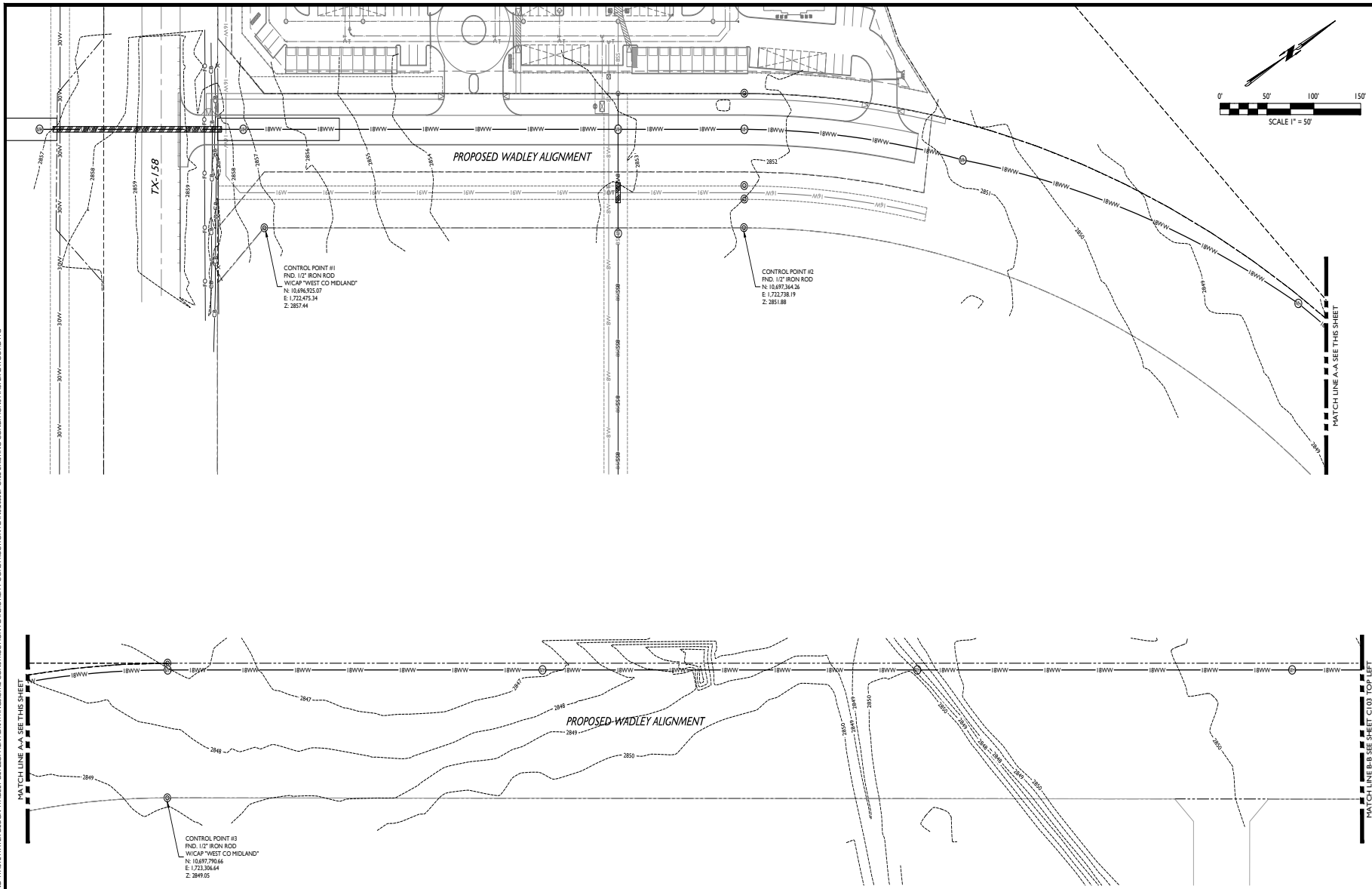
WEST WADLEY AVENUE
WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/19/2020

SHEET C101 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\UTILITY CONSTRUCTION PLANS\200027 C101 GENERAL NOTES.DWG



LEGEND

- DENOTES FOUND 1/2" IRON ROD
- DENOTES EXISTING FIRE HYDRANT
- DENOTES EXISTING POWER POLE
- DENOTES EXISTING FENCE
- DENOTES EXISTING OVERHEAD ELECTRIC LINE
- DENOTES EXISTING 12" WATER MAIN
- DENOTES EXISTING 30" WATER MAIN
- DENOTES PROPOSED 15" WASTEWATER
- DENOTES EXISTING 18" WASTEWATER
- DENOTES PROPOSED MANHOLE
- DENOTES PROPOSED 18" WASTEWATER

0' 50' 100' 150'
SCALE 1" = 50'

Know what's **below.** **Call** before you dig.

PACKET 11.2612 December 15, 2020

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

REVISIONS

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

EXISTING CONDITIONS MASTER LAYOUT

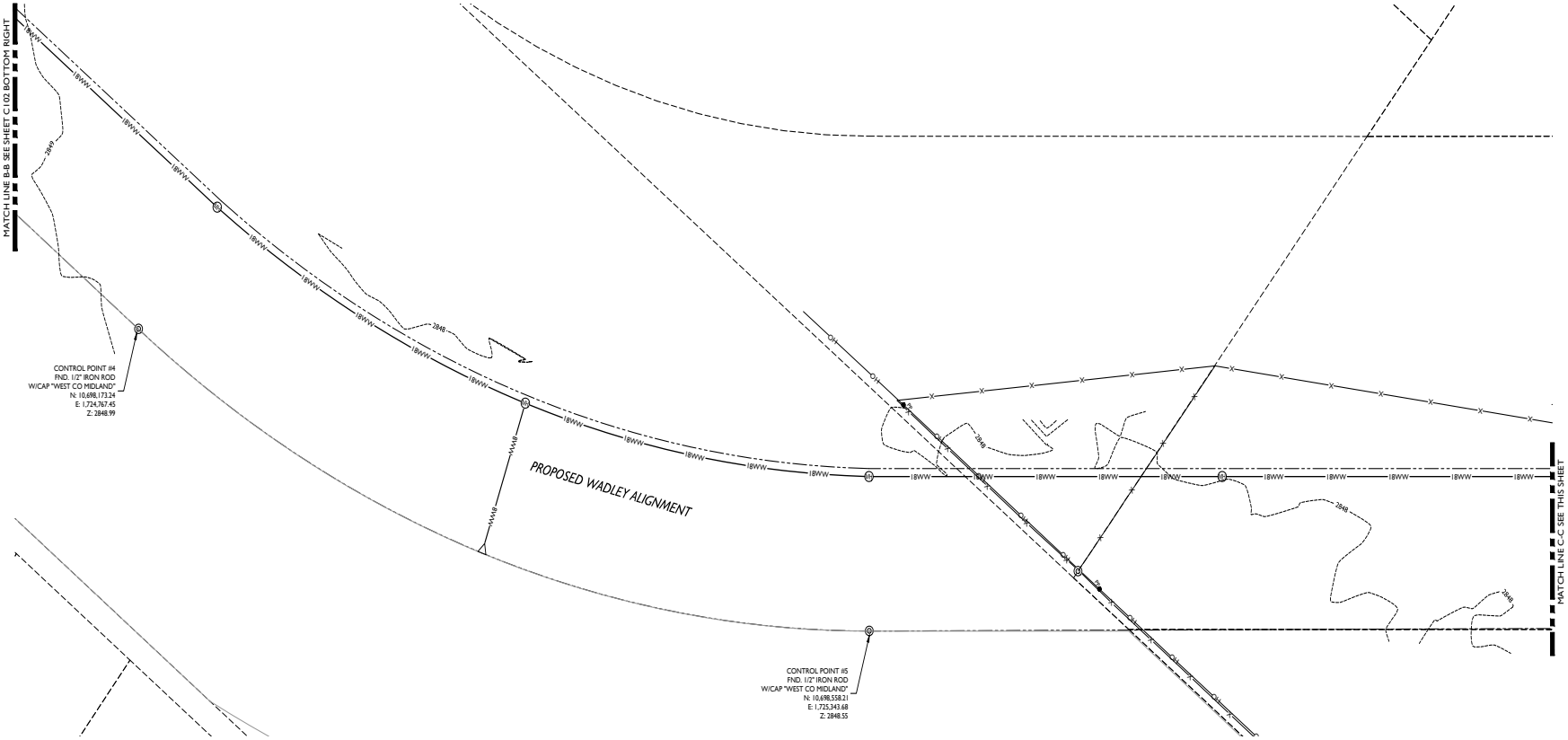
WEST WADLEY AVENUE WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

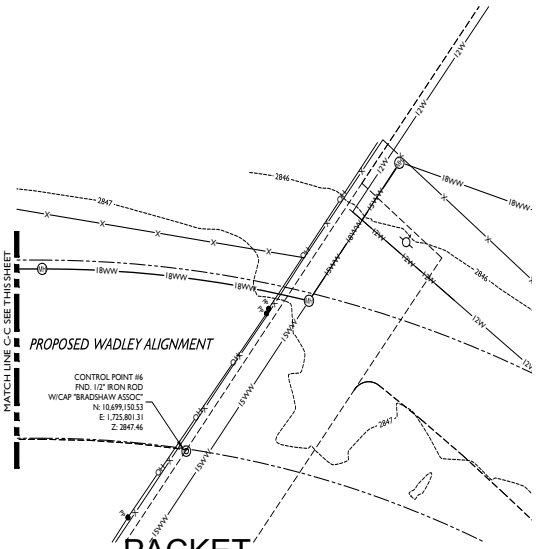
STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED PROFESSIONAL ENGINEER
10/19/2020

SHEET C102 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

P:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN-WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C102 EXISTING CONDITIONS MASTER LAYOUT.DWG





LEGEND

- DENOTES FOUND 1/2" IRON ROD
- DENOTES EXISTING FIRE HYDRANT
- DENOTES EXISTING POWER POLE
- DENOTES EXISTING FENCE
- DENOTES EXISTING OVERHEAD ELECTRIC LINE
- DENOTES EXISTING 12" WATER MAIN
- DENOTES EXISTING 30" WATER MAIN
- DENOTES PROPOSED 15" WASTEWATER
- DENOTES EXISTING 18" WASTEWATER
- DENOTES PROPOSED MANHOLE
- DENOTES PROPOSED 18" WASTEWATER

0' 50' 100' 150'
SCALE 1" = 50'

PACKET 11.2613 December 15, 2020

Know what's **below.** **Call** before you dig.

M A V E R I C K
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

	BY	APPR.	DATE
1			
REVISIONS			

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

EXISTING CONDITIONS MASTER LAYOUT

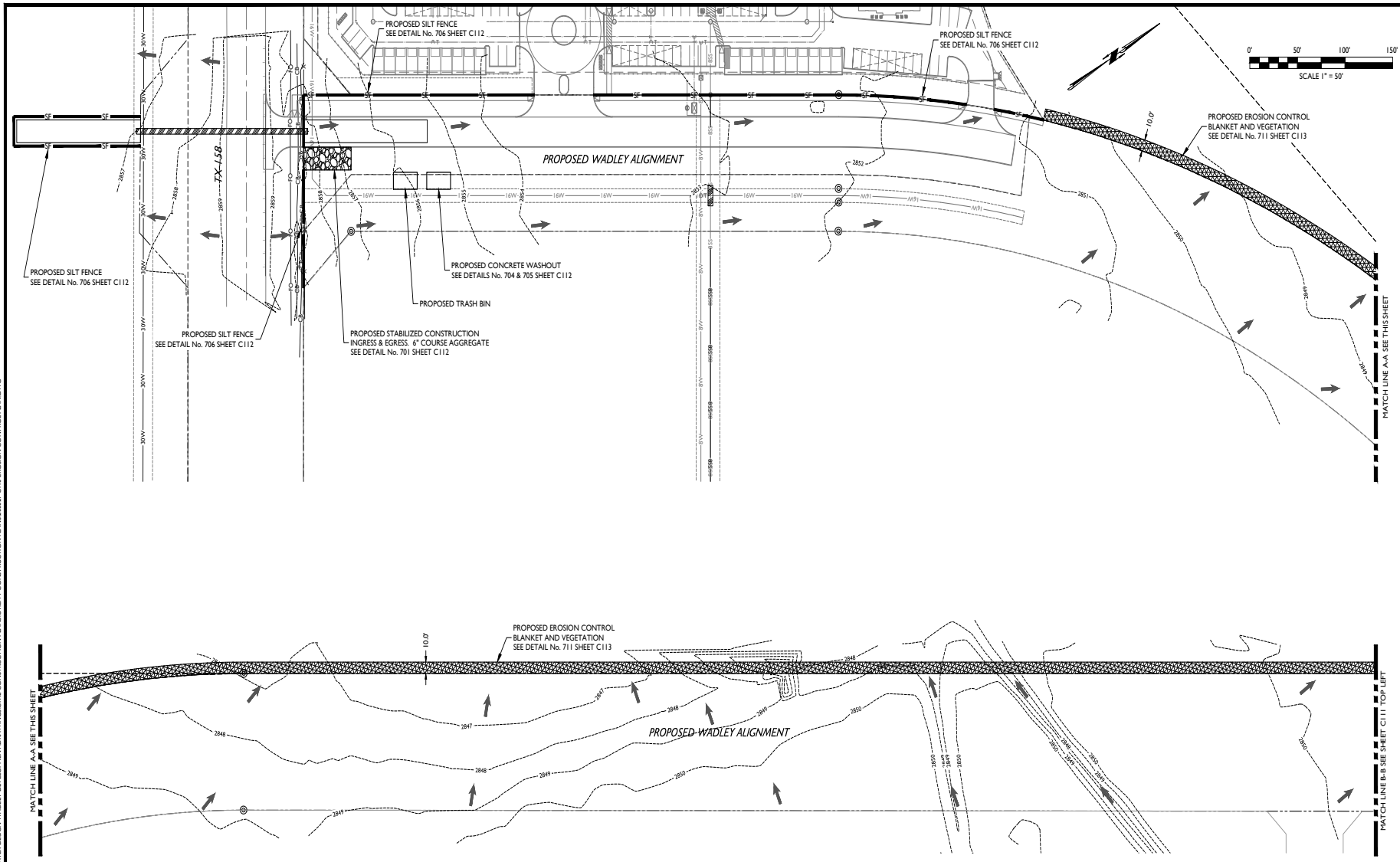
WEST WADLEY AVENUE WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED PROFESSIONAL ENGINEER
10/19/2020

SHEET C103 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

P:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C103 EXISTING CONDITIONS MASTER LAYOUT.DWG



LEGEND

- DENOTES FOUND 1/2" IRON ROD
- DENOTES EXISTING FIRE HYDRANT
- DENOTES EXISTING POWER POLE
- DENOTES EXISTING FENCE
- DENOTES EXISTING OVERHEAD ELECTRIC LINE
- DENOTES EXISTING 12" WATER MAIN
- DENOTES EXISTING 30" WATER MAIN
- DENOTES PROPOSED 15" WASTEWATER
- DENOTES EXISTING 18" WASTEWATER
- DENOTES EXISTING FLOW ARROW
- DENOTES PROPOSED CONSTRUCTION ENTRANCE
- DENOTES PROPOSED SILT FENCE

PACKET 11.2614 December 15, 2020

Know what's **below.** **Call** before you dig.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

REVISIONS

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

EROSION CONTROL PLAN

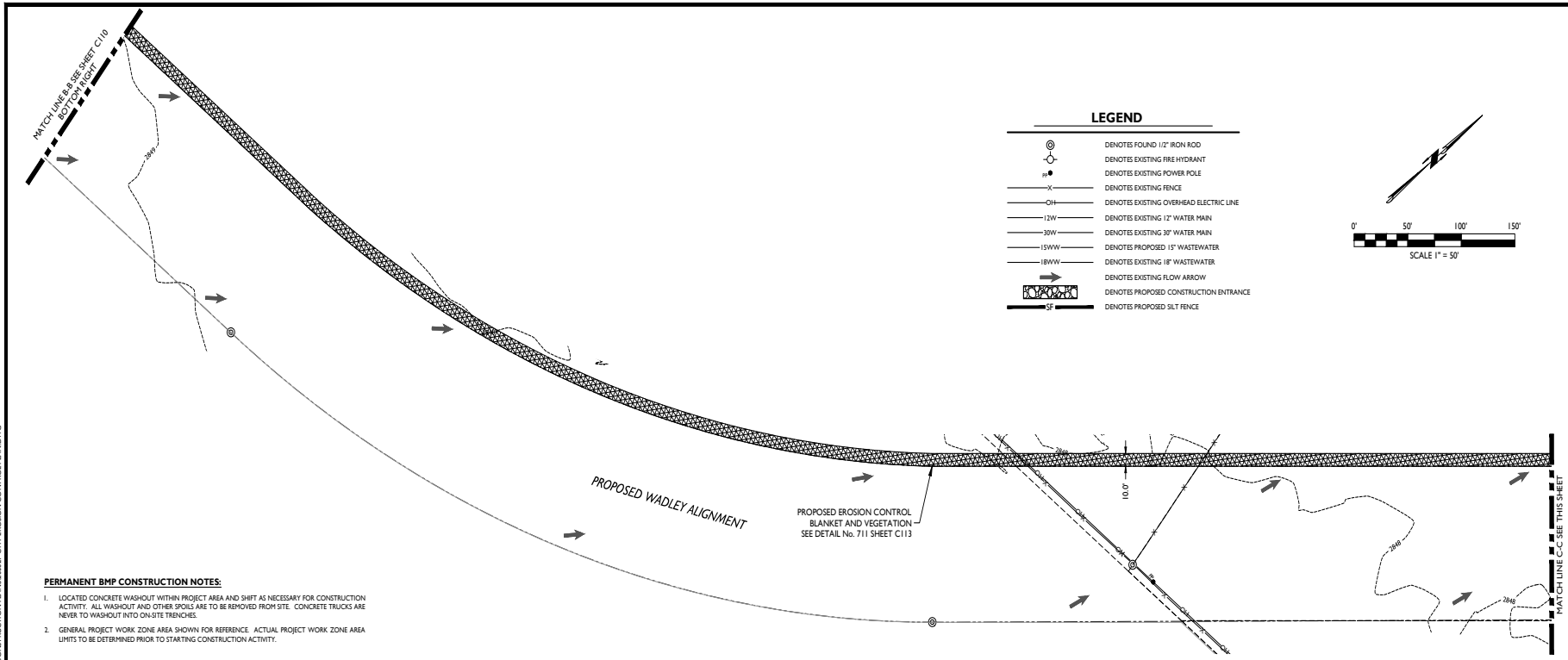
WEST WADLEY AVENUE
WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

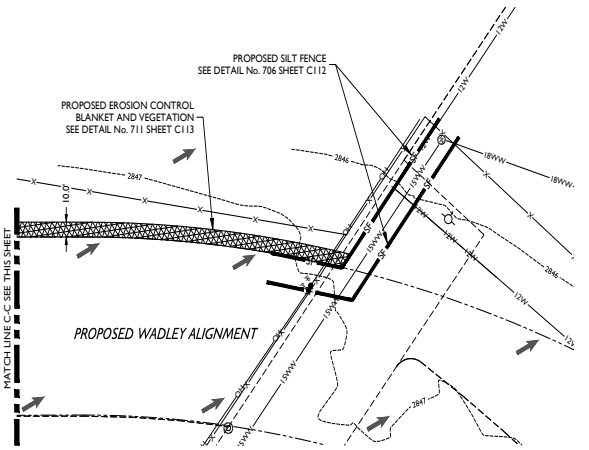
STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/13/2020

SHEET C110 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN-WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C110 EROSION CONTROL PLAN.DWG





PERMANENT BMP CONSTRUCTION NOTES:

1. LOCATED CONCRETE WASHOUT WITHIN PROJECT AREA AND SHIFT AS NECESSARY FOR CONSTRUCTION ACTIVITY. ALL WASHOUT AND OTHER SPOILS ARE TO BE REMOVED FROM SITE. CONCRETE TRUCKS ARE NEVER TO WASHOUT INTO ON-SITE TRENCHES.
2. GENERAL PROJECT WORK ZONE AREA SHOWN FOR REFERENCE. ACTUAL PROJECT WORK ZONE AREA LIMITS TO BE DETERMINED PRIOR TO STARTING CONSTRUCTION ACTIVITY.

EROSION CONTROL NOTES:

A. INSTALL EROSION CONTROL MEASURES PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY ON PROJECT SITE.

B. CONTRACTOR IS TO MAINTAIN EROSION CONTROL MEASURES AT ALL TIMES. REPAIRS TO EXISTING EROSION CONTROL MEASURES ARE TO BE MADE IMMEDIATELY UPON DISCOVERY THAT SUCH REPAIRS ARE NEEDED. ALL EROSION CONTROL MEASURES AT PROJECT SITE ARE TO BE INSPECTED IMMEDIATELY FOLLOWING ANY STORM EVENT.

C. CONTRACTOR IS TO MAINTAIN A REASONABLY CLEAN PROJECT SITE AT ALL TIMES. ANY SEDIMENT, DEBRIS, ETC. OUTSIDE PROJECT ARE TO BE REMOVED PROMPTLY.

D. ANY ON-SITE STORAGE OF SPOILS, MATERIALS, OR EQUIPMENT ARE TO BE LOCATED WITHIN DESIGNATED WORK ZONE AREA. SPOIL, MATERIAL AND EQUIPMENT STORAGE IS NOT PERMITTED IN SH 158 RIGHT-OF-WAY OR ON PRIVATE PROPERTY OUTSIDE PUBLIC RIGHT-OF-WAY OR PUBLIC EASEMENT AREA.

E. CONCRETE TRUCKS CANNOT UNDER ANY CIRCUMSTANCE WASHOUT IN ANY TRENCH. CONTRACTOR IS TO PROVIDE A WASHOUT CONTAINER FOR CONCRETE TRUCKS AND MUST REMOVE ALL WASHOUT AND SPOILS FROM PROJECT SITE.

F. SEEDING AND STABILIZATION:

F.A. REFERS TO DISTURBED AREA WITHIN DESIGNATED WORK ZONE.
F.B. REMOVE TOP 6.0" LAYER OF VEGETATED TOPSOIL ALONG WASTEWATER TRENCH AND SET ASIDE DURING CONSTRUCTION.
F.C. AFTER CONSTRUCTION PLACE SAVED VEGETATION AND TOPSOIL EVENLY ALONG FULL LENGTH AND WIDTH OF ALL DISTURBED AREAS AND RAKE SMOOTH. ADD ADDITIONAL TOPSOIL MATERIAL IF NECESSARY TO ACHIEVE A MINIMUM 6.0" TOPSOIL THICKNESS THROUGHOUT.
F.D. SEE DISTURBED AREA WITH:
F.D.A. SEED MIX TOTALING 20 LBS P.L.S. / ACRE, WHEN SEEDING BETWEEN OCTOBER AND FEBRUARY:

VARIETY	LBS. P.L.S. / ACRE
RYGRASS (ANNUAL)	8.0
WESTERN WHEATGRASS	2.0
MILLET	2.0
SIDEOATS GRAMA	1.5
KLEINGRASS	1.5
BRISTLEGRASS	1.5
BLUE GRAMA	0.5
BUFFALOGRASS	2.0
GRENN SPRANGLETOP	1.0

F.D.B. SEED MIX TOTALING 20 LBS P.L.S. / ACRE, WHEN SEEDING BETWEEN MARCH AND SEPTEMBER:

VARIETY	LBS. P.L.S. / ACRE
MILLET	4.0
SIDEOATS GRAMA	3.0
KLEINGRASS	3.0
BRISTLEGRASS	3.0
BLUE GRAMA	1.0
BUFFALOGRASS	4.0
GREEN SPRANGLETOP	2.0

F.D.C. IF SPECIFIED GRASS VARIETY IS NOT AVAILABLE, SUBMIT AVAILABLE SUBSTITUTION TO PROJECT ENGINEER FOR APPROVAL. PERMISSION FOR SUBSTITUTION WILL ONLY BE GRANTED AFTER PROJECT ENGINEER IS SATISFIED THAT SPECIFIED GRASS VARIETIES ARE NOT AVAILABLE.
F.D.D. DELIVER ALL FERTILIZER IN BAGS OR CONTAINERS CLEARLY LABELED SHOWING BAG ANALYSIS. PREFERRED ANALYSIS IS 18-3-4. APPLY FERTILIZER AT RATE THAT ACHIEVES NO LESS THAN 100 LBS N_2 / ACRE. APPLY FERTILIZER IN CONJUNCTION WITH SEEDING.

F.E. SPRAY EVENLY WITH WATER EQUIVALENT TO A MINIMUM UNIFORM WATER VOLUME DEPTH OF 0.2-IN. AT A RATE OF NO LESS THAN ONCE A DAY FOR TEN (10) CONSECUTIVE DAYS AFTER PLACEMENT AND SEEDING.

G. IMPLEMENT SUPPLEMENTAL EROSION CONTROL MEASURES AS NEEDED DURING STORM EVENTS. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AT SOLE DISCRETION OF PROJECT ENGINEER OR ANYTIME ENGINEER BELIEVES EXISTING EROSION CONTROL MEASURES ARE INSUFFICIENT FOR NEEDS OF PROJECT SITE.

GENERAL NOTES:

1). IT IS THE INTENT OF THE INFORMATION PROVIDED ON THIS SHEET AND WITHIN THE SPECIFICATIONS TO BE USED AS THE GENERAL GUIDELINES OF THE STORM WATER POLLUTION PREVENTION PLAN FOR THIS PROJECT TO ESTABLISH A MINIMUM BASIS OF THE COMPLIANCE WITH TPDES REGULATIONS. THE CONTRACTOR SHALL FILE NOTICE OF INTENT (NOI) TO BE COVERED BY TDPES CONSTRUCTION GENERAL PERMIT, TXR 150000.

2). THE STORM WATER POLLUTION PREVENTION PLAN SHOULD ADDRESS THREE GOALS: TO DIVERT WATER FROM UPSLOPE AREAS AROUND DISTURBED AREAS OF THE SITE, TO LIMIT EXPOSURE OF DISTURBED AREAS TO THE SHORTEST DURATION POSSIBLE, AND TO REMOVE SEDIMENT FROM STORM WATER BEFORE IT LEAVES THE SITE.

3). THE CONTRACTOR SHALL MAKE THE STORM WATER POLLUTION PREVENTION PLAN AVAILABLE, UPON REQUEST, TO THE TCEQ.

4). THE CONTRACTOR MUST AMEND THE STORM WATER POLLUTION PREVENTION PLAN WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE PLAN, OR WHEN THE EXISTING PLAN PROVES INEFFECTIVE. MODIFICATIONS INCLUDING DESIGN AND ALL ADDITIONAL MATERIALS AND WORK SHALL BE ACCOMPLISHED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. NO CHANGE TO EROSION CONTROL MEASURES SHOWN ON THESE PLANS AND SPECIFICATIONS SHALL BE MADE WITHOUT CONSENT OF OWNER AND ENGINEER.

5). STABILIZATION MEASURES ARE TO BE INSPECTED AT A MINIMUM OF ONCE EVERY SEVEN DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES. REPAIRS OF INADEQUACIES REVEALED BY THE INSPECTIONS MUST BE IMPLEMENTED WITHIN SEVEN CALENDAR DAYS FOLLOWING THE INSPECTION.

6). AN INSPECTION REPORT THAT SUMMARIZES INSPECTION ACTIVITIES AND IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN SHALL BE MAINTAINED AND MADE PART OF THE PLAN.

7). ALL CONTRACTORS AND SUBCONTRACTORS IDENTIFIED IN THE PLAN MUST CERTIFY AS TO AN UNDERSTANDING OF THE NPDES CONSTRUCTION GENERAL PERMIT BEFORE CONDUCTING ANY ACTIVITY IDENTIFIED IN THE STORM WATER POLLUTION PREVENTION PLAN.

8). THE CONTRACTOR SHALL ADOPT APPROPRIATE CONSTRUCTION SITE MANAGEMENT PRACTICES TO PREVENT THE DISCHARGE OF OILS, GREASE, PAINTS, GASOLINE, AND OTHER POLLUTANTS TO STORM WATER. APPROPRIATE PRACTICES CAN INCLUDE: DESIGNATING AREAS FOR EQUIPMENT MAINTENANCE AND REPAIR, REGULAR COLLECTION OF WASTES, CONVENIENTLY LOCATED WASTE RECEPTACLES, AND DESIGNATING AND CONTROL EQUIPMENT WASHING.

9). THE CONTRACTOR SHALL AMEND OR MODIFY THIS PLAN AS REQUIRED BY CONSTRUCTION MEANS, METHODS, AND SEQUENCE. MODIFICATIONS SHALL NOT COMPROMISE THE INTENT OF THE REQUIREMENTS OF THE LAW AND THIS PLAN. MODIFICATIONS SHALL NOT BE BASIS FOR ADDITIONAL COST TO THE OWNER.

10). AREAS OF CONSTRUCTION ELSEWHERE ON THE JOB SITE SHALL CONFORM TO THE DETAILS SHOWN ON THE PLANS.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

NO.	REVISIONS

DRAWN BY:	MJD
CHECKED BY:	ALM
APPROVED BY:	ALM
DATE:	07/10/2020
JOB:	200027

EROSION CONTROL PLAN

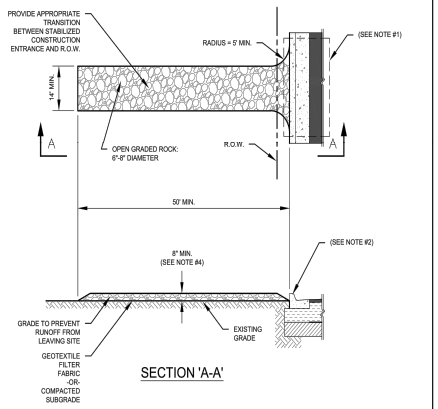
WEST WADLEY AVENUE WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
07/13/2020

811 Know what's below. Call before you dig.

C111 OF 17

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C111 EROSION CONTROL PLAN.DWG
© COPYRIGHT 2020 ALL RIGHTS RESERVED
PACKET
11.2615
December 15, 2020

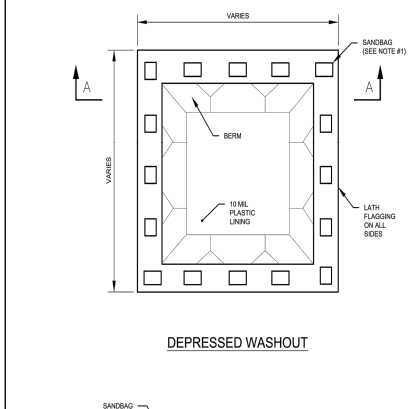


SECTION 'A-A'

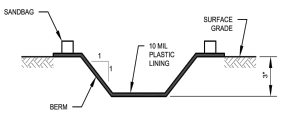
NOTES:

1. IF CURB DOES NOT EXIST OR IF EXISTING CURB IS REMOVED DURING CONSTRUCTION THEN STABILIZED CONSTRUCTION ENTRANCE IS TO EXTEND TO THE EDGE OF PAVEMENT.
2. IF CURB IS LEFT IN PLACE DURING CONSTRUCTION THEN INSTALL TEMPORARY CURB PROTECTION AS PER CITY DETAIL 713.
3. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN FIFTY (50) FEET.
4. THICKNESS OF OPEN GRADED ROCK TO BE NO LESS THAN EIGHT (8) INCHES.
5. WIDTH SHALL BE NO LESS THAN FOURTEEN (14) FEET OR THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS, WHICHEVER IS WIDER.
6. STABILIZED CONSTRUCTION ENTRANCE TO BE REMOVED UPON COMPLETION OF CONSTRUCTION.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
MIDLAND Engineering Services	STABILIZED CONSTRUCTION ENTRANCE OPTION 1		701



DEPRESSED WASHOUT

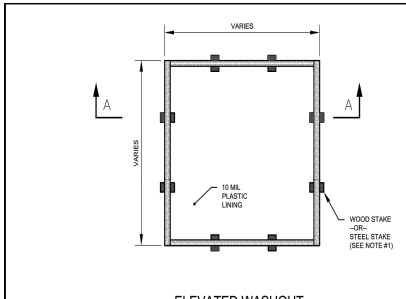


SECTION 'A-A'

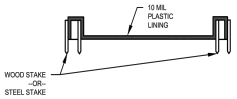
NOTES:

1. SECURE WASHOUT STRUCTURES AND LININGS WITH SANDBAGS OR TWO SECURELY FASTENED STAKES AROUND ENTIRE WASHOUT PERIMETER.
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
MIDLAND Engineering Services	CONCRETE WASHOUT OPTION 1		704



ELEVATED WASHOUT

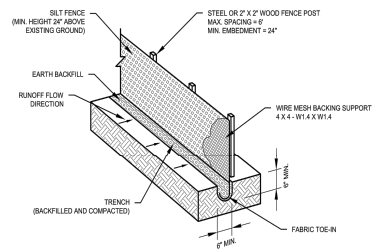


SECTION 'A-A'

NOTES:

1. THIS WASHOUT CONFIGURATION MAY NOT BE USED IN PAVED AREAS.
2. WOOD FRAME IS TO BE EQUAL TO OR BETTER THAN TWO-STACKED 2X12 ROUGH WOOD FRAME.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEERING.

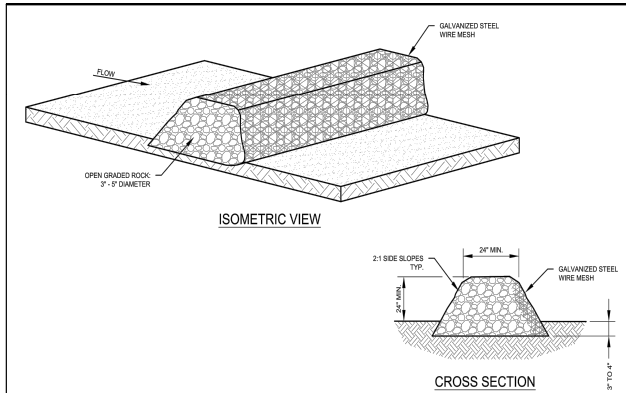
DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
MIDLAND Engineering Services	CONCRETE WASHOUT OPTION 2		705



NOTES:

1. THIS DETAIL IS TO BE USED FOR SHEET FLOW CONDITIONS ONLY. DO NOT USE SILT FENCE FOR POINT FLOW OR CONCENTRATED FLOW CONDITIONS.
2. INSTALL STEEL OR WOOD POSTS, WHICH SUPPORT THE SILT FENCE, WITH A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF ONE (1) FOOT.
3. TRENCH THE TOE OF THE SILT FENCE IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE THE FENCE CANNOT BE TRENCHED IN (E.G.PAVEMENT), WEIGHT DOWN FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
4. THE TRENCH MUST BE A MINIMUM OF SIX (6) INCHES DEEP AND SIX (6) INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
5. SECURELY FASTEN SILT FENCE TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS TO BE ATTACHED TO THE STEEL OR WOOD FENCE POST. INCLUDE A SIX (6) INCH DOUBLE OVERLAP, SECURELY FASTENED, WHERE ENDS OF FABRIC MEET.
6. REMOVE SILT FENCE WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. REMOVE ACCUMULATED SILT WHEN IT REACHES A DEPTH OF SIX (6) INCHES. DISPOSE OF THE SILT ONSITE IN AN APPROVED LOCATION AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
MIDLAND Engineering Services	SILT FENCE		706



ISOMETRIC VIEW

CROSS SECTION

NOTES:

1. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
2. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	ROCK FILTER DAM		708
APPROVED: MCC			
MIDLAND Engineering Services			

PACKET 11 2616 December 15, 2020

811 Know what's below. Call before you dig.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

REVISIONS

DRAWN BY:	MJD
CHECKED BY:	ALM
APPROVED BY:	ALM
DATE:	07/10/2020
JOB:	200027

EROSION CONTROL DETAILS

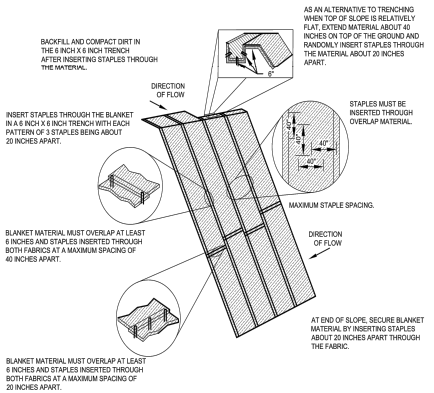
WEST WADLEY AVENUE
WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/19/2020

SHEET C112 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

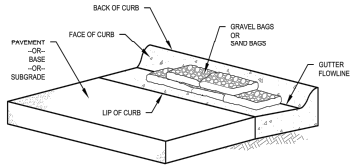
F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C112 EROSION CONTROL DETAILS.DWG



NOTES:

1. THE FOLLOWING PRODUCTS, OR AN EQUAL APPROVED BY THE ENGINEERING SERVICES REPRESENTATIVE MAY BE USED;
   ECS S-1 STANDARD STRAW
   ECS HIGH VELOCITY STRAW
   LANDLOK BON-TERRA S2, ENS2 OR ENCS2
   NORTH AMERICAN GREEN S75, S75BN, S150, S150BN, OR SC150
2. APPLY SEED AS RECOMMENDED BY MANUFACTURER'S SPECIFICATIONS.
3. LAY BLANKETS PARALLEL TO THE DIRECTION OF WATER FLOW. SPREAD BLANKETS EVENLY WITHOUT STRETCHING SO FIBERS ARE IN DIRECT CONTACT WITH THE SOIL.
4. BURY THE UPSLOPE END OF EACH BLANKET AT LEAST 6 INCHES IN A VERTICAL TRENCH WITH THE SOIL PRESSED FIRMLY AGAINST THE EMBEDDED MAT. ADDITIONAL CHECK TRENCHES AT 50 FEET INTERVALS MAY BE DESIRABLE ON STEEP GRADES OR LONG FLOW AREAS.
5. STAPLE STRIP ENDS AND END OVERLAPS WITH NOT MORE THAN 20 INCHES BETWEEN STAPLES. STAPLE ALL OTHER JOINTS AND EDGES AT 40 INCH INTERVALS.
6. USE U-SHAPED STAPLES TO ANCHOR BLANKETS THAT ARE 11 GAUGE OR HEAVIER STEEL WIRE HAVING A SPAN WIDTH OF 1 INCH AND A LENGTH OF 6 INCHES OR MORE FROM TOP TO BOTTOM AFTER BENDING.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS
	CHECKED: JCF	EROSION CONTROL BLANKET AND VEGETATION	DETAIL: 711
	APPROVED: MCC		



NOTES:

1. FILL BAGS TO 60% CAPACITY WITH EITHER CLEAN GRAVEL OR CLEAN SAND.
2. GRAVEL TO BE NO LESS THAN 1" DIAMETER OR GREATER THAN 2" DIAMETER.
3. PLACE BAGS WITH BAG OPENINGS SECURED AND FACE UP, AND SO THAT EACH BAG IS FLAT AND HAS THE GREATEST POSSIBLE SURFACE AREA CONTACT WITH THE CURB.
4. PLACE BAGS AGAINST THE FACE-OF-CURB AND DO NOT PLACE BAGS BEYOND THE LIP-OF-CURB.
5. DO NOT BLOCK ADA RAMPS OR WALKWAYS WITH BAGS.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
	CURB GRAVEL OR SAND BAGS		712

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

NO.	BY	APPR.	DATE	REVISIONS
1				

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

EROSION CONTROL DETAILS

WEST WADLEY AVENUE
WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/19/2020

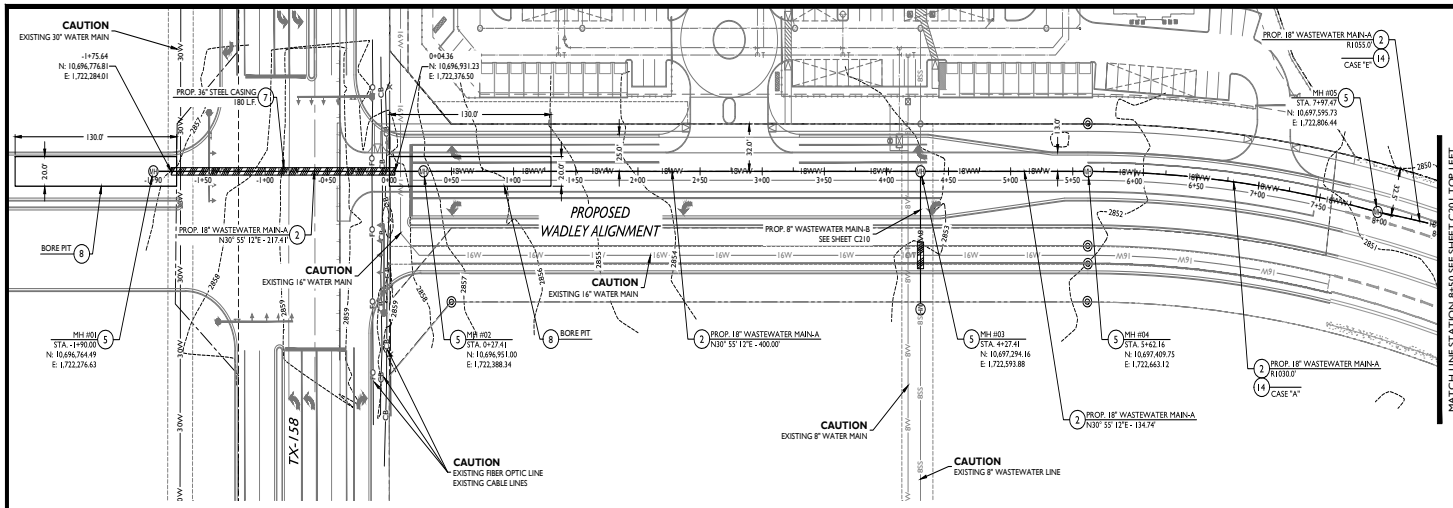
SHEET C113 OF 17

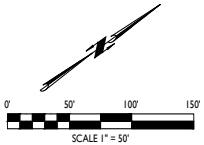
Know what's below. Call before you dig.

PACKET 11.2617 December 15, 2020

© COPYRIGHT 2020 ALL RIGHTS RESERVED

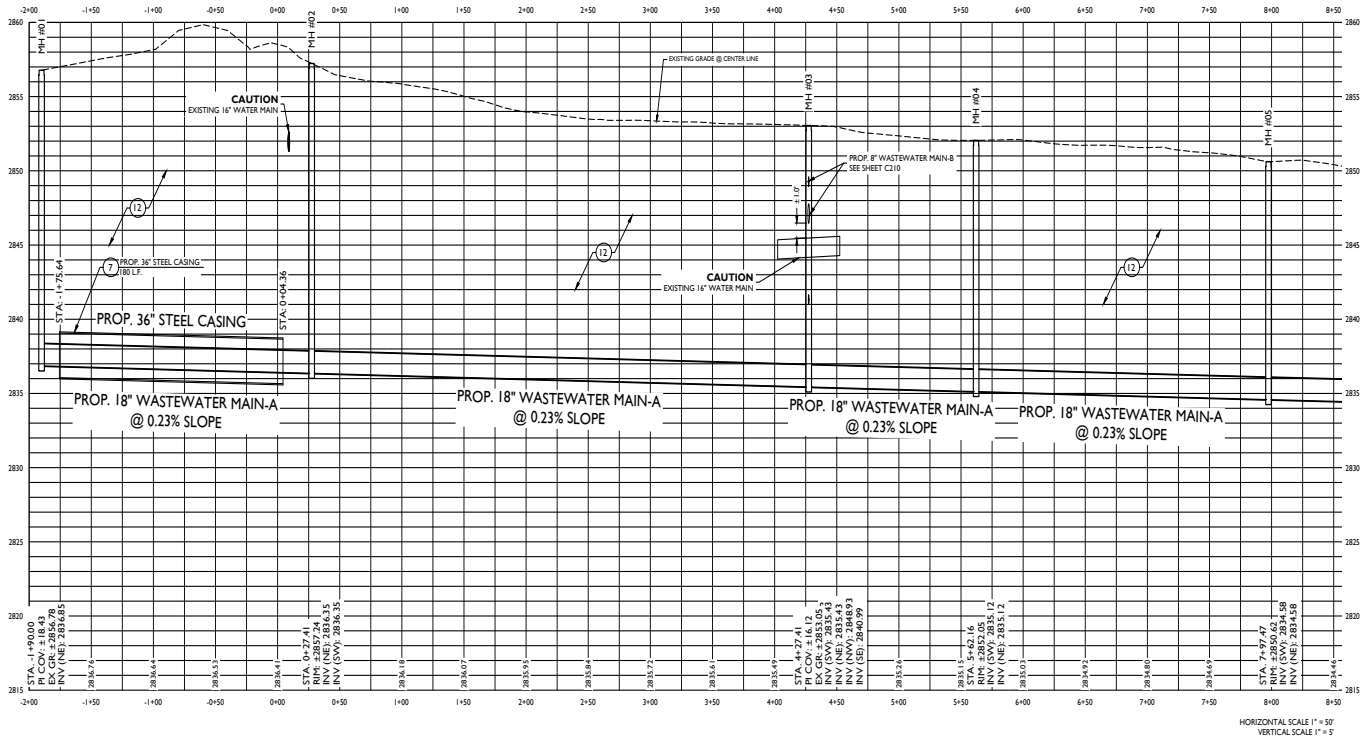
F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C113 EROSION CONTROL DETAILS.DWG





LEGEND

◎	DENOTES FOUND 1/2" IRON ROD
	DENOTES EXISTING FIRE HYDRANT
	DENOTES EXISTING POWER POLE
-X-	DENOTES EXISTING FENCE
-OH-	DENOTES EXISTING OVERHEAD ELECTRIC LINE
-12W-	DENOTES EXISTING 12" WATER MAIN
-30W-	DENOTES EXISTING 30" WATER MAIN
-15WW-	DENOTES PROPOSED 15" WASTEWATER
-18WW-	DENOTES EXISTING 18" WASTEWATER
Ⓜ	DENOTES PROPOSED MANHOLE
△	DENOTES PROPOSED PLUG.
-18WW-	DENOTES PROPOSED 18" WASTEWATER
-8WW-	DENOTES PROPOSED 8" WASTEWATER
PI COV	DENOTES PIPE COVERAGE
EX GR	DENOTES EXISTING GRADE
RIM	DENOTES MANHOLE RIM GRADE
INV	DENOTES INVERT GRADE (FLOW)



ENGINEER'S UTILITY NOTES:

- CONTRACTOR TO VERIFY ALL EXISTING UTILITY TIE-IN CONNECTIONS AND VERIFY LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.
- CITY OF MIDLAND TO BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.
- PIPE DEFLECTION IS TO BE PER MANUFACTURER'S RECOMMENDATIONS OR PER CITY REQUIREMENTS, WHICHEVER ALLOWS THE LESSER AMOUNT OF DEFLECTION.
- ALL UTILITIES TO BE INSTALLED PER TEXAS ADMINISTRATIVE CODE (TAC) STANDARD SEPARATION SPECIFICATIONS.
- A TWO (2) FOOT MINIMUM VERTICAL SEPARATION IS TO BE PROVIDED BETWEEN ANY SEWER MAIN/LINE CROSSING A WATER MAIN/LINE.
- EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION,
- ANY AND ALL MORE STRINGENT REQUIRMENTS REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL CONSTRUCTION IN THE RIGHT OF WAY IS TO CONFORM TO THE CITY OF MIDLAND STANDARDS.
- CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION IS TO BE REMOVED AND REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF MIDLAND PRIOR TO FINAL INSPECTION.
- WATER IS TO BE C-900 PVC PIPE UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS TO PROVIDE ALL THRUST BLOCKING AT ALL FITTINGS AND BENDS AS REQUIRED. COMPLY WITH DETAILS IN THE CITY OF MIDLAND'S DESIGN & CONSTRUCTION STANDARDS.
- THE CONTRACTOR IS TO KEEP ALL EXISTING WATER AND SEWER MAINS IN SERVICE DURING CONSTRUCTION.

WASTEWATER CONSTRUCTION NOTES:

TYP (1) CAUTION: CONTRACTOR TO VERIFY UTILITY SIZE, LOCATION, ELEVATION AND TYPE PRIOR TO CONSTRUCTION AND INFORM ENGINEER OF CONFLICTS.

2. INSTALL 18" DIAMETER PVC ASTM F679 PS115 WASTEWATER LINE AT 0.23% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
3. INSTALL 8" DIAMETER PVC ASTM D3034 SDR26 WASTEWATER LINE 0.44% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
4. INSTALL 8" DIAMETER PVC ASTM D3034 SDR35 WASTEWATER STUB OUT AT 0.35% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
5. INSTALL 48" DIAMETER WASTEWATER MANHOLE PER CITY OF MIDLAND DETAIL No. 313(A) AND 313(B) SEE SHEET C300.
6. INSTALL 8" DIAMETER WASTEWATER MANHOLE EXTERNAL DROP STRUCTURE PER CITY OF MIDLAND DETAIL No. 501 SEE SHEET C302.
7. INSTALL 36" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805, DETAIL No. 307 AND DETAIL No. 309 SEE SHEET C302.
8. PROPOSED BORE PIT (130'x20') OUTSIDE TxDOT R.O.W.
9. INSTALL 8" PLUG PER CITY OF MIDLAND DETAIL No. 315 SEE SHEET C300.
10. REMOVE EXISTING 15" WASTEWATER LINE. INSTALL 18" DIAMETER PVC ASTM F679 PS115 SPECIFIED PER PLANS. WASTEWATER LINE AT EXISTING 0.14% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300, DETAIL NO. 311 SEE SHEET C303.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WASTEWATER SERVICE DURING CONSTRUCTION.
12. INSTALL TRENCH PROTECTION FOR EXCAVATIONS GREATER THAN 5 FEET.
13. INSTALL 16" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805 AND DETAIL No. 309 SEE SHEET C302.
14. SEE WASTEWATER HORIZONTAL CURVE DESIGN THIS SHEET.
15. CONTRACTOR TO COORDINATE WITH CITY OF MIDLAND AND PROPERTY OWNER FOR THE REMOVAL AND REPLACEMENT OF EXISTING FENCE.

WASTEWATER HORIZONTAL CURVE DESIGN

CASE "A" STA. 5+62.16 - STA. 7+97.47
R, CURVE RADIUS = 1030.0 ft.
PIPE LENGTH = 14 ft.
∠ PIPE DEFLECTION = 0.78°/JOINT
MAX. ALLOWABLE DEF. = 0.80°/JOINT
TCEQ 30 TAC §217.53 (m)(2)(C)



WASTEWATER HORIZONTAL CURVE DESIGN

CASE "E" STA. 7+97.47 - STA. 11+79.80
R, CURVE RADIUS = 1055.0 ft.
PIPE LENGTH = 14 ft.
∠ PIPE DEFLECTION = 0.76°/JOINT
MAX. ALLOWABLE DEF. = 0.80°/JOINT
TCEQ 30 TAC §217.53 (m)(2)(C)



CITY OF MIDLAND APPROVED ENGINEER [Date]

PACKET

11.2618

December 15, 2020

811 Know what's below. Call before you dig.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

	BY	APPR.	DATE
REVISIONS			

DRAWN BY:	MJD
CHECKED BY:	ALM
APPROVED BY:	ALM
DATE:	07/10/2020
JOB:	200027

WASTEWATER-A PLAN AND PROFILE

WEST WADLEY AVENUE WASTEWATER LINE EXTENSION

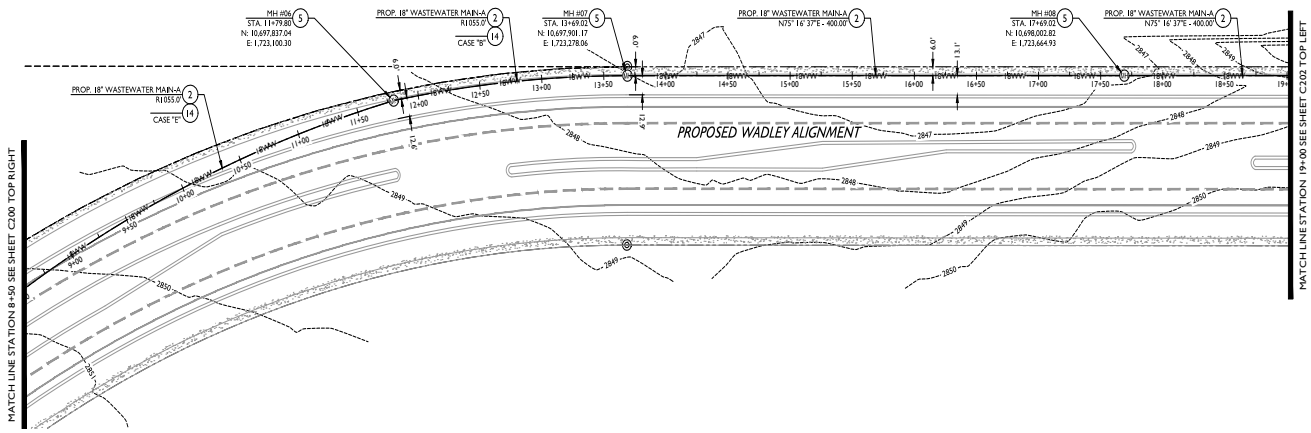
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

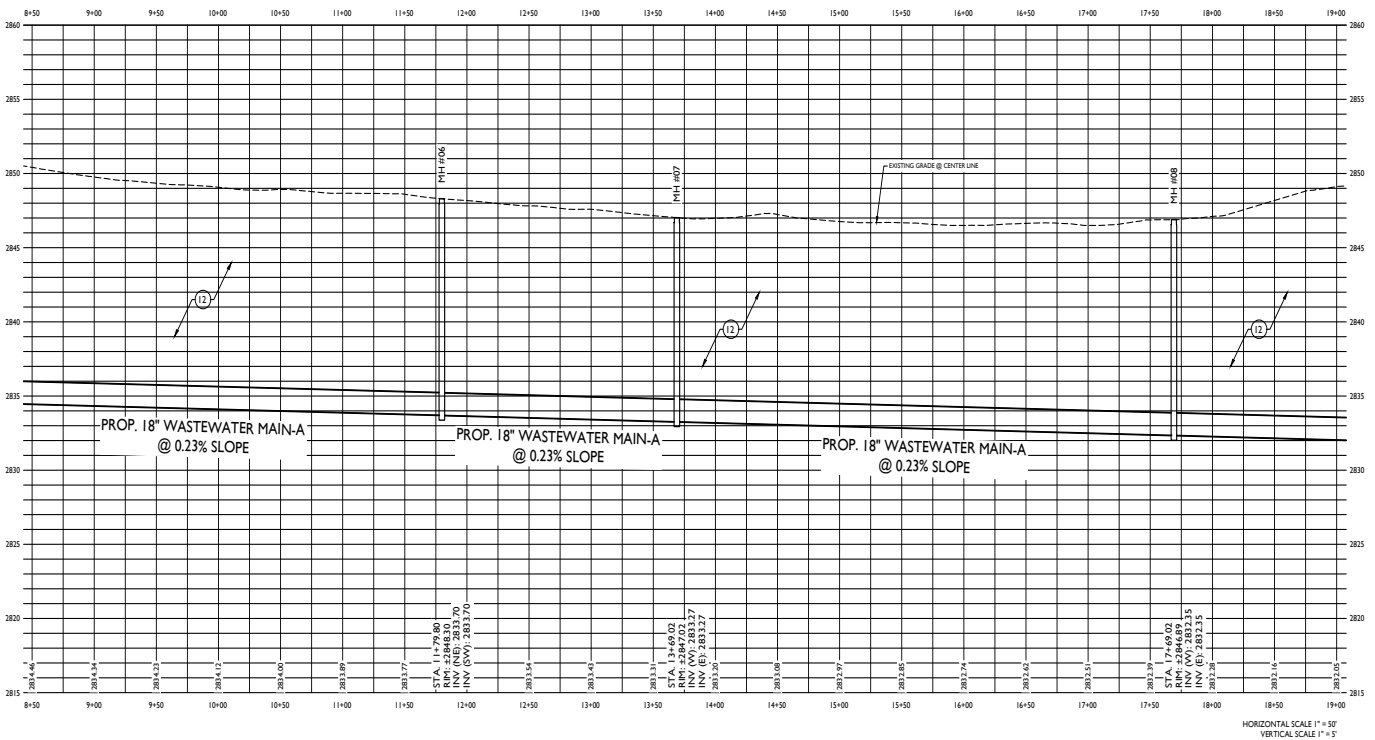
STATE OF TEXAS — ANDREW L. MELLEN — 106572 — LICENSED PROFESSIONAL ENGINEER — 10/19/2020

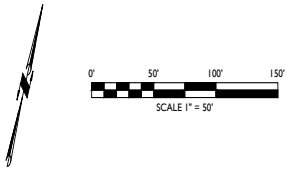
SHEET C200 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

P:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C200 WW-A P&P.DWG







LEGEND

	DENOTES FOUND 1/2" IRON ROD
	DENOTES EXISTING FIRE HYDRANT
PP	DENOTES EXISTING POWER POLE
X	DENOTES EXISTING FENCE
OH	DENOTES EXISTING OVERHEAD ELECTRIC LINE
12W	DENOTES EXISTING 12" WATER MAIN
30W	DENOTES EXISTING 30" WATER MAIN
15WW	DENOTES PROPOSED 15" WASTEWATER
18WW	DENOTES EXISTING 18" WASTEWATER
	DENOTES PROPOSED MANHOLE
	DENOTES PROPOSED PLUG.
18WW	DENOTES PROPOSED 18" WASTEWATER
8WW	DENOTES PROPOSED 8" WASTEWATER
PI COV	DENOTES PIPE COVERAGE
EX GR	DENOTES EXISTING GRADE
RIM	DENOTES MANHOLE RIM GRADE
INV	DENOTES INVERT GRADE (FLOW)

ENGINEER'S UTILITY NOTES:

- CONTRACTOR TO VERIFY ALL EXISTING UTILITY TIE-IN CONNECTIONS AND VERIFY LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.
- CITY OF MIDLAND TO BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.
- PIPE DEFLECTION IS TO BE PER MANUFACTURER'S RECOMMENDATIONS OR PER CITY REQUIREMENTS, WHICHEVER ALLOWS THE LESSER AMOUNT OF DEFLECTION.
- ALL UTILITIES TO BE INSTALLED PER TEXAS ADMINISTRATIVE CODE (TAC) STANDARD SEPARATION SPECIFICATIONS.
- A TWO (2) FOOT MINIMUM VERTICAL SEPARATION IS TO BE PROVIDED BETWEEN ANY SEWER MAIN/LINE CROSSING A WATER MAIN/LINE.
- EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION,
- ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL CONSTRUCTION IN THE RIGHT OF WAY IS TO CONFORM TO THE CITY OF MIDLAND STANDARDS.
- CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION IS TO BE REMOVED AND REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF MIDLAND PRIOR TO FINAL INSPECTION.
- WATER IS TO BE C-900 PVC PIPE UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS TO PROVIDE ALL THRUST BLOCKING AT ALL FITTINGS AND BENDS AS REQUIRED. COMPLY WITH DETAILS IN THE CITY OF MIDLAND'S DESIGN & CONSTRUCTION STANDARDS.
- THE CONTRACTOR IS TO KEEP ALL EXISTING WATER AND SEWER MAINS IN SERVICE DURING CONSTRUCTION.

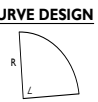
WASTEWATER CONSTRUCTION NOTES:

TYP. (1) CAUTION: CONTRACTOR TO VERIFY UTILITY SIZE, LOCATION, ELEVATION AND TYPE PRIOR TO CONSTRUCTION AND INFORM ENGINEER OF CONFLICTS.

2. INSTALL 18" DIAMETER PVC ASTM F679 PS115 WASTEWATER LINE AT 0.23% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
3. INSTALL 8" DIAMETER PVC ASTM D3034 SDR26 WASTEWATER LINE 0.44% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
4. INSTALL 8" DIAMETER PVC ASTM D3034 SDR35 WASTEWATER STUB OUT AT 0.35% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
5. INSTALL 48" DIAMETER WASTEWATER MANHOLE PER CITY OF MIDLAND DETAIL No. 313(A) AND 313(B) SEE SHEET C300.
6. INSTALL 8" DIAMETER WASTEWATER MANHOLE EXTERNAL DROP STRUCTURE PER CITY OF MIDLAND DETAIL No. 501 SEE SHEET C302.
7. INSTALL 36" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805, DETAIL No. 307 AND DETAIL No. 309 SEE SHEET C302.
8. PROPOSED BORE PIT (130'x20') OUTSIDE TxDOT R.O.W.
9. INSTALL 8" PLUG PER CITY OF MIDLAND DETAIL No. 315 SEE SHEET C300.
10. REMOVE EXISTING 15" WASTEWATER LINE. INSTALL 18" DIAMETER PVC ASTM F679 PS115 SPECIFIED PER PLANS. WASTEWATER LINE AT EXISTING 0.14% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300, DETAIL NO. 311 SEE SHEET C303.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WASTEWATER SERVICE DURING CONSTRUCTION.
12. INSTALL TRENCH PROTECTION FOR EXCAVATIONS GREATER THAN 5 FEET.
13. INSTALL 16" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805 AND DETAIL No. 309 SEE SHEET C302.
14. SEE WASTEWATER HORIZONTAL CURVE DESIGN THIS SHEET.
15. CONTRACTOR TO COORDINATE WITH CITY OF MIDLAND AND PROPERTY OWNER FOR THE REMOVAL AND REPLACEMENT OF EXISTING FENCE.

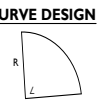
WASTEWATER HORIZONTAL CURVE DESIGN

CASE "E" STA. 7+97.47 - STA. 11+79.80
R, CURVE RADIUS = 1055.0 ft.
PIPE LENGTH = 14 ft.
∠ PIPE DEFLECTION = 0.76°/JOINT
MAX. ALLOWABLE DEF. = 0.80°/JOINT
TCEQ 30 TAC §217.53 (m)(2)(C)



WASTEWATER HORIZONTAL CURVE DESIGN

CASE "B" STA. 11+77.71 - STA. 13+66.93
R, CURVE RADIUS = 1055.0 ft.
PIPE LENGTH = 14 ft.
∠ PIPE DEFLECTION = 0.76°/JOINT
MAX. ALLOWABLE DEF. = 0.80°/JOINT
TCEQ 30 TAC §217.53 (m)(2)(C)



CITY OF MIDLAND APPROVED BY ENGINEERING &[Date]

PACKET

11.2619

December 15, 2020

811 Know what's below. Call before you dig.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

REVISIONS

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

WASTEWATER-A PLAN AND PROFILE

WEST WADLEY AVENUE WASTEWATER LINE EXTENSION

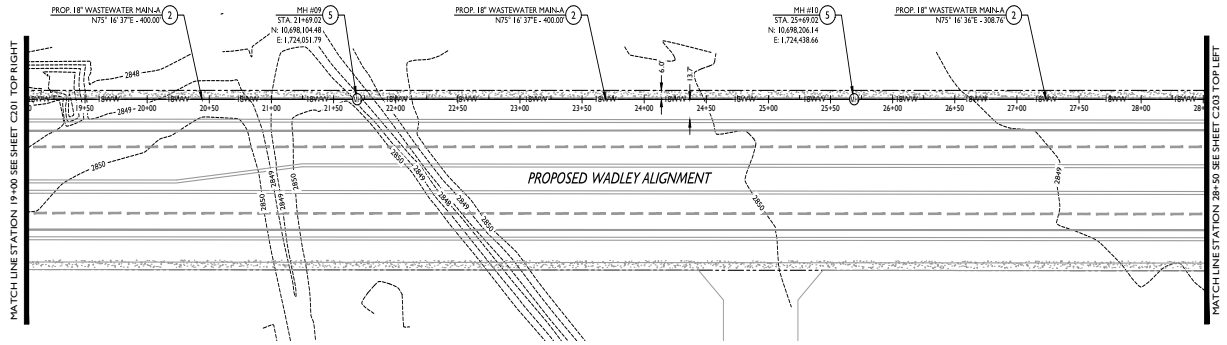
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

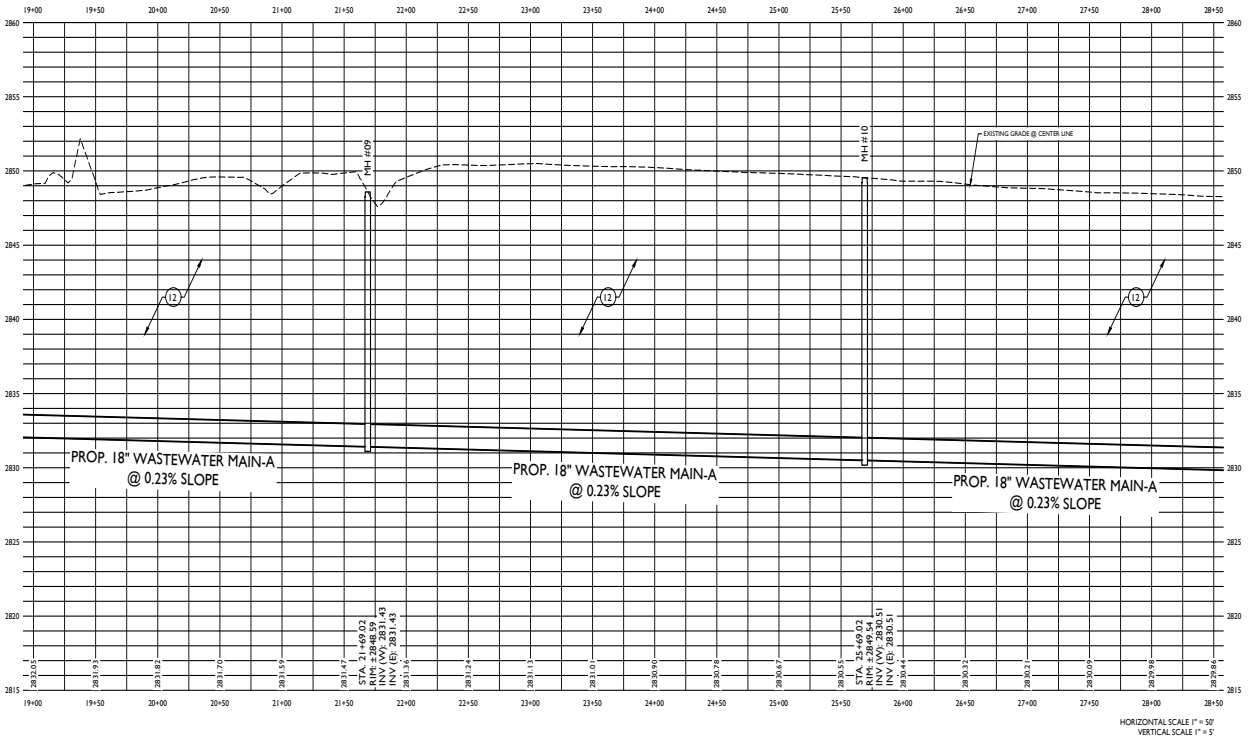
STATE OF TEXAS ANDREW L. MELLEN 106572 LICENSED PROFESSIONAL ENGINEER 10/19/2020

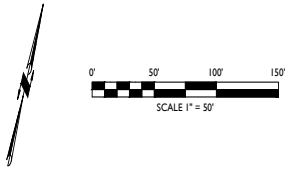
SHEET C201 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN-WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C201 WW-A P&P.DWG







LEGEND

⊙	DENOTES FOUND 1/2" IRON ROD
	DENOTES EXISTING FIRE HYDRANT
PP	DENOTES EXISTING POWER POLE
—X—	DENOTES EXISTING FENCE
—OH—	DENOTES EXISTING OVERHEAD ELECTRIC LINE
—12W—	DENOTES EXISTING 12" WATER MAIN
—30W—	DENOTES EXISTING 30" WATER MAIN
—15WW—	DENOTES PROPOSED 15" WASTEWATER
—18WW—	DENOTES EXISTING 18" WASTEWATER
Ⓜ	DENOTES PROPOSED MANHOLE
△	DENOTES PROPOSED PLUG.
—18WW—	DENOTES PROPOSED 18" WASTEWATER
—8WW—	DENOTES PROPOSED 8" WASTEWATER
PI COV	DENOTES PIPE COVERAGE
EX GR	DENOTES EXISTING GRADE
RIM	DENOTES MANHOLE RIM GRADE
INV	DENOTES INVERT GRADE (FLOW)

ENGINEER'S UTILITY NOTES:

- CONTRACTOR TO VERIFY ALL EXISTING UTILITY TIE-IN CONNECTIONS AND VERIFY LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.
- CITY OF MIDLAND TO BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.
- PIPE DEFLECTION IS TO BE PER MANUFACTURER'S RECOMMENDATIONS OR PER CITY REQUIREMENTS, WHICHEVER ALLOWS THE LESSER AMOUNT OF DEFLECTION.
- ALL UTILITIES TO BE INSTALLED PER TEXAS ADMINISTRATIVE CODE (TAC) STANDARD SEPARATION SPECIFICATIONS.
- A TWO (2) FOOT MINIMUM VERTICAL SEPARATION IS TO BE PROVIDED BETWEEN ANY SEWER MAIN/LINE CROSSING A WATER MAIN/LINE.
- EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
- ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL CONSTRUCTION IN THE RIGHT OF WAY IS TO CONFORM TO THE CITY OF MIDLAND STANDARDS.
- CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION IS TO BE REMOVED AND REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF MIDLAND PRIOR TO FINAL INSPECTION.
- WATER IS TO BE C-900 PVC PIPE UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS TO PROVIDE ALL THRUST BLOCKING AT ALL FITTINGS AND BENDS AS REQUIRED. COMPLY WITH DETAILS IN THE CITY OF MIDLAND'S DESIGN & CONSTRUCTION STANDARDS.
- THE CONTRACTOR IS TO KEEP ALL EXISTING WATER AND SEWER MAINS IN SERVICE DURING CONSTRUCTION.

WASTEWATER CONSTRUCTION NOTES:

TYP (1) CAUTION: CONTRACTOR TO VERIFY UTILITY SIZE, LOCATION, ELEVATION AND TYPE PRIOR TO CONSTRUCTION AND INFORM ENGINEER OF CONFLICTS.

2. INSTALL 18" DIAMETER PVC ASTM F679 PS115 WASTEWATER LINE AT 0.23% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
3. INSTALL 8" DIAMETER PVC ASTM D3034 SDR26 WASTEWATER LINE 0.44% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
4. INSTALL 8" DIAMETER PVC ASTM D3034 SDR35 WASTEWATER STUB OUT AT 0.35% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
5. INSTALL 48" DIAMETER WASTEWATER MANHOLE PER CITY OF MIDLAND DETAIL No. 313(A) AND 313(B) SEE SHEET C300.
6. INSTALL 8" DIAMETER WASTEWATER MANHOLE EXTERNAL DROP STRUCTURE PER CITY OF MIDLAND DETAIL No. 501 SEE SHEET C302.
7. INSTALL 36" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805, DETAIL No. 307 AND DETAIL No. 309 SEE SHEET C302.
8. PROPOSED BORE PIT (130'x20') OUTSIDE TxDOT R.O.W.
9. INSTALL 8" PLUG PER CITY OF MIDLAND DETAIL No. 315 SEE SHEET C300.
10. REMOVE EXISTING 15" WASTEWATER LINE. INSTALL 18" DIAMETER PVC ASTM F679 PS115 SPECIFIED PER PLANS, WASTEWATER LINE AT EXISTING 0.14% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300, DETAIL NO. 311 SEE SHEET C303.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WASTEWATER SERVICE DURING CONSTRUCTION.
12. INSTALL TRENCH PROTECTION FOR EXCAVATIONS GREATER THAN 5 FEET.
13. INSTALL 16" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805 AND DETAIL No. 309 SEE SHEET C302.
14. SEE WASTEWATER HORIZONTAL CURVE DESIGN THIS SHEET.
15. CONTRACTOR TO COORDINATE WITH CITY OF MIDLAND AND PROPERTY OWNER FOR THE REMOVAL AND REPLACEMENT OF EXISTING FENCE.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE	REVISIONS	Δ

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

WASTEWATER-A PLAN AND PROFILE

WEST WADLEY AVENUE WASTEWATER LINE EXTENSION

CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED PROFESSIONAL ENGINEER
10/19/2020

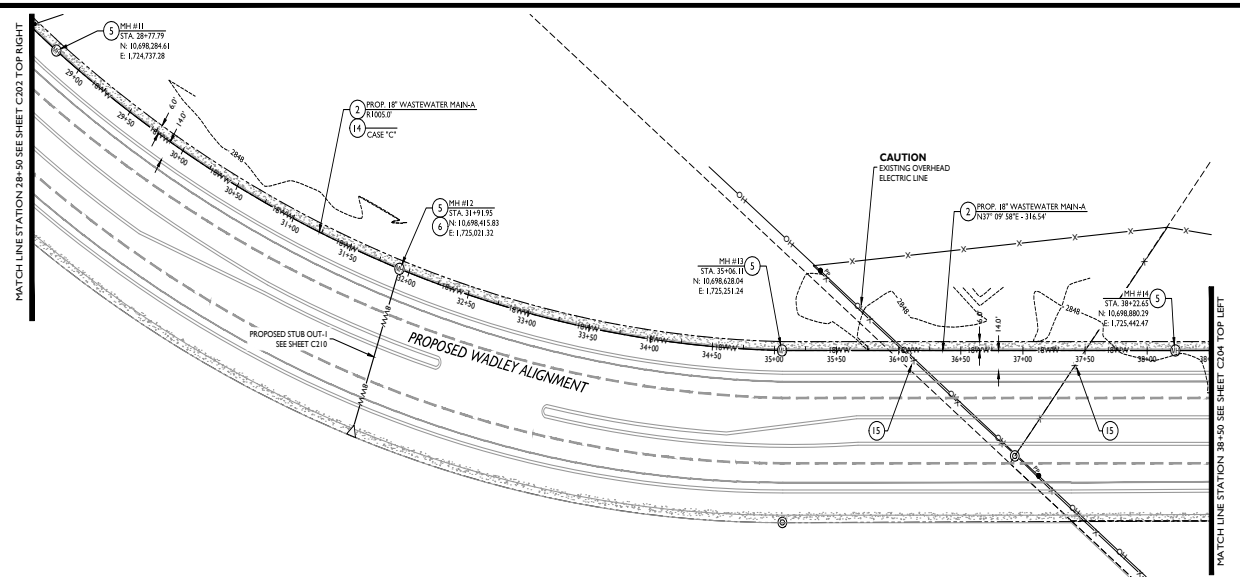
SHEET C202 OF 17

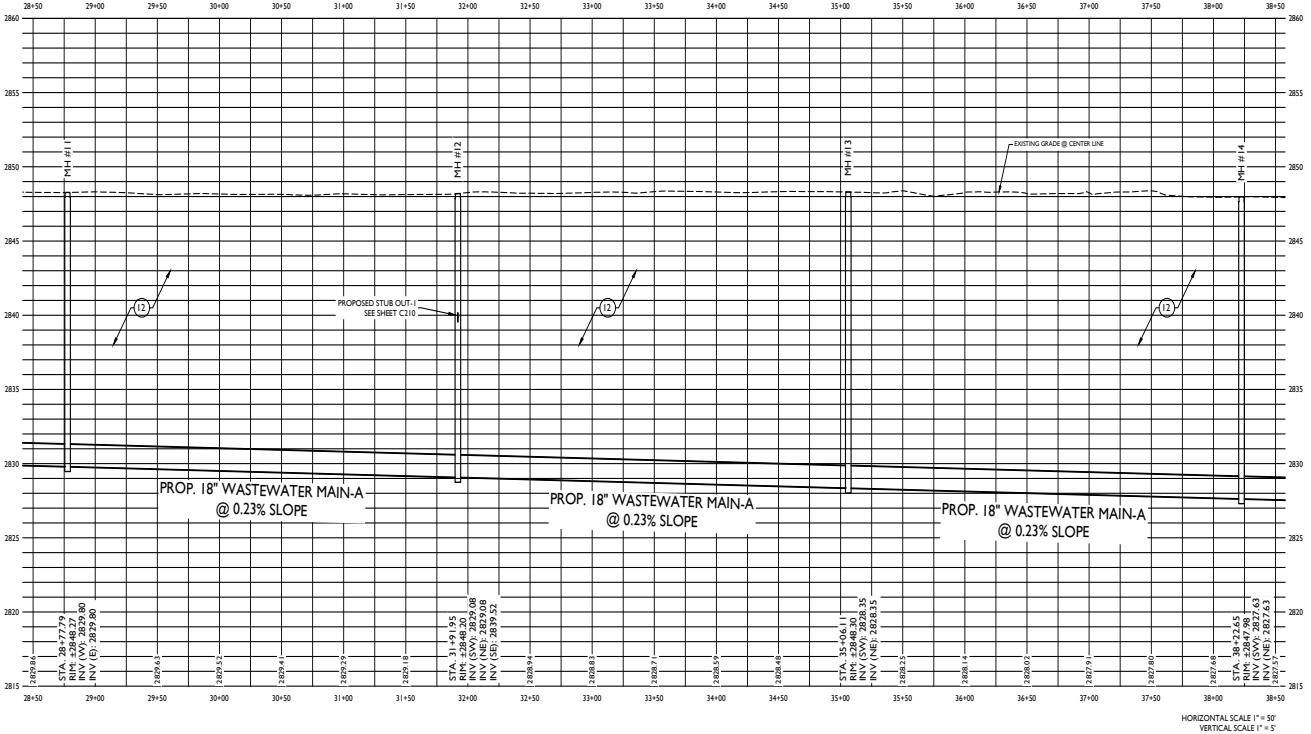
APPROVED
CITY OF MIDLAND
ENGINEERING
&Dated

811 Know what's below. Call before you dig.

PACKET 11.2620 December 15, 2020

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN-WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C202 WW-A P&P.DWG
© COPYRIGHT 2020 ALL RIGHTS RESERVED





HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 5'



LEGEND

	DENOTES FOUND 1/2" IRON ROD
	DENOTES EXISTING FIRE HYDRANT
PP	DENOTES EXISTING POWER POLE
X	DENOTES EXISTING FENCE
OH	DENOTES EXISTING OVERHEAD ELECTRIC LINE
12W	DENOTES EXISTING 12" WATER MAIN
30W	DENOTES EXISTING 30" WATER MAIN
15WW	DENOTES PROPOSED 15" WASTEWATER
18WW	DENOTES EXISTING 18" WASTEWATER
	DENOTES PROPOSED MANHOLE
	DENOTES PROPOSED PLUG.
18WW	DENOTES PROPOSED 18" WASTEWATER
8WW	DENOTES PROPOSED 8" WASTEWATER
PI COV	DENOTES PIPE COVERAGE
EX GR	DENOTES EXISTING GRADE
RIM	DENOTES MANHOLE RIM GRADE
INV	DENOTES INVERT GRADE (FLOW)

ENGINEER'S UTILITY NOTES:

- CONTRACTOR TO VERIFY ALL EXISTING UTILITY TIE-IN CONNECTIONS AND VERIFY LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.
- CITY OF MIDLAND TO BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.
- PIPE DEFLECTION IS TO BE PER MANUFACTURER'S RECOMMENDATIONS OR PER CITY REQUIREMENTS, WHICHEVER ALLOWS THE LESSER AMOUNT OF DEFLECTION.
- ALL UTILITIES TO BE INSTALLED PER TEXAS ADMINISTRATIVE CODE (TAC) STANDARD SEPARATION SPECIFICATIONS.
- A TWO (2) FOOT MINIMUM VERTICAL SEPARATION IS TO BE PROVIDED BETWEEN ANY SEWER MAINLINE CROSSING A WATER MAINLINE.
- EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
- ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL CONSTRUCTION IN THE RIGHT OF WAY IS TO CONFORM TO THE CITY OF MIDLAND STANDARDS.
- CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION IS TO BE REMOVED AND REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF MIDLAND PRIOR TO FINAL INSPECTION.
- WATER IS TO BE C-900 PVC PIPE UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS TO PROVIDE ALL THRUST BLOCKING AT ALL FITTINGS AND BENDS AS REQUIRED. COMPLY WITH DETAILS IN THE CITY OF MIDLAND'S DESIGN & CONSTRUCTION STANDARDS.
- THE CONTRACTOR IS TO KEEP ALL EXISTING WATER AND SEWER MAINS IN SERVICE DURING CONSTRUCTION.

WASTEWATER CONSTRUCTION NOTES:

TYP (1) CAUTION: CONTRACTOR TO VERIFY UTILITY SIZE, LOCATION, ELEVATION AND TYPE PRIOR TO CONSTRUCTION AND INFORM ENGINEER OF CONFLICTS.

2. INSTALL 18" DIAMETER PVC ASTM F679 PS115 WASTEWATER LINE AT 0.23% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
3. INSTALL 8" DIAMETER PVC ASTM D3034 SDR26 WASTEWATER LINE 0.44% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
4. INSTALL 8" DIAMETER PVC ASTM D3034 SDR35 WASTEWATER STUB OUT AT 0.35% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
5. INSTALL 48" DIAMETER WASTEWATER MANHOLE PER CITY OF MIDLAND DETAIL No. 313(A) AND 313(B) SEE SHEET C300.
6. INSTALL 8' DIAMETER WASTEWATER MANHOLE EXTERNAL DROP STRUCTURE PER CITY OF MIDLAND DETAIL No. 501 SEE SHEET C302.
7. INSTALL 36" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805, DETAIL No. 307 AND DETAIL No. 309 SEE SHEET C302.
8. PROPOSED BORE PIT (130'x20') OUTSIDE TxDOT R.O.W.
9. INSTALL 8" PLUG PER CITY OF MIDLAND DETAIL No. 315 SEE SHEET C300.
10. REMOVE EXISTING 15" WASTEWATER LINE. INSTALL 18" DIAMETER PVC ASTM F679 PS115 SPECIFIED PER PLANS, WASTEWATER LINE AT EXISTING 0.14% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300, DETAIL NO. 311 SEE SHEET C303.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WASTEWATER SERVICE DURING CONSTRUCTION.
12. INSTALL TRENCH PROTECTION FOR EXCAVATIONS GREATER THAN 5 FEET.
13. INSTALL 16" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805 AND DETAIL No. 309 SEE SHEET C302.
14. SEE WASTEWATER HORIZONTAL CURVE DESIGN THIS SHEET.
15. CONTRACTOR TO COORDINATE WITH CITY OF MIDLAND AND PROPERTY OWNER FOR THE REMOVAL AND REPLACEMENT OF EXISTING FENCE.

WASTEWATER HORIZONTAL CURVE DESIGN

CASE "C" STA. 28+75.70 - STA. 35+04.02
R, CURVE RADIUS = 1005.0 ft.
PIPE LENGTH = 14 ft.
∠ PIPE DEFLECTION = 0.798°/JOINT
MAX. ALLOWABLE DEF. = 0.80°/JOINT
TCEQ 30 TAC §217.53 (m)(2)(C)



MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE	REVISIONS

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

WASTEWATER-A PLAN AND PROFILE

WEST WADLEY AVENUE WASTEWATER LINE EXTENSION

CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED PROFESSIONAL ENGINEER
10/19/2020

SHEET C203 OF 17

PACKET

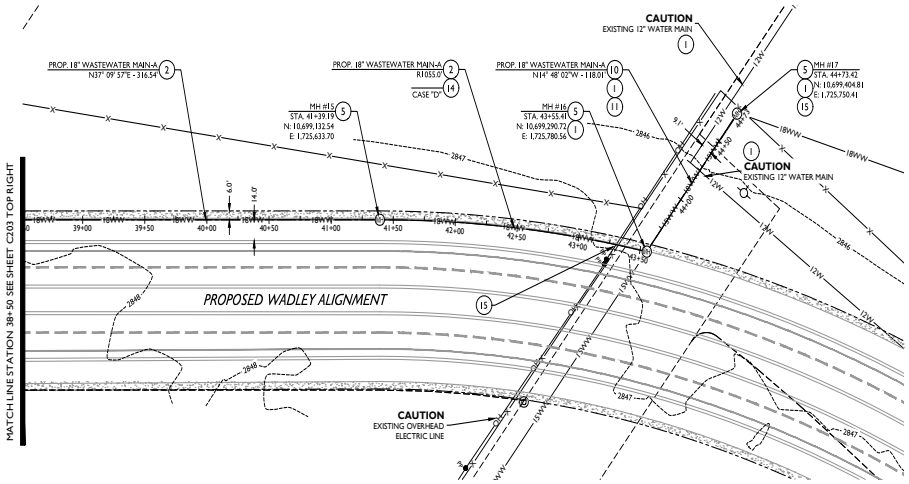
11.2621

December 15, 2020

Know what's below. Call before you dig.

© COPYRIGHT 2020 ALL RIGHTS RESERVED

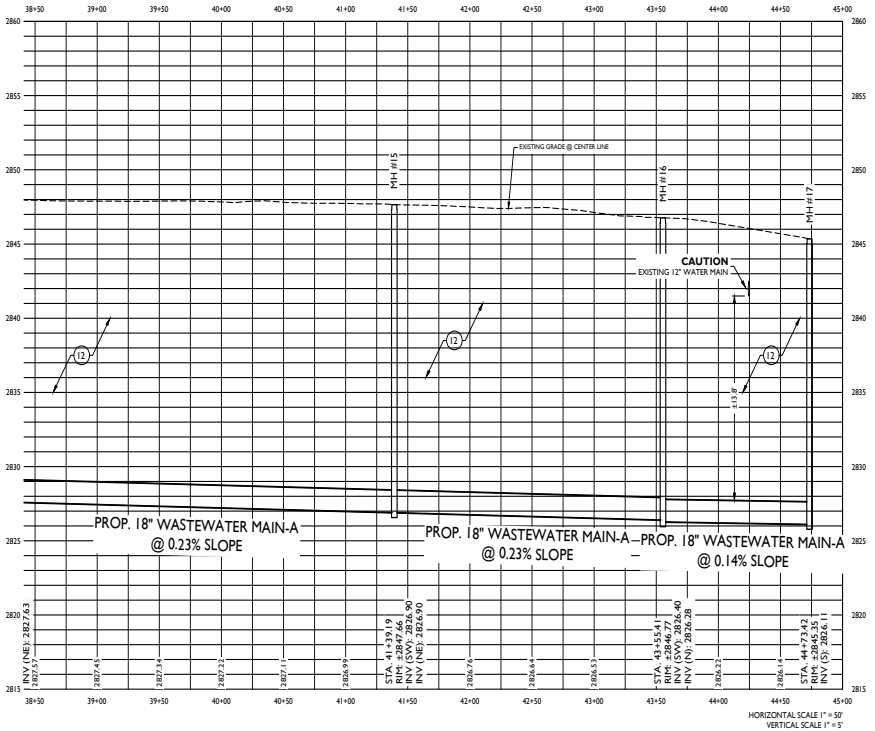
P:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C203 WW-A P&P.DWG





LEGEND

	DENOTES FOUND 1/2" IRON ROD
	DENOTES EXISTING FIRE HYDRANT
PP	DENOTES EXISTING POWER POLE
X	DENOTES EXISTING FENCE
OH	DENOTES EXISTING OVERHEAD ELECTRIC LINE
12W	DENOTES EXISTING 12" WATER MAIN
30W	DENOTES EXISTING 30" WATER MAIN
15WW	DENOTES PROPOSED 15" WASTEWATER
18WW	DENOTES EXISTING 18" WASTEWATER
	DENOTES PROPOSED MANHOLE
	DENOTES PROPOSED PLUG.
18WW	DENOTES PROPOSED 18" WASTEWATER
8WW	DENOTES PROPOSED 8" WASTEWATER
PI COV	DENOTES PIPE COVERAGE
EX GR	DENOTES EXISTING GRADE
RIM	DENOTES MANHOLE RIM GRADE
INV	DENOTES INVERT GRADE (FLOW)



ENGINEER'S UTILITY NOTES:

- CONTRACTOR TO VERIFY ALL EXISTING UTILITY TIE-IN CONNECTIONS AND VERIFY LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.
- CITY OF MIDLAND TO BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.
- PIPE DEFLECTION IS TO BE PER MANUFACTURER'S RECOMMENDATIONS OR PER CITY REQUIREMENTS, WHICHEVER ALLOWS THE LESSER AMOUNT OF DEFLECTION.
- ALL UTILITIES TO BE INSTALLED PER TEXAS ADMINISTRATIVE CODE (TAC) STANDARD SEPARATION SPECIFICATIONS.
- A TWO (2) FOOT MINIMUM VERTICAL SEPARATION IS TO BE PROVIDED BETWEEN ANY SEWER MAIN/LINE CROSSING A WATER MAIN/LINE.
- EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
- ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL CONSTRUCTION IN THE RIGHT OF WAY IS TO CONFORM TO THE CITY OF MIDLAND STANDARDS.
- CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION IS TO BE REMOVED AND REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF MIDLAND PRIOR TO FINAL INSPECTION.
- WATER IS TO BE C-900 PVC PIPE UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS TO PROVIDE ALL THRUST BLOCKING AT ALL FITTINGS AND BENDS AS REQUIRED. COMPLY WITH DETAILS IN THE CITY OF MIDLAND'S DESIGN & CONSTRUCTION STANDARDS.
- THE CONTRACTOR IS TO KEEP ALL EXISTING WATER AND SEWER MAINS IN SERVICE DURING CONSTRUCTION.

WASTEWATER CONSTRUCTION NOTES:

TYP (1) CAUTION: CONTRACTOR TO VERIFY UTILITY SIZE, LOCATION, ELEVATION AND TYPE PRIOR TO CONSTRUCTION AND INFORM ENGINEER OF CONFLICTS.

2. INSTALL 18" DIAMETER PVC ASTM F679 PS115 WASTEWATER LINE AT 0.23% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
3. INSTALL 8" DIAMETER PVC ASTM D3034 SDR26 WASTEWATER LINE 0.44% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
4. INSTALL 8" DIAMETER PVC ASTM D3034 SDR35 WASTEWATER STUB OUT AT 0.35% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
5. INSTALL 48" DIAMETER WASTEWATER MANHOLE PER CITY OF MIDLAND DETAIL No. 313(A) AND 313(B) SEE SHEET C300.
6. INSTALL 8" DIAMETER WASTEWATER MANHOLE EXTERNAL DROP STRUCTURE PER CITY OF MIDLAND DETAIL No. 501 SEE SHEET C302.
7. INSTALL 36" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805. DETAIL No. 307 AND DETAIL No. 309 SEE SHEET C302.
8. PROPOSED BORE PIT (130'x20') OUTSIDE TxDOT R.O.W.
9. INSTALL 8" PLUG PER CITY OF MIDLAND DETAIL No. 315 SEE SHEET C300.
10. REMOVE EXISTING 15" WASTEWATER LINE. INSTALL 18" DIAMETER PVC ASTM F679 PS115 SPECIFIED PER PLANS, WASTEWATER LINE AT EXISTING 0.14% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300, DETAIL NO. 311 SEE SHEET C303.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WASTEWATER SERVICE DURING CONSTRUCTION.
12. INSTALL TRENCH PROTECTION FOR EXCAVATIONS GREATER THAN 5 FEET.
13. INSTALL 16" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805 AND DETAIL No. 309 SEE SHEET C302.
14. SEE WASTEWATER HORIZONTAL CURVE DESIGN ON THIS SHEET.
15. CONTRACTOR TO COORDINATE WITH CITY OF MIDLAND FOR [illegible] THE REMOVAL AND REPLACEMENT OF EXISTING FENCE.

WASTEWATER HORIZONTAL CURVE DESIGN

CASE "D" STA. 41+37.10 - STA. 43+53.32
R, CURVE RADIUS = 1055.0 ft.
PIPE LENGTH = 14 ft.
∠ PIPE DEFLECTION = 0.76°/JOINT
MAX. ALLOWABLE DEF. = 0.80°/JOINT
TCEQ 30 TAC §217.53 (m)(2)(C)



PACKET 11.2622 December 15, 2020

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

NO.	REVISIONS	BY	APPR.	DATE
1				

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

WASTEWATER-A PLAN AND PROFILE

WEST WADLEY AVENUE WASTEWATER LINE EXTENSION

CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

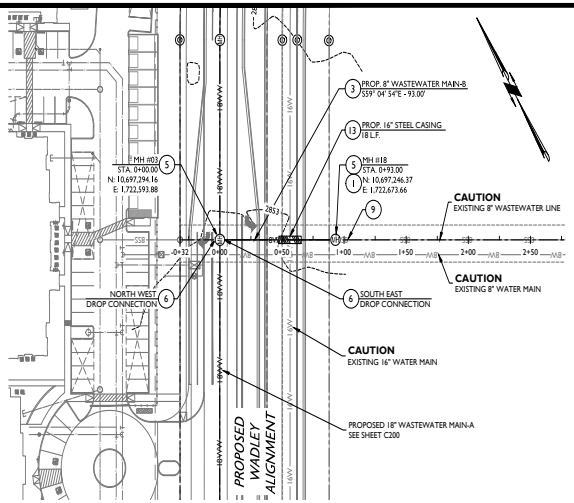
STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/19/2020

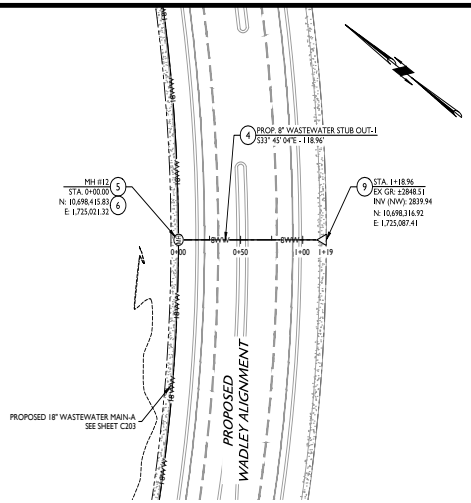
Know what's **below.** **Call** before you dig.

SHEET C204 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

P:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN-WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C204 WW-A P&P.DWG

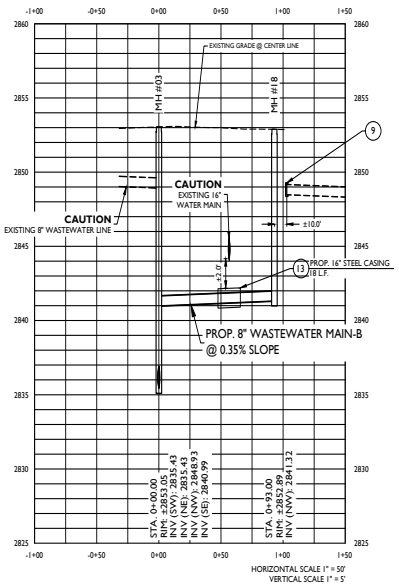


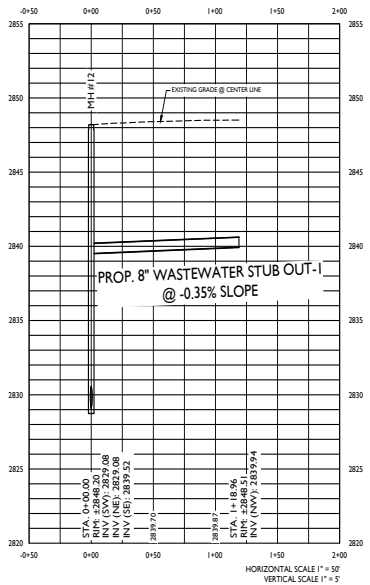


SCALE 1" = 50'

LEGEND

	DENOTES FOUND 1/2" IRON ROD
	DENOTES EXISTING FIRE HYDRANT
	DENOTES EXISTING POWER POLE
—X—	DENOTES EXISTING FENCE
—OH—	DENOTES EXISTING OVERHEAD ELECTRIC LINE
—12W—	DENOTES EXISTING 12" WATER MAIN
—30W—	DENOTES EXISTING 30" WATER MAIN
—15WW—	DENOTES PROPOSED 15" WASTEWATER
—18WW—	DENOTES EXISTING 18" WASTEWATER
	DENOTES PROPOSED MANHOLE
	DENOTES PROPOSED PLUG.
—18WW—	DENOTES PROPOSED 18" WASTEWATER
—8WW—	DENOTES PROPOSED 8" WASTEWATER
PI COV	DENOTES PIPE COVERAGE
EX GR	DENOTES EXISTING GRADE
RIM	DENOTES MANHOLE RIM GRADE
INV	DENOTES INVERT GRADE (FLOW)





ENGINEER'S UTILITY NOTES:

- CONTRACTOR TO VERIFY ALL EXISTING UTILITY TIE-IN CONNECTIONS AND VERIFY LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.
- CITY OF MIDLAND TO BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.
- PIPE DEFLECTION IS TO BE PER MANUFACTURER'S RECOMMENDATIONS OR PER CITY REQUIREMENTS, WHICHEVER ALLOWS THE LESSER AMOUNT OF DEFLECTION.
- ALL UTILITIES TO BE INSTALLED PER TEXAS ADMINISTRATIVE CODE (TAC) STANDARD SEPARATION SPECIFICATIONS.
- A TWO (2) FOOT MINIMUM VERTICAL SEPARATION IS TO BE PROVIDED BETWEEN ANY SEWER MAIN/LINE CROSSING A WATER MAIN/LINE.
- EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
- ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL CONSTRUCTION IN THE RIGHT OF WAY IS TO CONFORM TO THE CITY OF MIDLAND STANDARDS.
- CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION IS TO BE REMOVED AND REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF MIDLAND PRIOR TO FINAL INSPECTION.
- WATER IS TO BE C-900 PVC PIPE UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS TO PROVIDE ALL THRUST BLOCKING AT ALL FITTINGS AND BENDS AS REQUIRED. COMPLY WITH DETAILS IN THE CITY OF MIDLAND'S DESIGN & CONSTRUCTION STANDARDS.
- THE CONTRACTOR IS TO KEEP ALL EXISTING WATER AND SEWER MAINS IN SERVICE DURING CONSTRUCTION.

WASTEWATER CONSTRUCTION NOTES:

TYP. (1) CAUTION: CONTRACTOR TO VERIFY UTILITY SIZE, LOCATION, ELEVATION AND TYPE PRIOR TO CONSTRUCTION AND INFORM ENGINEER OF CONFLICTS.

2. INSTALL 18" DIAMETER PVC ASTM F679 PS115 WASTEWATER LINE AT 0.23% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
3. INSTALL 8" DIAMETER PVC ASTM D3034 SDR26 WASTEWATER LINE 0.44% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
4. INSTALL 8" DIAMETER PVC ASTM D3034 SDR35 WASTEWATER STUB OUT AT 0.35% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
5. INSTALL 48" DIAMETER WASTEWATER MANHOLE PER CITY OF MIDLAND DETAIL No. 313(A) AND 313(B) SEE SHEET C300.
6. INSTALL 8" DIAMETER WASTEWATER MANHOLE EXTERNAL DROP STRUCTURE PER CITY OF MIDLAND DETAIL No. 501 SEE SHEET C302.
7. INSTALL 36" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805, DETAIL No. 307 AND DETAIL No. 309 SEE SHEET C302.
8. PROPOSED BORE PIT (130'x20') OUTSIDE TxDOT R.O.W.
9. INSTALL 8" PLUG PER CITY OF MIDLAND DETAIL No. 315 SEE SHEET C300.
10. REMOVE EXISTING 15" WASTEWATER LINE. INSTALL 18" DIAMETER PVC ASTM F679 PS115 SPECIFIED PER PLANS, WASTEWATER LINE AT EXISTING 0.14% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300, DETAIL NO. 311 SEE SHEET C303.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WASTEWATER SERVICE DURING CONSTRUCTION.
12. INSTALL TRENCH PROTECTION FOR EXCAVATIONS GREATER THAN 5 FEET.
13. INSTALL 16" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805 AND DETAIL No. 309 SEE SHEET C302.
14. SEE WASTEWATER HORIZONTAL CURVE DESIGN THIS SHEET.
15. CONTRACTOR TO COORDINATE WITH CITY OF MIDLAND AND PROPERTY OWNER FOR THE REMOVAL AND REPLACEMENT OF EXISTING FENCE.

Know what's **below.** **Call** before you dig.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

REVISIONS

DRAWN BY:	MJD
CHECKED BY:	ALM
APPROVED BY:	ALM
DATE:	07/10/2020
JOB:	200027

WASTEWATER-B AND STUB OUT-1 PLAN AND PROFILE

WEST WADLEY AVENUE WASTEWATER LINE EXTENSION

CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

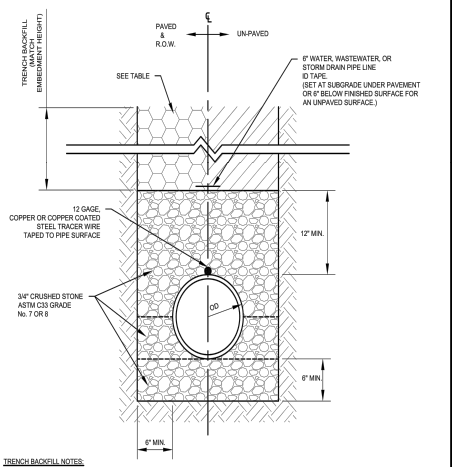
STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/13/2020

SHEET C210 OF 17

PACKET 11.2623 December 15, 2020

© COPYRIGHT 2020 ALL RIGHTS RESERVED

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C210 WW-B P&P.DWG



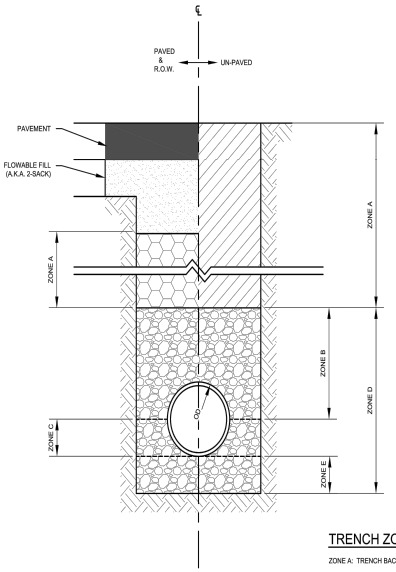
TRENCH BACKFILL NOTES:

1. APPLIES TO ALL PIPE TYPES. (DUCTILE IRON, PVC, ETC.)
2. UTILIZE SELECT FILL BACKFILL BENEATH ALL PAVED SURFACES. NATIVE MATERIAL BACKFILL CAN ONLY BE USER FOR UNPAVED TRENCH CONDITIONS IF BACKFILL MATERIAL IS ≤ 30LL AND ≤ 15 PI.
3. NATIVE MATERIAL TO BE EXISTING EXCAVATED SOIL FROM TRENCH WITH ALL MATERIAL BROKEN DOWN ≤ 2".
4. MOISTURE CONDITION ALL BACKFILL MATERIAL PRIOR TO PLACING IN TRENCH.
5. PLACE TRENCH BACKFILL MATERIAL IN MAXIMUM 12" LOOSE LIFTS AND COMPACT TO MAXIMUM 8" COMPACTED LIFTS.
6. REFER TO CITY DETAILS 311 AND 312 FOR TRENCH PAVEMENT REPLACEMENT REQUIREMENTS.
7. PLACE LAYERS B, C, AND E FOUND ON CITY DETAIL 310(B) AS SEPARATE LAYERS.
8. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
9. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:

MIDLAND Engineering Services

TRENCHING AND BEDDING — 310(A)



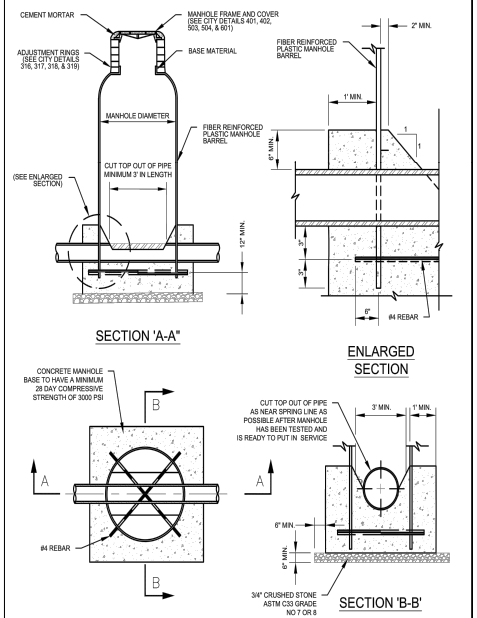
TRENCH ZONES:

ZONE A: TRENCH BACKFILL
ZONE B: PIPE BACKFILL
ZONE C: HAUNCHING
ZONE D: PIPE EMBEDMENT
ZONE E: BEDDING

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:

MIDLAND Engineering Services

TRENCHING AND BEDDING — 310(B)



DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:

MIDLAND Engineering Services

TYPICAL FIBERGLASS MANHOLE — 313(A)

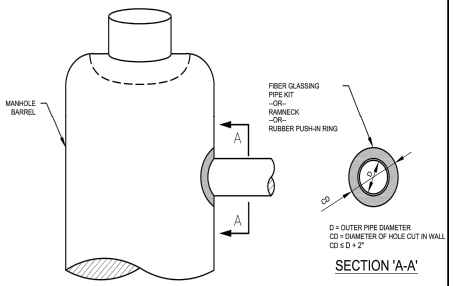
NOTES:

1. 48" DIAMETER MANHOLES TO BE USED FOR PIPE DIAMETERS OF 24" OR SMALLER ONLY.
2. INSTALL DROPS AND INTERSECTING PIPES ONLY WHEN CALLED FOR IN CONSTRUCTION DRAWINGS.
3. SET MANHOLE FRAME IN SEALANT PER CITY OF MIDLAND STANDARD SPECIFICATIONS.
4. NEW MANHOLE TO HAVE SEAMLESS AND CONTINUOUS NECK, SHOULDER, AND BARREL.
5. ALL CONCRETE TO BE CLASS "A" CONCRETE.
6. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
7. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:

MIDLAND Engineering Services

TYPICAL FIBERGLASS MANHOLE — 313(B)



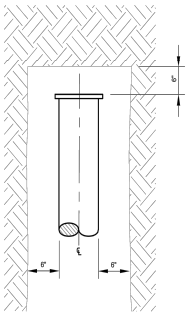
NOTES:

1. THE DIAMETER OF THE CUTOUT IN THE MANHOLE BARREL IS TO BE NO MORE THAN 2.0" WIDER THAN THE OUTER WALL DIAMETER OF THE PENETRATING PIPE.
2. THE PENETRATING PIPE IS TO BE CENTERED IN THE MANHOLE BARREL CUTOUT.
3. PIPES PENETRATING MANHOLE MUST BE MINIMUM 6" DIAMETER, AND SERVICE LINES MUST BE CONSTRUCTED TO CITY WASTEWATER MAIN OR STORM DRAIN STANDARDS WITHIN PUBLIC RIGHT OF WAY OR EASEMENT.
4. FORM FLOW SURFACE AND MOUND CONCRETE AROUND PIPE PENETRATIONS, TO FORM A SEAL, IN ONE CONTINUOUS PLACEMENT OPERATION.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC
EFFECTIVE DATE: 10/01/2018	SCALE:	DETAIL:

MIDLAND Engineering Services

TYPICAL FIBERGLASS MANHOLE PIPE PENETRATION — 314



PLUG BLOCKING

NOTES:

1. PLUG ALL WASTEWATER MAIN AND STORM DRAIN STUB OUTS. SECURE PLASTIC PLUG TO END OF STORM DRAIN.
2. FITTINGS TO BE POLY WRAPPED BEFORE BACKFILLING.
3. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
4. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF			
APPROVED: MCC			

MIDLAND Engineering Services

GRAVITY MAIN PLUG — 315

PACKET 11.2624 December 15, 2020

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

NO.	REVISIONS	BY	APPR.	DATE

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

WASTEWATER DETAILS

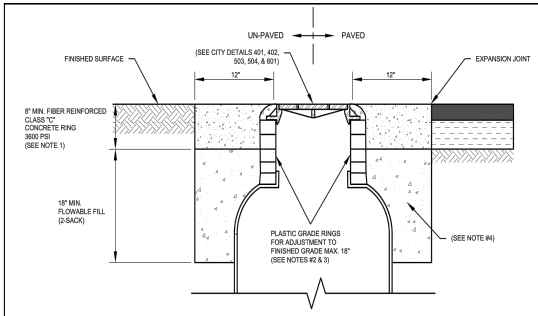
WEST WADLEY AVENUE
WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/19/2020

SHEET C300 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C300 WASTEWATER DETAILS.DWG

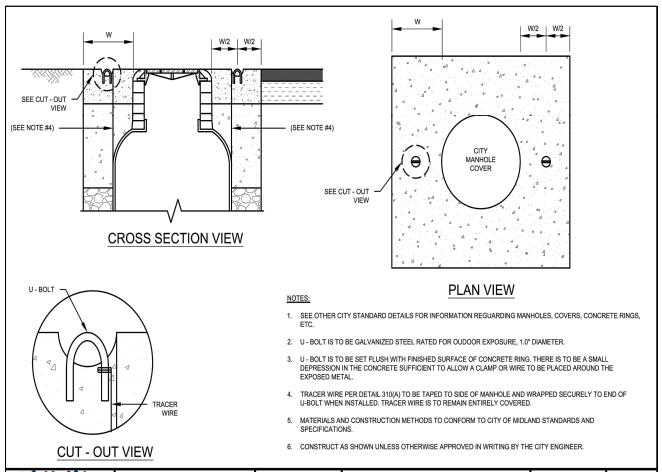


NEW MANHOLE ADJUSTMENT

NOTES:

1. INSTALL 12" MIN. FIBER REINFORCED CLASS "C" CONCRETE RING,3600 PSI, WHEN MANHOLE IS LOCATED IN AN ARTERIAL R.O.W.
2. GRADE RINGS TO MEET ASTM STANDARD A48 AND TO BE 2", 4", OR 8" THICKNESS AS REQUIRED. INSTALL ASPHALT TAR IN THICK, UNIFORM COATING OVER ALL OUTER ADJUSTMENT RING SURFACES AND JOINTS.
3. ENGINEERING SERVICES REPRESENTATIVE AND UTILITY SERVICES REPRESENTATIVE MAY ALLOW GREATER ADJUSTMENT RING DEPTH TO ACCOMMODATE PAVING STRUCTURES.
4. REMOVE ALL MATERIAL EXCAVATED FROM SITE AND EXCAVATION, AND FILL TO FINISHED BASE ELEVATION WITH FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT).
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

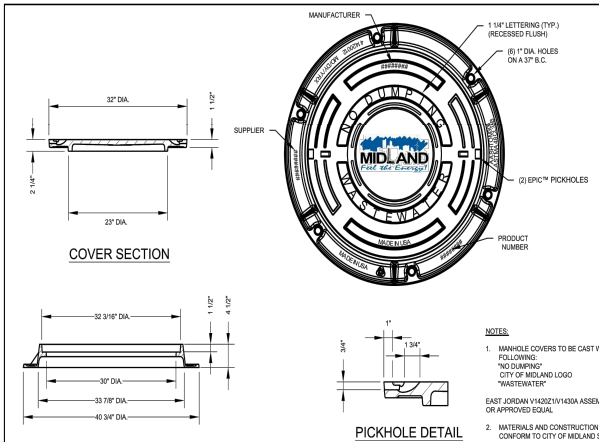
MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 316
		NEW MANHOLE ADJUSTMENT		



NOTES:

1. SEE OTHER CITY STANDARD DETAILS FOR INFORMATION REGUARDING MANHOLES, COVERS, CONCRETE RINGS, ETC.
2. U - BOLT IS TO BE GALVANIZED STEEL RATED FOR OUDOOR EXPOSURE, 1.0" DIAMETER.
3. U - BOLT IS TO BE SET FLUSH WITH FINISHED SURFACE OF CONCRETE RING. THERE IS TO BE A SMALL DEPRESSION IN THE CONCRETE SUFFICIENT TO ALLOW A CLAMP OR WIRE TO BE PLACED AROUND THE EXPOSED METAL.
4. TRACER WIRE PER DETAIL 310(A) TO BE TAPED TO SIDE OF MANHOLE AND WRAPPED SECURELY TO END OF U-BOLT WHEN INSTALLED. TRACER WIRE IS TO REMAIN ENTIRELY COVERED.
5. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
6. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 321
		MANHOLE DETECTOR WIRE END		



NOTES:

1. MANHOLE COVERS TO BE CAST WITH THE FOLLOWING:
   "NO DUMPING"
   CITY OF MIDLAND LOGO
   "WASTEWATER"

   EAST JORDAN V1420Z1/V1430A ASSEMBLY OR APPROVED EQUAL
2. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
3. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

MIDLAND Engineering Services	DRAWN: DPM CHECKED: JCF APPROVED: MCC	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL: 503
		TYPICAL WASTEWATER MANHOLE COVER		

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

REVISIONS

DRAWN BY:	MJD
CHECKED BY:	ALM
APPROVED BY:	ALM
DATE:	07/10/2020
JOB:	200027

WASTEWATER DETAILS

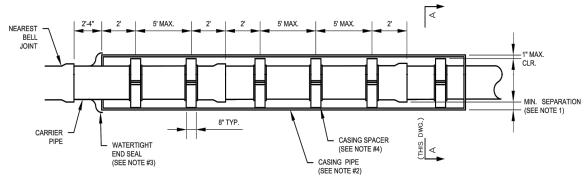
WEST WADLEY AVENUE
WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/19/2020

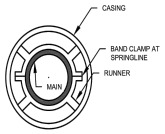
SHEET C301 OF [#]

APPROVED
[&[Date]]

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C301 WASTEWATER DETAILS.DWG
© COPYRIGHT 2020 ALL RIGHTS RESERVED



CROSS SECTION VIEW



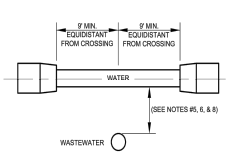
SECTION 'A-A'

NOTES:

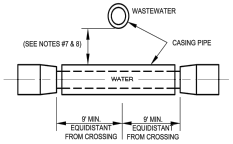
1. CASING PIPE TO BE MINIMUM TWO (2) NOMINAL SIZES LARGER IN DIAMETER THAN CARRIER PIPE.
2. CASING PIPE TO BE NO LESS THAN 12" DIAMETER PIPE. 12"-16" DIAMETER CASING PIPE MAY BE STEEL OR PVC PIPE. CASING PIPE LARGER THAN 16" DIAMETER MUST BE STEEL PIPE. STEEL CASING PIPE TO BE MINIMUM 1/4" WALL THICKNESS. PVC CASING PIPE TO BE SDR-26 D2241 OR C-900.
3. CASING PIPE TO BE STEEL OR PVC.
4. WATER TIGHT END SEAL TO BE GROUT OR APPROVED MANUFACTURED SEAL.
5. CASING SPACERS TO BE HDPE OR APPROVED EQUAL, MINIMUM FOUR (4) EQUALLY SPACED RUNNERS, WITH BAND CLAMP JOINT LOCATED AT SPRINGLINE. SPACERS FOR CASING PIPE LARGER THAN 24" DIAMETER REQUIRE MINIMUM SIX (6) EQUALLY SPACED RUNNERS.
6. CASING INSTALLED IN OPEN TRENCH IS TO BE BACKFILLED PER CURRENT CITY STANDARDS FOR AN UN-ENCASED MAIN.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
8. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	TYPICAL PIPE CASING DETAIL		805
APPROVED: MCC			

NEW WATER OVER WASTEWATER



NEW WATER UNDER WASTEWATER

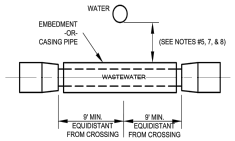


NOTES:

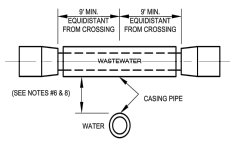
1. SEE CITY DETAIL 309 FOR NEW WASTEWATER MAIN REQUIREMENTS AT WATER MAIN CROSSINGS.
2. WASTEWATER MAINS AND MANHOLES MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY.
3. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
4. CENTER NEW WATER MAIN PIPE SEGMENT ON CROSSING SO THAT ALL PIPE SEGMENT JOINTS ARE EQUIDISTANT AND AT LEAST 9.0' HORIZONTALLY FROM THE CENTERLINE OF THE CROSSING. NEW WATER MAIN IS TO CROSS WASTEWATER MAIN AT 90° ANGLE.
5. NEW WATER MAINS ARE TO HAVE NO LESS THAN 2.0' VERTICAL SEPARATION OVER THE OUTER EDGE OF ANY EXISTING NON-PRESSURE RATED WASTEWATER MAIN, AND NO LESS THAN 0.5' VERTICAL SEPARATION OVER THE OUTER EDGE OF ANY EXISTING PRESSURE-RATED (150 PSI) WASTEWATER MAIN.
6. VERTICAL SEPARATION DIMENSION REQUIREMENTS FOR NEW WATER MAINS CROSSING OVER NEW WASTEWATER MAINS ARE COVERED IN CITY DETAIL 309.
7. NEW WATER MAIN CROSSING BENEATH NEW OR EXISTING WASTEWATER MAIN TO HAVE NO LESS THAN 2.0' VERTICAL SEPARATION FROM WASTEWATER MAIN WITH MINIMUM 18.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 805 FOR PIPE CASING.
8. VERTICAL SEPARATION DIMENSIONS TO BE MEASURED FROM OUTER EDGE OF ALL PIPE ENCASEMENTS..
9. WHEN CROSSING AN EXISTING WASTEWATER MAIN AND IT IS DISTURBED OR SHOW SIGNS OF LEAKING, THE WASTEWATER MAIN MUST BE REPLACED AT LEAST 9.0' IN BOTH DIRECTIONS FROM THE CROSSING WITH AT LEAST 150 PSI PRESSURE-RATED PIPE EMBEDDED IN CEMENT STABILIZED SAND ENCASEMENT (2.5 SACKS / CUBIC YARD) FOR A TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 1.0' BEYOND THE JOINT ON EACH END.
10. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
11. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	NEW WATER MAIN CROSSING WASTEWATER MAIN		307
APPROVED: MCC			

NEW WASTEWATER UNDER WATER



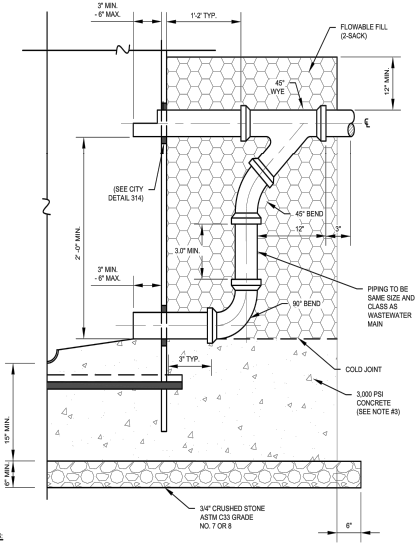
NEW WASTEWATER OVER WATER



NOTES:

1. SEE CITY DETAIL 307 FOR NEW WATER MAIN REQUIREMENTS AT WASTEWATER MAIN CROSSINGS.
2. WASTEWATER MAINS AND MANHOLES MUST BE LOCATED AT LEAST 9.0' FROM ALL WATER MAINS IN ALL DIRECTIONS. IF THIS IS NOT POSSIBLE THEN AN ENGINEERING REPORT IS REQUIRED PER TAC TO JUSTIFY WHY, AND THE REQUIREMENTS OF THIS DETAIL WILL APPLY.
3. THIS DETAIL IS INTENDED TO COMPLY WITH TAC 217.53(d) AND TAC 290.44(e). IF TAC AND THIS DETAIL DIFFER THEN THE MORE RESTRICTIVE STANDARD GOVERNS.
4. CENTER NEW WASTEWATER MAIN PIPE SEGMENT ON CROSSING SO THAT ALL PIPE SEGMENT JOINTS ARE EQUIDISTANT AND AT LEAST 9.0' HORIZONTALLY FROM THE CENTERLINE OF THE CROSSING. WASTEWATER MAIN IS TO CROSS WATER MAIN AT 90° ANGLE.
5. NEW WASTEWATER MAIN CROSSING BENEATH NEW OR EXISTING WATER MUST COMPLY WITH ONE OF THE FOLLOWING:
   A. WASTEWATER MAIN PIPE TO BE PRESSURE RATED SDR-26 D2241 PIPE OR APPROVED EQUAL FROM MANHOLE TO MANHOLE WITH MINIMUM 18.0' LONG CEMENT STABILIZED SAND ENCASEMENT (2.5 SACKS/CUBIC YARD) CENTERED ON THE CROSSING. VERTICAL SEPARATION FROM OUTER EDGE OF WATER MAIN TO BE NO LESS THAN 2.0'.
   B. WASTEWATER MAIN PIPE TO BE HEAVY-WALL GRAVITY PIPE SDR-26 D3034 OR APPROVED EQUAL FROM MANHOLE TO MANHOLE WITH MINIMUM 18.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 805 FOR PIPE CASING. VERTICAL SEPARATION FROM OUTER EDGE OF WATER MAIN TO BE NO LESS THAN 0.5'.
6. NEW WASTEWATER MAIN CROSSING OVER NEW OR EXISTING WATER MAIN TO BE PRESSURE RATED SDR-26 D2241 PIPE OR APPROVED EQUAL FROM MANHOLE TO MANHOLE WITH MINIMUM 18.0' LONG PIPE ENCASEMENT CENTERED ON THE CROSSING. SEE CITY DETAIL 805 FOR PIPE CASING. VERTICAL SEPARATION FROM OUTER EDGE OF WATER MAIN TO BE NO LESS THAN 2.0'.
7. NEW WATER MAINS CROSSING OVER EXISTING WASTEWATER MAINS ARE COVERED IN CITY DETAIL 307.
8. VERTICAL SEPARATION DIMENSIONS TO BE MEASURED FROM OUTER EDGE OF ALL PIPE ENCASEMENTS.
9. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
10. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:
CHECKED: JCF	NEW WASTEWATER MAIN CROSSING WATER MAIN		309
APPROVED: MCC			



NOTES:

1. FLOWABLE FILL 2-SACK (2 SACK = 188 LBS/CY, PORTLAND CEMENT), REQUIRED FOR ALL OVER EXCAVATION BACKFILL.
2. INSTALL BEND AND WYE AS NEAR TO MANHOLE WALL AS PRACTICAL, USUALLY 3'-4" FROM THE BEND AT THE BOTTOM.
3. ALL CONCRETE TO BE CLASS "A" CONCRETE.
4. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
5. CONSTRUCT AS SHOWN UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY ENGINEER.

DRAWN: DPM	CHECKED: JCF	APPROVED: MCC	
EFFECTIVE DATE: 10/01/2018	SCALE: NTS	DETAIL:	
EXTERNAL DROP STRUCTURE		308	

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE	REVISIONS			

DRAWN BY: MJD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

WASTEWATER DETAILS

WEST WADLEY AVENUE
WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED
PROFESSIONAL ENGINEER
10/19/2020

SHEET
C302
OF 17

F:\2020\200027-CITY OF MIDLAND-WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\200027 C302 WASTEWATER DETAILS.DWG
© COPYRIGHT 2020 ALL RIGHTS RESERVED

WEST WADLEY AVENUE WASTEWATER LINE EXTENSION
OCTOBER 2020

MAYOR

PATRICK PAYTON

COUNCIL MEMBERS

SCOTT DUFFORD	DISTRICT 1
JOHN NORMAN	DISTRICT 2
JACK LADD	DISTRICT 3
LORI BLONG	DISTRICT 4
MICHAEL TROST	AT LARGE
SPENCER ROBNETT	AT LARGE

CONTRACTOR_____

DATE CONTRACTOR BEGAN WORK_____

DATE WORK WAS COMPLETED_____

DATE WORK WAS ACCEPTED_____

FINAL CONTRACT COST_____

Andrew L. Mellen — 10/19/2020

ENGINEER — SUBMITTED

INTERIM CITY MANAGER

ROBERT PATRICK

CITY ENGINEER — RECOMMENDED

DIRECTOR OF UTILITIES

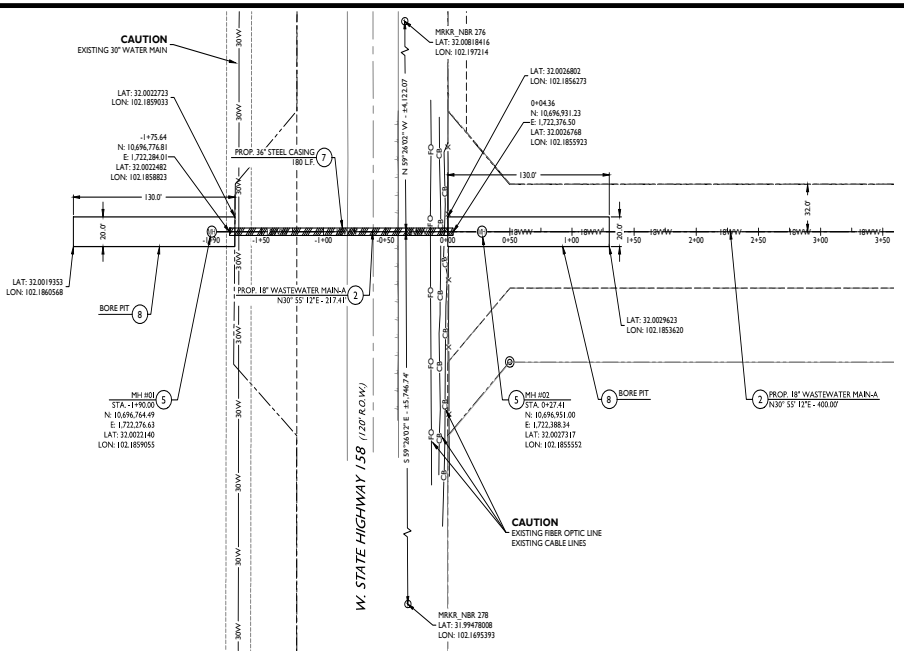
CARL CRAIGO, P.E.

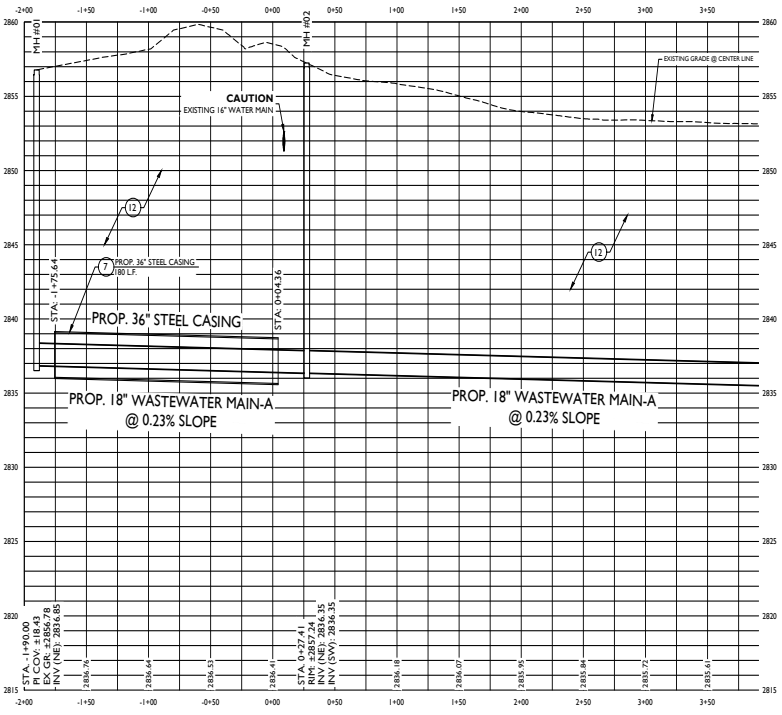
ENGINEERING SERVICES DIRECTOR — RECOMMENDED

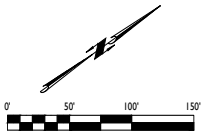
ENGINEERING SERVICES DIRECTOR

JOSE E. ORTIZ


Diamond Electrical Service
Stonegate Fellowship
Lowe's Home Improvement
Sport Clips Haircuts of Midland
Nueva Vista Golf Club
West Texas Import Performance
SITE LOCATION
GRASSLAND ESTATES
W Wadley Ave
N Loop 250 W
Loop 250 Frontage Rd
Cactus Trail
Highland Blvd
Grassland Ct
Grassland Blvd
Ridgemont Pl
Hillcrest
Heartland Ave
Crowley Blvd
Longwood Blvd
Driftwood Trail
Rosemont Trail
Tumbleweed Trail
Cactus Trail
Dunes West
Cactus Trail
Cactus Trail
Cactus Trail







LEGEND

	DENOTES FOUND 1/2" IRON ROD
	DENOTES EXISTING FIRE HYDRANT
PP	DENOTES EXISTING POWER POLE
X	DENOTES EXISTING FENCE
OH	DENOTES EXISTING OVERHEAD ELECTRIC LINE
12W	DENOTES EXISTING 12" WATER MAIN
30W	DENOTES EXISTING 30" WATER MAIN
15SWW	DENOTES PROPOSED 15" WASTEWATER
18WW	DENOTES EXISTING 18" WASTEWATER
	DENOTES PROPOSED MANHOLE
	DENOTES PROPOSED PLUG.
18WW	DENOTES PROPOSED 18" WASTEWATER
8WW	DENOTES PROPOSED 8" WASTEWATER
PI COV	DENOTES PIPE COVERAGE
EX GR	DENOTES EXISTING GRADE
RIM	DENOTES MANHOLE RIM GRADE
INV	DENOTES INVERT GRADE (FLOW)

ENGINEER'S UTILITY NOTES:

- CONTRACTOR TO VERIFY ALL EXISTING UTILITY TIE-IN CONNECTIONS AND VERIFY LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.
- CITY OF MIDLAND TO BE NOTIFIED 48 HOURS BEFORE ANY CONSTRUCTION BEGINS.
- PIPE DEFLECTION IS TO BE PER MANUFACTURER'S RECOMMENDATIONS OR PER CITY REQUIREMENTS, WHICHEVER ALLOWS THE LESSER AMOUNT OF DEFLECTION.
- ALL UTILITIES TO BE INSTALLED PER TEXAS ADMINISTRATIVE CODE (TAC) STANDARD SEPARATION SPECIFICATIONS.
- A TWO (2) FOOT MINIMUM VERTICAL SEPARATION IS TO BE PROVIDED BETWEEN ANY SEWER MAINLINE CROSSING A WATER MAIN/LINE.
- EXCEPTIONS OR DEVIATIONS FROM THE ABOVE MINIMUM CLEARANCES MUST BE APPROVED AND SHOWN ON THE APPROVED WATER AND SEWER PLANS. WHEN UTILITY CONFLICTS ARE FOUND DURING CONSTRUCTION, ALL CHANGES AND REVISIONS MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
- ANY AND ALL MORE STRINGENT REQUIREMENTS REQUIRED BY FEDERAL, STATE, COUNTY OR LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- ALL CONSTRUCTION IN THE RIGHT OF WAY IS TO CONFORM TO THE CITY OF MIDLAND STANDARDS.
- CONCRETE OR ASPHALT DAMAGED DURING THE COURSE OF CONSTRUCTION IS TO BE REMOVED AND REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE ENGINEER OR THE CITY OF MIDLAND PRIOR TO FINAL INSPECTION.
- WATER IS TO BE C-900 PVC PIPE UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS TO PROVIDE ALL THRUST BLOCKING AT ALL FITTINGS AND BENDS AS REQUIRED. COMPLY WITH DETAILS IN THE CITY OF MIDLAND'S DESIGN & CONSTRUCTION STANDARDS.
- THE CONTRACTOR IS TO KEEP ALL EXISTING WATER AND SEWER MAINS IN SERVICE DURING CONSTRUCTION.

WASTEWATER CONSTRUCTION NOTES:

TYP. (1) CAUTION: CONTRACTOR TO VERIFY UTILITY SIZE, LOCATION, ELEVATION AND TYPE PRIOR TO CONSTRUCTION AND INFORM ENGINEER OF CONFLICTS.

2. INSTALL 18" DIAMETER PVC ASTM F679 PS115 WASTEWATER LINE AT 0.23% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
3. INSTALL 8" DIAMETER PVC ASTM D3034 SDR26 WASTEWATER LINE 0.44% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
4. INSTALL 8" DIAMETER PVC ASTM D3034 SDR35 WASTEWATER STUB OUT AT 0.35% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300 SEE SHEET C300.
5. INSTALL 48" DIAMETER WASTEWATER MANHOLE PER CITY OF MIDLAND DETAIL No. 313(A) AND 313(B) SEE SHEET C300.
6. INSTALL 8" DIAMETER WASTEWATER MANHOLE EXTERNAL DROP STRUCTURE PER CITY OF MIDLAND DETAIL No. 501 SEE SHEET C302.
7. INSTALL 36" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805, DETAIL No. 307 AND DETAIL No. 309 SEE SHEET C302.
8. PROPOSED BORE PIT (130'x20') OUTSIDE TxDOT R.O.W.
9. INSTALL 8" PLUG PER CITY OF MIDLAND DETAIL No. 315 SEE SHEET C300.
10. REMOVE EXISTING 15" WASTEWATER LINE. INSTALL 18" DIAMETER PVC ASTM F679 PS115 SPECIFIED PER PLANS, WASTEWATER LINE AT EXISTING 0.14% SLOPE. WASTEWATER LINE BEDDING SHALL CONFORM TO THE CITY OF MIDLAND DESIGN AND CONSTRUCTION STANDARDS DETAIL NO. 310(A) AND 310(B) SEE SHEET 300, DETAIL NO. 311 SEE SHEET C303.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY WASTEWATER SERVICE DURING CONSTRUCTION.
12. INSTALL TRENCH PROTECTION FOR EXCAVATIONS GREATER THAN 5 FEET.
13. INSTALL 16" STEEL PIPE CASING 0.25" MINIMUM WALL THICKNESS PER CITY OF MIDLAND DETAIL No. 805 AND DETAIL No. 309 SEE SHEET C302.
14. SEE WASTEWATER HORIZONTAL CURVE DESIGN THIS SHEET.
15. CONTRACTOR TO COORDINATE WITH CITY OF MIDLAND AND PROPERTY OWNER FOR THE REMOVAL AND REPLACEMENT OF EXISTING FENCE.

Know what's **below.**
Call before you dig.

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 West Wall Street, Suite "K"
Midland, Texas 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE	REVISIONS

DRAWN BY: MD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 07/10/2020
JOB: 200027

WASTEWATER-A PLAN AND PROFILE
TxDOT PERMIT
WEST WADLEY AVENUE WASTEWATER LINE EXTENSION
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

STATE OF TEXAS
ANDREW L. MELLEN
106572
LICENSED PROFESSIONAL ENGINEER
10/19/2020

SHEET C200 OF 17

© COPYRIGHT 2020 ALL RIGHTS RESERVED

F:\200\200027\CITY OF MIDLAND\WASTEWATER DESIGN WADLEY DEVELOPMENT\DRAWINGS\CIVIL CONSTRUCTION PLANS\TXDOT CONSTRUCTION PLANS\UTILITY CONSTRUCTION PLANS TXDOT DRAWINGS\200027 C200 WW A P&P.DWG

PACKET 11.2628 December 15, 2020

City Council Meeting

Item Number: 12

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION APPROVING THE PURCHASE AND UPFITTING OF EIGHT (8) CHEVROLET TAHOES FOR THE GARAGE DIVISION FROM CALDWELL COUNTY CHEVEROLET THROUGH BUYBOARD AT A TOTAL COST OF $559,912.00 (GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the purchase of eight (8) 2021 Chevrolet Tahoes with upfitting for the Police Department.

Recommended City Council Action:

Approve

Fiscal Impact:

Financing is available in the Garage Fund

Discussion:

The Garage Division is requesting the purchase of eight (8) 2021 Chevrolet Tahoes with upfitting for the Police Department. Staff recommends awarding the purchase to Caldwell Country Chevrolet of Caldwell, Texas through Buyboard contract 601-19. We are members of this cooperative and Subchapter F, Section 271.102 of the Local Government Code provides that a local government may participate in a cooperative purchasing program and that purchasing goods or services under Subchapter F satisfies any state law requiring the local government to seek competitive bids for those purchases. The police vehicles that will be outfitted are replacement units. The budget for this equipment for fiscal year 2021 for eight (8) Police Tahoes is $604,000.00. Please see the attached memo from the Manuel Salinas, Garage Superintendent, for additional information.

Therefore, please consider approval of a resolution authorizing the purchase of eight (8) 2021 Chevrolet Tahoes with upfitting from Caldwell Country Chevrolet of Caldwell, Texas through Buyboard contract 601-19 for a total cost of $559,912.00

Morris Williams Jr.

City Manager's Office

Fleet Services Division

INTEROFFICE MEMORANDUM

TO: **Regina Stephenson**

FROM: **Manuel Eloy Salinas**

SUBJECT: **Buy Board #601-19 2021 Chevrolet Tahoe PPV CC15706**

DATE: **11/23/20**

Fleet services is requesting the purchase of (8) eight Tahoe's. These new units will be replacing old units that has gone beyond their serviceable use. Budgeted amount for FY2021 is $604,000 for (8) eight Tahoe's w/upfitting. Purchasing amount for (8) Tahoe's w/upfitting is $559,912.

Sincerely,

Manuel Eloy Salinas

City of Midland Garage Superintendent

RESOLUTION NO. _____

RESOLUTION APPROVING THE PURCHASE AND UPFITTING OF EIGHT (8) CHEVROLET TAHOES FOR THE GARAGE DIVISION FROM CALDWELL COUNTY CHEVEROLET THROUGH BUYBOARD AT A TOTAL COST OF $559,912.00

WHEREAS, Buyboard is a cooperative purchasing agency with which the City participates with on purchases through a cooperative purchasing program in accordance with TEX. LOC. GOV'T CODE § 271.102; and

WHEREAS, Caldwell County Chevrolet has submitted a total proposed cost to the City of $559,912.00 for the purchase and upfitting of eight (8) Chevrolet Tahoes through Buyboard, as shown on the quote attached hereto as Exhibit A and incorporated herein for all purposes; and

WHEREAS, the Council finds the price proposed by Caldwell County Chevrolet through Buyboard for the purchase and upfitting of said Chevrolet Tahoes to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to provide for the purchase and upfitting of said Chevrolet Tahoes from Caldwell County Chevrolet through Buyboard;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager is hereby authorized and directed to provide for the purchase and upfitting of eight (8) Chevrolet Tahoes through Buyboard at a total cost of $559,912.00.

SECTION TWO. That the City Comptroller is hereby authorized and directed to pay Caldwell County Chevrolet for said purchase and upfitting from funds available in the Garage Fund upon proper receipt of invoices or statements approved by the Interim City Manager.

On motion of Council member _____, seconded by Council member

_____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

APPROVED AS TO FORM ONLY:

_____
John Ohnemiller, City Attorney

QUOTE# 00AA-CAPQ61316 **CONTRACT PRICING WORKSHEET**

End User: CITY OF MIDLAND	Contractor: CALDWELL COUNTRY
Contact Name: REGINA STEPHENSON	CALDWELL COUNTRY
Email: RSTEPHENSON@MIDLANDTEXAS.GOV	Prepared By: Averyt Knapp
Phone #: 432-685-0523	Email: aknapp@caldwellcountry.com
Fax #:	Phone #: 979-567-6116
Location City & State: MIDLAND, TX	Fax #: 979-567-0853
Date Prepared: NOVEMBER 3, 2020	Address: P. O. Box 27, Caldwell, TX 77836
Contract Number: BUY BOARD #601-19	Tax ID # 14-1856872
Product Description: 2021 CHEVROLET TAHOE PPV CC15706	

A Base Price ($26,975) & Options ($8,435):	$35,410

B Fleet Quote Option:

Code	Description	Cost	Code	Description	Cost
	LH LED SPOTLIGHT, PPV-4X2, 5.3L-V8, 10-SPD AUTOMATIC, LOCKING REAR AXLE DIFFERENTIAL, DUAL BATTERIES, 40-XX-40 CLOTH SEATS, AIR CONDITION FRONT & REAR, AMFM-STEREO W/BLUETOOTH, TILT, CRUISE, POWER SEAT, POWER WINDOWS, POWER LOCKS, KEYLESS ENTRY, DEEP TINT GLASS, RUNNING BOARDS, TRAILER TOW HITCH PACKAGE, REAR VISION CAMERA, FIVE ALL IN ONE REMOTES, AUXILARY REAR COMPARTMENT GROUND STUDS, FRONT TOW HOOKS, EACH VEHICLE KEYED DIFFERENTLY (NOT ALIKE), FLASHER SYSTEM HEADLAMP AND TAIL LAMP DRL COMPATIBLE, GRILLE LAMP AND SIREN SPEAKER WIRING, HORN AND SIREN CIRCUIT WIRING, CARPET FLOOR W/MATS, REAR WINDOW SWITCHES INOPERATIVE, REAR DOOR HANDLES AND LOCKS INOPERATIVE FROM INSIDE, DAYTIME RUNNING LIGHT DELETE, CONTENT THEFT ALARM DISABLE,	$8,435			

	DOOR LOCKS SHALL NOT AUTOMATICALLY LOCK OR UNLOCK				
	GM WARRANTY 5YR/100,000 MILES POWERTRAIN @ N/C	INCL		CALDWELL COUNTRY PO BOX 27 CALDWELL, TEXAS 77836	
	CENCOM CORE WCX CONTROL CENTER, WCANX 21 BUTTON/SLIDE CONTROL HD, OBDII CANPORT KIT, 16 OUTPUT 4 INPUT WECANX EXPANSION MODULE, VEHICLE TO VEHICLE SYNC, SA315P SPEAKER BLACK PLASTIC, SIREN SPEAKER BRACKET PASSENGER SIDE, TWELVE LAMPS TRIO UPPER FRONT TOW PIECE UNIT W/DRIVER AND PASSNEGE4R SIDE UNITS, ONE TRIO LIGHTHEAD RED/BLUE/WHYITE (OVERRIDE WHITE ON TAKEDOWN AND SCENE), ION OUTER EDGE WC TRIO (PROGRAM AMBER AS TRAFFIC ADVISOR), ION REAR PILLAR WC TRIO (OVERRIDE CENTER WHITE ON REVERSE AND ALL WHITE ON SCENE OVERRIDE TOP RED ON BRAKE), INNER EDGE FST/RST TRIO R/B/A (OUTER EDGE), TRIO LIGHTHEAD RED/BLUE/WHITE (REAR PILLAR), SURFACE MT TRIO ION R/B W/WHT (1 EACH SIDE OF PH OVERRIDE WHITE ON ALLEY AND SCENE, 3 EACH RUNNING BOA4RD OVERRIDE WHITE ON ALLEY AND SCENE, 400 SERIES COMPARTMENT LIGHT 5.4″ RED/WHITE, 12/24VDC W/TOUCH SWITCH (OVER CONSOLE), 400 SERIES COMPARTMENT LIGHT, 11.8″ RED/WHITE, 12/24VDC WITH TOUCH SWITCH (ON LIFTGATE TRIM FACING OVER OFFICER WHEN OPENED), TRIO ION R/B W/WHT OVERRIDE (ON EITHER SIDE OF	$34529			

	PIONEER LIGHT USING IONK1B OVERRIDE WHITE ON TAKEDOWN AND SCENE), SWIVEL MOUNT KIT FOR ION BLK, DUAL PANEL PIONEER PLUS COMBINATION FLOOD/SPOT WITH PROCLERA SILICONE OPTICS (TAKEDOWN MOUNTED CENTER OF PB), UNIVERSAL BAIL MOUNT BRACKET (VERTICAL OR HORIZONTAL) BLACK FOR DUAL PIONEER, SOLID STATE HEADLIGHT FLASHER, ION T-SERIES LINEAR SPLIT R/B (2 ON LIFTGATE LIP FACING BACK WHEN OPEN IN EACH CARGO SIDE0, ION T-SERIES UNIVERAL MOUNT, SHORTY CONSOLE, ARM REST PAD, 1-PIECE EQUIPMENT MOUTNING BRACKET 3″ MOUNTING SPACE FITS MA-COM, 1-PIECE EQUIPMENT MOUNTING BRACKET, 4″ MOUNTING SPACE FITS WHELEN CENCO0M, CCSRN, CCSRNTA, MPC03, 1-PIECE EQUIPMENT MOUNTING BRACKET 4″ MOUNTING SPACE FITS MISC PANASONIC AG-CPD20, MULTI POSITION MICROPHONE HOLDER W/CLIP, MAGNETIC MIC KIT, 8.5″ HD TELESCOPING POLE SIDE MOUNT SHORT HANDLE, 11″ SLIDE OUT LOCKING SWING ARM WITH MOTION ADAPTER (LEAVE PLENTY OF SLACK ON WIRING FOR COMPUTER, LAST BUILDS COULD NOT MOVE COMPUTER FULL RANGE),M CHARGEGUARD SELECT, PUSH BUMPER GUN RACK CAGE CARGO BOX, HD PUSH BUMPER, DUAL T-RAIL MOUNT 2 UNIVERSAL XL HANDCUFF KEY OVERRIDE (MUST BE				

	ABLE TO OPERATE LOCK WHILE CAR IN GEAR AND MOVING), POLYCARBONATE CENTER SLIDER WINDOW WITH EXPANDED METAL INSERT, RECESSED PANEL AND LOWER EXTENSION PANEL, STANDARD TRANSPORT SEAT W/7 GA. STEEL SCREEN WINDOW CARGO BARRIER AND OUTBOARD SEAT BELOT, INTERIOR WINDOW GUARD KIT FOR TWO WINDOWS, 11" SINGLE DRAWER LEVEL 3 ON PASS OPEN TRAY ON DRIVERS DESINGED TO WORK W/CARGO BARRIER, PP-3RD-L1-5X30, 24" WIDE X 5" X 30" 3RD DRAWER OPTION WITH SOUTHCO LOCKING LATCHES, CAMERA – NOPTIC – RADAR, SAFESTOP (REMOVE KEY FROM VEHICLE W/O TURNING OFF), PANASONIC ARBITRATOR MK3, HD CAMERA, 256 GB SSD, WIRELESS 1, PANASONIC ARBITRATOR 900 MHZ WIRELESS MICROPHONE FULL KIT, PANASONIC BACK SEAT CAMERA INCLUDES CABLE, G-FORCE SENSOR FOR ARBITRATOR VEHICLE INCLUDES CABLES, DOUBLE WIFI ANTENNA, IN CAR VIDEO UEMS1 ON PREM STORAGE BUNDLE PER DEVICE YEAR 1 W/DEVICE LICENSE & HELPDESK, NOPTIC NV3 ON UNITY SPOTLIGHT, 2X DS COUNTING UNIT W/VSS CABLE AND REMOTE INTERFACE DISPLAY, STALKER DSR 2X KA BAND 2-ANT, REMOTE DISPLAY INTERCONNECT CABLE, TAHOE ANTENNA MOUNT KA, COUNTING UNIT MOUNT, PANASONIC RADAR INTERFRACE MODULE, CUSTOM GRAPHICS, CUSTOMER SUPPLIED ITEMS, CAP FLEET				

	WIRING HARNESS, POWER DISTRIBUTION KIT, TOTAL INSTALL LOGISTICS				

Subtotal B	$34,529
C Unpublished Options	

Code	Description	Cost	Code	Description	Cost

Subtotal C	
D Other Price Adjustments (Installation, Delivery, Etc…)	
Subtotal D	INCL
E Unit Cost Before Fee & Non-Equipment Charges(A+B+C+D)	$69,939
Quantity Ordered	8
Subtotal E	$559,512
F Non-Equipment Charges (Trade-In, Warranty, Etc…)	
BUY BOARD	$400
G. Color of Vehicle: BLACK	N/C
H. Total Purchase Price (E+F)	$559,912

Estimated Delivery Date:	150-180 DAYS APPX

QUOTE# 00AA-CAPQ61316 **CONTRACT PRICING WORKSHEET**

End User: CITY OF MIDLAND	Contractor: CALDWELL COUNTRY
Contact Name: REGINA STEPHENSON	CALDWELL COUNTRY
Email: RSTEPHENSON@MIDLANDTEXAS.GOV	Prepared By: Averyt Knapp
Phone #: 432-685-0523	Email: aknapp@caldwellcountry.com
Fax #:	Phone #: 979-567-6116
Location City & State: MIDLAND, TX	Fax #: 979-567-0853
Date Prepared: NOVEMBER 3, 2020	Address: P. O. Box 27, Caldwell, TX 77836
Contract Number: BUY BOARD #601-19	Tax ID # 14-1856872
Product Description: 2021 CHEVROLET TAHOE PPV CC15706	

A Base Price ($26,975) & Options ($8,435):	$35,410

B Fleet Quote Option:

Code	Description	Cost	Code	Description	Cost
	LH LED SPOTLIGHT, PPV-4X2, 5.3L-V8, 10-SPD AUTOMATIC, LOCKING REAR AXLE DIFFERENTIAL, DUAL BATTERIES, 40-XX-40 CLOTH SEATS, AIR CONDITION FRONT & REAR, AMFM-STEREO W/BLUETOOTH, TILT, CRUISE, POWER SEAT, POWER WINDOWS, POWER LOCKS, KEYLESS ENTRY, DEEP TINT GLASS, RUNNING BOARDS, TRAILER TOW HITCH PACKAGE, REAR VISION CAMERA, FIVE ALL IN ONE REMOTES, AUXILARY REAR COMPARTMENT GROUND STUDS, FRONT TOW HOOKS, EACH VEHICLE KEYED DIFFERENTLY (NOT ALIKE), FLASHER SYSTEM HEADLAMP AND TAIL LAMP DRL COMPATIBLE, GRILLE LAMP AND SIREN SPEAKER WIRING, HORN AND SIREN CIRCUIT WIRING, CARPET FLOOR W/MATS, REAR WINDOW SWITCHES INOPERATIVE, REAR DOOR HANDLES AND LOCKS INOPERATIVE FROM INSIDE, DAYTIME RUNNING LIGHT DELETE, CONTENT THEFT ALARM DISABLE,	$8,435			

	DOOR LOCKS SHALL NOT AUTOMATICALLY LOCK OR UNLOCK				
	GM WARRANTY 5YR/100,000 MILES POWERTRAIN @ N/C	INCL		CALDWELL COUNTRY PO BOX 27 CALDWELL, TEXAS 77836	
	CENCOM CORE WCX CONTROL CENTER, WCANX 21 BUTTON/SLIDE CONTROL HD, OBDII CANPORT KIT, 16 OUTPUT 4 INPUT WECANX EXPANSION MODULE, VEHICLE TO VEHICLE SYNC, SA315P SPEAKER BLACK PLASTIC, SIREN SPEAKER BRACKET PASSENGER SIDE, TWELVE LAMPS TRIO UPPER FRONT TOW PIECE UNIT W/DRIVER AND PASSNEGE4R SIDE UNITS, ONE TRIO LIGHTHEAD RED/BLUE/WHYITE (OVERRIDE WHITE ON TAKEDOWN AND SCENE), ION OUTER EDGE WC TRIO (PROGRAM AMBER AS TRAFFIC ADVISOR), ION REAR PILLAR WC TRIO (OVERRIDE CENTER WHITE ON REVERSE AND ALL WHITE ON SCENE OVERRIDE TOP RED ON BRAKE), INNER EDGE FST/RST TRIO R/B/A (OUTER EDGE), TRIO LIGHTHEAD RED/BLUE/WHITE (REAR PILLAR), SURFACE MT TRIO ION R/B W/WHT (1 EACH SIDE OF PH OVERRIDE WHITE ON ALLEY AND SCENE, 3 EACH RUNNING BOA4RD OVERRIDE WHITE ON ALLEY AND SCENE, 400 SERIES COMPARTMENT LIGHT 5.4″ RED/WHITE, 12/24VDC W/TOUCH SWITCH (OVER CONSOLE), 400 SERIES COMPARTMENT LIGHT, 11.8″ RED/WHITE, 12/24VDC WITH TOUCH SWITCH (ON LIFTGATE TRIM FACING OVER OFFICER WHEN OPENED), TRIO ION R/B W/WHT OVERRIDE (ON EITHER SIDE OF	$34529			

	PIONEER LIGHT USING IONK1B OVERRIDE WHITE ON TAKEDOWN AND SCENE), SWIVEL MOUNT KIT FOR ION BLK, DUAL PANEL PIONEER PLUS COMBINATION FLOOD/SPOT WITH PROCLERA SILICONE OPTICS (TAKEDOWN MOUNTED CENTER OF PB), UNIVERSAL BAIL MOUNT BRACKET (VERTICAL OR HORIZONTAL) BLACK FOR DUAL PIONEER, SOLID STATE HEADLIGHT FLASHER, ION T-SERIES LINEAR SPLIT R/B (2 ON LIFTGATE LIP FACING BACK WHEN OPEN IN EACH CARGO SIDE0, ION T-SERIES UNIVERAL MOUNT, SHORTY CONSOLE, ARM REST PAD, 1-PIECE EQUIPMENT MOUTNING BRACKET 3″ MOUNTING SPACE FITS MA-COM, 1-PIECE EQUIPMENT MOUNTING BRACKET, 4″ MOUNTING SPACE FITS WHELEN CENCO0M, CCSRN, CCSRNTA, MPC03, 1-PIECE EQUIPMENT MOUNTING BRACKET 4″ MOUNTING SPACE FITS MISC PANASONIC AG-CPD20, MULTI POSITION MICROPHONE HOLDER W/CLIP, MAGNETIC MIC KIT, 8.5″ HD TELESCOPING POLE SIDE MOUNT SHORT HANDLE, 11″ SLIDE OUT LOCKING SWING ARM WITH MOTION ADAPTER (LEAVE PLENTY OF SLACK ON WIRING FOR COMPUTER, LAST BUILDS COULD NOT MOVE COMPUTER FULL RANGE),M CHARGEGUARD SELECT, PUSH BUMPER GUN RACK CAGE CARGO BOX, HD PUSH BUMPER, DUAL T-RAIL MOUNT 2 UNIVERSAL XL HANDCUFF KEY OVERRIDE (MUST BE				

	ABLE TO OPERATE LOCK WHILE CAR IN GEAR AND MOVING), POLYCARBONATE CENTER SLIDER WINDOW WITH EXPANDED METAL INSERT, RECESSED PANEL AND LOWER EXTENSION PANEL, STANDARD TRANSPORT SEAT W/7 GA. STEEL SCREEN WINDOW CARGO BARRIER AND OUTBOARD SEAT BELOT, INTERIOR WINDOW GUARD KIT FOR TWO WINDOWS, 11″ SINGLE DRAWER LEVEL 3 ON PASS OPEN TRAY ON DRIVERS DESINGED TO WORK W/CARGO BARRIER, PP-3RD-L1-5X30, 24″ WIDE X 5″ X 30″ 3RD DRAWER OPTION WITH SOUTHCO LOCKING LATCHES, CAMERA – NOPTIC – RADAR, SAFESTOP (REMOVE KEY FROM VEHICLE W/O TURNING OFF), PANASONIC ARBITRATOR MK3, HD CAMERA, 256 GB SSD, WIRELESS 1, PANASONIC ARBITRATOR 900 MHZ WIRELESS MICROPHONE FULL KIT, PANASONIC BACK SEAT CAMERA INCLUDES CABLE, G-FORCE SENSOR FOR ARBITRATOR VEHICLE INCLUDES CABLES, DOUBLE WIFI ANTENNA, IN CAR VIDEO UEMS1 ON PREM STORAGE BUNDLE PER DEVICE YEAR 1 W/DEVICE LICENSE & HELPDESK, NOPTIC NV3 ON UNITY SPOTLIGHT, 2X DS COUNTING UNIT W/VSS CABLE AND REMOTE INTERFACE DISPLAY, STALKER DSR 2X KA BAND 2-ANT, REMOTE DISPLAY INTERCONNECT CABLE, TAHOE ANTENNA MOUNT KA, COUNTING UNIT MOUNT, PANASONIC RADAR INTERFRACE MODULE, CUSTOM GRAPHICS, CUSTOMER SUPPLIED ITEMS, CAP FLEET				

	WIRING HARNESS, POWER DISTRIBUTION KIT, TOTAL INSTALL LOGISTICS				

Subtotal B	$34,529
C Unpublished Options	

Code	Description	Cost	Code	Description	Cost

Subtotal C	
D Other Price Adjustments (Installation, Delivery, Etc…)	
Subtotal D	INCL
E Unit Cost Before Fee & Non-Equipment Charges(A+B+C+D)	$69,939
Quantity Ordered	8
Subtotal E	$559,512
F Non-Equipment Charges (Trade-In, Warranty, Etc…)	
BUY BOARD	$400
G. Color of Vehicle: BLACK	N/C
H. Total Purchase Price (E+F)	$559,912

Estimated Delivery Date:	150-180 DAYS APPX

CAP FLEET UPFITTERS

Quote

Date	11/20/2020
Quote #	CAPQ61316

CAP Fleet Upfitters, LLC
2603 Taylors Valley Road
Belton, TX 76513
Phone: 254-773-1959

Name / Address
CALDWELL COUNTRY CHEVROLET
PO BOX 27
CALDWELL, TX 77836

Ship to:
Caldwell Country Chevrolet
Parts Dept
800 TX 21
Caldwell, TX 77836

Salesperson:	Bary Bedford
Email :	bbedford@capfleetupfitters.com
VIN :	
End User:	City of Midland PD

Year :	2021
Make :	Chevrolet
Model :	Tahoe

Part #	Qty	Description
		BUILD WITH INSTALLATION
		BUY BOARD #603-20
		NEW BUILD STYLE X8 PATROL 2021 Tahoe
		LIGHTS - CONTROLLER - SIREN
C399	8	CENCOM CORE WCX CONTROL CENTER
CCTL7	8	WeCanX 21 BUTTON/SLIDE CTRL HD
C399K2	8	OBDII CANPort™ Installation Kit for C399 for Chevy, 2017-2020 Tahoe, 2017-2018 Silverado 1500, 2019-2020 Silverado 1500 (New Body Style), 2017-2019 Silverado 2500/3500, 2017-2020 Colorado, 2019 Impala, 2018-2020 Suburban
CEM16	32	16 Output, 4 Input WeCanX™ Expansion Module
CV2V	8	VEHICLE TO VEHICLE SYNC
SA315P	8	SA315P SPEAKER, BLACK PLASTIC
SAK63P	8	2017 TAHOE SIREN SPKR BRKT PASSENGER SIDE NOTES: ***ESTIMATE***
BSFW45XT	8	Chevy Tahoe/Suburban, 2017-2020, Chevy Silverado-1500/2500/3500, 2017-2018, Twelve Lamps, TRIO™, Upper Front Two Piece Unit, Individual Driver and Passenger Side Units (No Take-Downs)
ISTRBC	96	One TRIO Lighthead, Red/Blue/White, For WeCan Series Only, Price Available When Ordered with Inner Edge Tray NOTES: OVERRIDE WHITE ON TAKEDOWN AND SCENE
OEWT45	8	ION OUTER EDGE WC TRIO TAHOE NOTES: PROGRAM AMBER AS TRAFFIC ADVISOR***ESTIMATE***
RPWT45	8	ION REAR PILLAR WC TRIO TAHOE NOTES: OVERRIDE CENTER WHITE ON REVERSE AND ALL WHITE ON SCENE. OVERRIDE TOP RED ON BRAKE.***ESTIMATE***
OEI3RBA	48	TRIO™ Lighthead, Red/Blue/Amber, for OEWT Series Only, Six Required, No Charge when Ordered with Outer Edge® NOTES: OUTER EDGE
OEI3RBC	48	TRIO™ Lighthead, Red/Blue/White, for RPWT Series Only, Six Required, No Charge when Ordered with Outer Edge® NOTES: REAR PILLAR
I3SMJC	64	SURFACE MT TRIO ION R/B W/WHT NOTES: 1 EACH SIDE OF PB OVERRIDE WHITE ON ALLEY AND SCENE, 3 EACH RUNNING BOARD OVERRIDE WHITE ON ALLEY AND SCENE
CW0410-WR	8	400 Series compartment light, 5.4" red/white, 12/24VDC, with touch switch NOTES: OVER CONSOLE

Quote

Date	11/20/2020
Quote #	CAPQ61316

CAP Fleet Upfitters, LLC
2603 Taylors Valley Road
Belton, TX 76513
Phone: 254-773-1959

Name / Address
CALDWELL COUNTRY CHEVROLET
PO BOX 27
CALDWELL, TX 77836

Ship to:
Caldwell Country Chevrolet
Parts Dept
800 TX 21
Caldwell, TX 77836

Salesperson:	Bary Bedford
Email :	bbedford@capfleetupfitters.com
VIN :	
End User:	City of Midland PD

Year :	2021
Make :	Chevrolet
Model :	Tahoe

Part #	Qty	Description
CW0411-RW	8	400 Series compartment light, 11.8" red/white, 12/24VDC, with touch switch NOTES: ON LIFTGATE TRIM. FACING OVER OFFICER WHEN OPENED.
I3JC	16	TRIO ION R/B W/ WHT OVERRIDE NOTES: ON EITHER SIDE OF PIONEER LIGHT USING IONK1B. OVERRIDE WHITE ON TAKEDOWN AND SCENE.
IONK1B	16	SWIVEL MOUNT KIT FOR ION BLK
PCH2B	8	New! Dual Panel Pioneer Plus Combination Flood/Spot with Proclera Silicone Optics (Replaces PFS2) NOTES: TAKEDOWN MOUNTED CENTER OF PB
PBA206BU	8	Universal Bail Mount Bracket (Vertical or Horizontal),BLACK, For Dual Pioneer™
TLIJ	32	ION T-SERIES LINEAR SPLIT R/B NOTES: 2 ON LIFT GATE LIP FACING BACK WHEN OPEN. IN EACH CARGO SIDE
TIONBKT1	16	ION T-SERIES UNIVERSAL MOUNT
		CONSOLE
PP-2021-TAH-SFF	8	(PP-2021-TAH-SFF) Center Console SHORTY with flip forward arm rest for 2021 Tahoe
PP-ARM	8	ARM REST PAD
C-EB30-CH7-1P	8	1-PIECE EQUIPMENT MOUNTING BRACKET, 3" MOUNTING SPACE, FITS M/A-COM
C-EB40-CCS-1P	8	1-PIECE EQUIPMENT MOUNTING BRACKET, 4" MOUNTING SPACE, FITS WHELEN CENCOM.CCSRN.CCSRNTA.MPC03
C-EB40-PAN-1P	8	1-PIECE EQUIPMENT MOUNTING BRACKET, 4" MOUNTING SPACE, FITS MISC. PANASONIC AG-CPD20
MK-2CL	16	Multi-Position Microphone Holder w/clip
MMBP	16	MAGNETIC MIC KIT
C-HDM-204	8	8.5" Heavy Duty Telescoping Pole, side mount, short handle
C-MD-112	8	11" Slide Out Locking Swing Arm with Motion Adapter NOTES: LEAVE PLEANTY OF SLACK ON WIRING FOR COMPUTER. LAST BUILDS COULD NOT MOVE COMPUTER FULL RANGE.
CG-X	8	Chargeguard-select
		PUSH BUMPER - GUN RACK - CAGE - CARGO BOX
PB57T21HD	8	HD Push Bumper 2021+ TAHOE
GK10342UHKSVSCAXL	8	Dual T-Rail Mount 2 Universal XL , Handcuff Key Override NOTES: MUST BE ABLE TO OPERATE LOCK WHILE CAR IN GEAR AND MOVING
PRPSP5714T21A	8	Poly Center Slider Window with Expanded Metal Insert 2021+ Tahoe
S5705T21OSB	8	Charcoal Grey ABS, Standard Transport Seat w/ 7 Ga. Steel Screen Window Cargo Barrier, and OSB 2021+ Tahoe

Quote

Date	11/20/2020
Quote #	CAPQ61316

CAP Fleet Upfitters, LLC
2603 Taylors Valley Road
Belton, TX 76513
Phone: 254-773-1959

Name / Address
CALDWELL COUNTRY CHEVROLET
PO BOX 27
CALDWELL, TX 77836

Ship to:
Caldwell Country Chevrolet
Parts Dept
800 TX 21
Caldwell, TX 77836

Salesperson:	Bary Bedford
Email :	bbedford@capfleetupfitters.com
VIN :	
End User:	City of Midland PD

Year :	2021
Make :	Chevrolet
Model :	Tahoe

Part #	Qty	Description
WGI-C23	8	2015-2016 Chevrolet Tahoe Interior Window guard kit for 2 windows NOTES: ***ESTIMATE***
PP-TAH-2021-L3-1D-11-FB	8	PP-TAH-2021-L3-1D-11-FB Level 3 Single Drawer Poly Vault with FULL HEIGHT BACK WALL (Fits 2021 Tahoe)
PP-3RD-L1-5X30	8	(PP-3RD-L1-5x30) 24" wide x 5" x 30" 3rd drawer option with Southco locking latches
		CAMERA - NOPTIC - RADAR - MISC.
SS0008	8	SAFESTOP CHEVY TAHOE 2017+ NOTES: REMOVE KEY FROM VEHICLE WITHOUT TURNING OFF.
ARB-KIT-HD	8	PANASONIC ARBITRATOR MK3, HD CAMERA, 256 GB SSD, WIRELESS 1
ARB-M90	8	PANASONIC ARBITRATOR 900 MHZ WIRELESS MICROPHONE FULL KIT
ARB-WV-VC31-C	8	PANASONIC: BACK SEAT CAMERA, INCLUDES CABLE
TGS-3DP	8	G-FORCE SENSOR FOR ARBITRATOR VEHICLE, INCLUDES CABLES
ARB-APWWQS22-RP-BL	8	DOBULE-WIFI ANTENNA
ARB-SOFICVOPBUN1	8	In-Car Video, UEMS1, On Prem Storage Bundle Per Device Year 1 (Includes Device License, Helpdesk)
PSV-3000	8	NOPTIC NV3 ON UNITY SPOTLIGHT
DSR-2X-KIT	8	2X DS COUNTING UNIT INCLUDES VSS CABLE AND REMOTE INTERFACE DISPLAY
807-0001-00	8	STALKER DSR-2X KA-BAND 2-Ant
155-2211-00	8	REMOTE DISPLAY INTERCONNECT CABLE
200-1088-00	8	TAHOE ANTENNA MOUNT, KA NOTES: ***ESTIMATE***
200-1090-00	8	TAHOE REAR ANTENNA MOUNT, KA NOTES: ***ESTIMATE***
200-1089-00	8	TAHOE COUNTING UNIT MOUNT NOTES: ***ESTIMATE***
PARI-3179	8	PANASONIC RADAR INTERFACE MODULE
GRAPHICS	8	CUSTOM GRAPHICS
		CUSTOMER SUPPLIED ITEMS
CS-RADIO	8	CUSTOMER SUPPLIED RADIO NOTES: Harris/Macom
CS-ANT	16	CUSTOMER SUPPLIED ANTENNA NOTES: 1 for radio and 1 multiband
CS-DOCK	8	CUSTOMER SUPPLIED DOCKING STATION
CS-CRADLEPOINT	8	CUSTOMER SUPPLIED CRADLEPOINT

Quote

Date	11/20/2020
Quote #	CAPQ61316

CAP Fleet Upfitters, LLC
2603 Taylors Valley Road
Belton, TX 76513
Phone: 254-773-1959

Name / Address
CALDWELL COUNTRY CHEVROLET
PO BOX 27
CALDWELL, TX 77836

Ship to:
Caldwell Country Chevrolet
Parts Dept
800 TX 21
Caldwell, TX 77836

Salesperson:	Bary Bedford
Email :	bbedford@capfleetupfitters.com
VIN :	
End User:	City of Midland PD

Year :	2021
Make :	Chevrolet
Model :	Tahoe

Part #	Qty	Description
CS-MISC	8	CUSTOMER SUPPLIED MISC NOTES: coax for radio
DELIVERY	8	DELIVERY CHARGE
INSTALL	8	Installation
LABOR	8	LABOR
PROGFEE	8	PROGRAMMING FEE
SSUPPLY	8	SHOP SUPPLIES
DISPOSAL	8	DISPOSAL FEE (FOR OEM PARTS NOT PICKED UP ON DELIVERY)
CAPHARNESS	8	CAP FLEET WIRING HARNESS
PDKIT	8	POWER DISTRIBUTION KIT
SHIP	8	SHIPPING & HANDLING
DEALER	8	DEALER PREP
INSPECT	8	ALL CAP FLEET INSTALLATIONs COME WITH AGENCY LIFETIME WARRANTY
CS_Note	8	** DISCLAIMER - LABOR PRICING IS ONLY GOOD FOR ALL PRODUCTS AND SERVICES INCLUDED IN THIS QUOTE**

This quote is good for 30 days from date of quote.

I hereby authorize the install work therein set forth to be done by CAP Fleet Upfitters, together with the furnishing by CAP Fleet Upfitters of the necessary parts and other material for such install and agree that CAP Fleet Upfitters is not responsible for any delays caused by unavailability or delayed availability of parts or material for any reason; that CAP Fleet Upfitters neither assumes or authorizes any other person to assume for CAP Fleet Upfitters any liability in connection with such install; that CAP Fleet Upfitters shall not be responsible for loss or damage to the above vehicle, or articles left therein; in case of fire, theft, any Act of God, or other cause beyond CAP Fleet Upfitters control; that CAP Fleet Upfitters employees may operate the above vehicle on streets, highways, or elsewhere for the purpose of testing and/or inspecting such vehicle.

WWW.CAPFLEETUPFITTERS.COM

QUOTES ARE GOOD FOR 30 DAYS.

PLEASE SIGN BELOW IF ALL ITEMS & QUANTITIES ARE APPROVED.

PACKET 12.2647 December 15, 2020

X_____

Vendor Contract Information Summary

Vendor Name	Caldwell Country Chevrolet, LLC
Contact	Averyt Knapp
Phone Number	9795676116
Email	aknapp@caldwellcountry.com
Website	www.caldwellcountrychevrolet.com
Federal ID	14-1856872
Accepts RFQs	Yes
Address Line 1	P. O. Box 27
Vendor City	Caldwell
Vendor Zip	77836
Vendor State	TX
Vendor Country	USA
Delivery Days	120
Freight Terms	FOB Destination
Payment Terms	Net 30 days
Shipping Terms	Pre-paid and added to invoice
Ship Via	Common Carrier
Is Designated Dealer	No
EDGAR Forms Received	Yes
Service-Disabled Veteran Owned	No
Minority Owned	No
Women Owned	No
Is National	Yes
No Excluded Foreign Terrorist Orgs	Yes
No Israel Boycott Certificate	Yes
Is MWBE	No
Regions Served	1, 1, 2, 2, 3, 3, 4, 4, 5, 5, 6, 6, 7, 7, 8, 8, 9, 9, 10, 10, 11, 11, 12, 12, 13, 13, 14, 14, 15, 15, 16, 16, 17, 17, 18, 18, 19, 19, 20, 20
States Served	All States
Contract Name	Vehicles, Heavy Duty Trucks, Police Motorcycles, Parts, and Service Labor
Contract #	601-19
Effective Date	12/01/2019
Expiration Date	11/30/2022
Service Fee Note	Vehicle purchase orders are subject to a $400 service fee
Quote Reference Number	601-19

Vendor Contract Information Summary

Return Policy Negotiable

City Council Meeting

Item Number: 13

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION APPROVING THE PURCHASE OF A SPARTAN FOUR-DOOR CUSTOM TILT ALUMINUM CAB PUMPER FROM METRO FIRE APPARATUS SPECIALISTS, INC., THROUGH THE HOUSTON-GALVESTON AREA COUNCIL AT A TOTAL COST OF $947,546.00 (GENERAL SERVICES)

Purpose:

Approval of a resolution authorizing the purchase of one (1) Spartan 4 door custom tilt aluminum cab pumper from Metro Fire Apparatus Specialists, Inc. through Houston-Galveston Area Council (H-GAC) for the cost of $947,546.00.

Recommended City Council Action:

Approve

Fiscal Impact:

Funding is available in the Garage Fund of $697,546 and a $250,000 donation from Occidental Petroleum Corp (OXY) in the FD Tech Fund.

Discussion:

Staff is recommending the purchase of one (1) Spartan 4 door custom full tilt aluminum cab pumper. The pumper is available on the Houston-Galveston Area Council (H-GAC). We are members of this cooperative and Subchapter F, Section 271.102 of the Local Government Code provides that a local government may participate in a cooperative purchasing program and that purchasing goods or services under Subchapter F satisfies any state law requiring the local government to seek competitive bids for those purchases. The budget for this equipment for fiscal year 2020 is $930,000.00. This pumper is a new unit to the Fleet. Please see the attached memos from Manuel Salinas, Garage Superintendent and Fire Chief Blumenauer, for additional

information.

Therefore, please consider a resolution approving the purchase of one (1) Spartan 4 door custom full tilt aluminum cab pumper from Metro Fire Apparatus Specialists, Inc. of Houston, Texas through the Houston-Galveston Area Council (H-GAC) for a total cost of $947,546.00.

Morris Williams Jr.

City Manager's Office

Fleet Services Division

INTEROFFICE MEMORANDUM

TO: Regina Stephenson

FROM: Manuel Eloy Salinas

SUBJECT: HGACBuy contract FS12-19 New Spartan Pumper

DATE: 11/30/20

Fleet Services is requesting the purchase of (1) one new Spartan Pumper. This will be a new unit to be housed in the new fire station. Budgeted amount for FY21 is $930,000 for (1) new fire engine. Purchase amount will be $947,546 for (1) one Spartan fire engine pumper.

Sincerely,

Manuel Eloy Salinas

City of Midland - Garage Superintendent

RESOLUTION NO. _____

RESOLUTION APPROVING THE PURCHASE OF A SPARTAN FOUR-DOOR CUSTOM TILT ALUMINUM CAB PUMPER FROM METRO FIRE APPARATUS SPECIALISTS, INC., THROUGH THE HOUSTON-GALVESTON AREA COUNCIL AT A TOTAL COST OF $947,546.00

WHEREAS, the Houston-Galveston Area Council ("*H-GAC*") is a cooperative purchasing agency with which the City participates with on purchases through a cooperative purchasing program in accordance with TEX. LOC. GOV'T CODE § 271.102; and

WHEREAS, Metro Fire Apparatus Specialists, Inc., of Houston, Texas, has submitted a total proposed cost to the City of $947,546.00 for the purchase of a Spartan four-door custom tilt aluminum cab pumper through H-GAC, as shown on the quote attached hereto as Exhibit A and incorporated herein for all purposes; and

WHEREAS, the Council finds the price proposed by Metro Fire Apparatus Specialists, Inc., through H-GAC for a Spartan four-door custom tilt aluminum cab pumper to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to purchase a Spartan four-door custom tilt aluminum cab pumper from Metro Fire Apparatus Specialists, Inc., through H-GAC for a total cost of $947,546.00;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager is hereby authorized and directed to purchase a Spartan four-door custom tilt aluminum cab pumper from Metro Fire Apparatus Specialists, Inc., at a total cost of $947,546.00.

SECTION TWO. That the City Comptroller is hereby authorized and directed to pay Metro Fire Apparatus Specialists, Inc., for said cab pumper from funds available in the Garage Fund and FD Tech Fund upon proper receipt of invoices or statements approved by the Interim City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

APPROVED AS TO FORM ONLY:

_____
John Ohnemiller, City Attorney

Contract Pricing Worksheets

Rev 02-05-07

NOTE: Purchase Orders are not valid unless a copy of the completed worksheet and the customer's order are faxed to HGACBuy at: 713-993-4548

This Workbook contains three versions of HGACBuy's Contract Pricing Worksheet. One is for Standard Equipment / Services, one is for Catalog or Price Sheet type purchases, and the third is for Motor Vehicles only. See tabs at bottom to select appropriate Worksheet.

Please contact H-GAC staff about use of the worksheets if you have any questions.

HGACBuy	CONTRACT PRICING WORKSHEET For MOTOR VEHICLES Only	Contract No.:	FS12-19	Date Prepared:	10/20/2020

This Worksheet is prepared by Contractor and given to End User. If a PO is issued, both documents MUST be faxed to H-GAC @ 713-993-4548. Therefore please type or print legibly.

Buying Agency:	City of Midland (Fire Department)	Contractor:	Metro Fire Apparatus Specialists, Inc.
Contact Person:	Fire Chief Charles Blumenauer	Prepared By:	Brian Russell
Phone:	432-685-7332	Phone:	713-475-2411
Fax:		Fax:	713-475-2428
Email:	cblumenauer@midlandtexas.gov	Email:	brussell@mfas.com

Product Code:	EEC09	Description:	Pumper, Midship, 1250 GPM, Aluminum Body, Spartan Metro Star, 4-Door, Tilt Cab, Single Axle

A. Product Item Base Unit Price Per Contractor's H-GAC Contract: $421,298

B. Published Options - Itemize below - Attach additional sheet(s) if necessary - Include Option Code in description if applicable. (Note: Published Options are options which were submitted and priced in Contractor's bid.)

Description	Cost	Description	Cost
Total from Published Options Page	$459,294		
		Subtotal B:	$459,294

C. Unpublished Options - Itemize below / attach additional sheet(s) if necessary.
(Note: Unpublished options are items which were not submitted and priced in Contractor's bid.)

Description	Cost	Description	Cost
Total from Unpublished Options Page	$64,954		
		Subtotal C:	$64,954

Check: Total cost of Unpublished Options (C) cannot exceed 25% of the total of the Base Unit Price plus Published Options (A+B).	For this transaction the percentage is:	7%

D. Total Cost Before Any Applicable Trade-In / Other Allowances / Discounts (A+B+C)

Quantity Ordered:	1	X Subtotal of A + B + C:	$945,546	=	Subtotal D:	$945,546

E. H-GAC Order Processing Charge (Amount Per Current Policy)	Subtotal E:	$2,000

F. Trade-Ins / Other Allowances / Special Discounts / Freight / Installation

Description	Cost	Description	Cost
		Subtotal F:	$0

Delivery Date:	390 Days ARO	G. Total Purchase Price (D+E+F):	$947,546

PACKET 13.2656 December 15, 2020

PUBLISHED OPTIONS

Description	Cost	Description	Cost
5 - LFD Cab Length	$10,895	8 - Cab Exterior Access Short Compt Behind Crew Doors	$4,186
15 - Paint Cab Interior Line-X	$12,424	18 - Change cab entry doors to barrier clear	$754
21 - Cab LH/RH Short EMS Compt with Exterior Access (2)	$8,052	27 - Add Multiplex Control Screen (2)	$4,336
28 - Cab and Body to be Multiplexed	$1,997	31 - Add Blue Sea Fuse Panel (2)	$1,124
34 - Upgrade Engine from 380HP to 450HP	$9,229	41 - Add Engine Brake	$2,900
57 - Upgrade Fuel Tank to 68 Gallon	$420	62 - Upgrade Front Tires, Wheels Suspension to IFS 20,000#	$16,936
64 - Upgrade Rear Tires, Wheels Suspension up to 27,000#	$2,580	72 - Change front wheels to aluminum	$802
73 - Change rear wheels to aluminum	$1,756	74 - Upgrade to Michelin tires	$2,700
77 - Hub and Lug Nut Covers - Single	$340	82 - Auto Lube System	$4,926
83 - Disc Brakes w/ Single Rear Axle	$1,529	86 - Additional Air Reservoir	$548
87 - Add Air Inlet	$475	89 - Upgrade to painted frame rails	$2,822
92 - Extend Bumper to 21"	$2,132	95 - Upgrade Bumper to Severe Duty	$2,653
103 - Bumper Hose Well	$1,365	105 - Q2 Siren	$2,598
107 - Fire Bell	$3,654	111 - Manual Cab Tilt Pump	$398
112 - Power Windows	$2,619	118 - Upgraded Cab Floor Insulation	$4,689
124 - Upgrade Cab Interior to Metal	$3,780	128 - Deluxe Engine Tunnel Console	$2,986
131 - Step Trim Kickplate - Basic	$531	137 - Add Cab Interior Mid Compartment	$3,996
146 - Expanded Seat Riser	$2,125	147 - Exterior Door Handles to Chrome	$996
162 - Upgrade Battery Boxes to SST	$2,252	167 - Upgrade Alternator to 360 A	$1,063
171 - Air Compressor for Cab Air System	$1,187	172 - Battery Charger	$1,389
174 - Auto Eject Inlet - 30 A	$890	175 - Upgrade Headlights to LED	$1,560
180 - Additional Cab Interior Dome Lamp (2)	$1,042	192 - LED Stick Water Gauges - Pair	$1,479
198 - Upgrade Light Bar	$2,931	200 - Pre-Emption GPS	$5,964
203 - Back-Up Camera System	$1,200	207 - Auxiliary Speedometer	$590
208 - Weatherband Radio	$975	209 - Cab Antenna Base (2)	$750
258 - Radio Intercom System	$8,900	270 - 1750 GPM Midship IPO 1250 Midship	$8,094
279 - Change Primer to Trident Air Primer	$895	283 - Walkway Tool Compartments	$2,875
287 - Smart Pump Compartment Panel (2)	$5,150	289 - Pump Compartment Labels Mechanically Fastened	$1,399
292 - Master Gauges	$1,592	294 - Dunnage Area above Pump Compartment	$1,736
297 - Mechanical Seals	$670	300 - Compressed Air Foam System - Waterous	$94,717
320 - Master Intake Valve - Mechanical (2)	$9,700	322 - Thermal Relief Valve	$1,361
325 - Pump Anodes - Two	$685	340 - Change to Speedlays - Two (2)	$2,968
345 - Front Bumper Discharge	$3,086	351 - Manual Deck Gun Extenda-Gun	$3,457
353 - Booster Reel	$5,963	357 - Change to top control pump house with walkway	$11,200
379 - Upgrade Body to Star series	$36,192	387 - Compartment Interior Coating	$5,980
390 - Roll-Up Door Guard (7)	$1,470	391 - Roll-Up Door Strap (6)	$510
397 - Smart Tailboard w/ Slide-Out Step	$4,079	398 - Single Axle Smart Storage	$10,912
409 - Rear Intermediate Step	$892	416 - Increase the hose bed wall height	$974
420 - Upgrade Hose Bed Cover to Roll-Up Door	$9,638	670 - Directional Light - LED	$2,360
676 - Additional Upper/Lower Zones BD Warning Lts - 4 (2)	$3,200	682 - Brow Scene Light - LED	$2,719
686 - Side Cab/Body Recessed Lights - LED (2)	$11,090	690 - Telescoping Scene Light - LED (2)	$5,080
749 - Mobile Radio	$9,500	751 - SCBA Unit (5)	$34,975
752 - SCBA Spare Cylinder (5)	$5,750		
		Subtotal B:	$459,294

UNPUBLISHED OPTIONS

Description	Cost	Description	Cost
Whelen Howler	$789	Upgrade discharge gauges to pressure/flowmeter gauges (10)	$16,800
Bullard - QXT imager, resolution/thermal/zoom upgrades, strap	$10,066	Stihl - rescue saw, chain	$1,400
Holmatro - PCT50 combi tool, batteries, charger, diagnostic	$13,488	Bulldog fire hose compliment	$17,500
Make Ready - mounts, installations	$4,911		

Interoffice Memorandum

Date: **11/30/2020**

To: **Regina Stephenson**

From: **Fire Chief Charles Blumenauer**

Subject: **2021 Fire Engine Purchase**

Midland Fire Department's purchase of a new Fire Engine is crucial to the Department's goals in providing the best quality and reliability of service for the Citizens of Midland. This purchase of new Spartan pumper will continue the department's plan of standardizing the fleet with equipment that is easier to service.

This purchase of this vehicle is partially funded by a donation from OXY in the amount of $250,000. This donation was given to us to help with the replacement of the engine that was lost in an industrial fire.

Charles Blumenauer

Fire Chief

Contract Pricing Worksheets

Rev 02-05-07

NOTE: Purchase Orders are not valid unless a copy of the completed worksheet and the customer's order are faxed to HGACBuy at: 713-993-4548

This Workbook contains three versions of HGACBuy's Contract Pricing Worksheet. One is for Standard Equipment / Services, one is for Catalog or Price Sheet type purchases, and the third is for Motor Vehicles only. See tabs at bottom to select appropriate Worksheet.

Please contact H-GAC staff about use of the worksheets if you have any questions.

CONTRACT PRICING WORKSHEET
For MOTOR VEHICLES Only

Contract No.:	FS12-19	Date Prepared:	10/20/2020

This Worksheet is prepared by Contractor and given to End User. If a PO is issued, both documents MUST be faxed to H-GAC @ 713-993-4548. Therefore please type or print legibly.

Buying Agency:	City of Midland (Fire Department)	**Contractor:**	Metro Fire Apparatus Specialists, Inc.
Contact Person:	Fire Chief Charles Blumenauer	**Prepared By:**	Brian Russell
Phone:	432-685-7332	**Phone:**	713-475-2411
Fax:		**Fax:**	713-475-2428
Email:	cblumenauer@midlandtexas.gov	**Email:**	brussell@mfas.com

Product Code:	EEC09	**Description:**	Pumper, Midship, 1250 GPM, Aluminum Body, Spartan Metro Star, 4-Door, Tilt Cab, Single Axle

A. Product Item Base Unit Price Per Contractor's H-GAC Contract: $421,298

B. Published Options - Itemize below - Attach additional sheet(s) if necessary - Include Option Code in description if applicable. (Note: Published Options are options which were submitted and priced in Contractor's bid.)

Description	Cost	Description	Cost
Total from Published Options Page	$459,294		
		Subtotal B:	$459,294

C. Unpublished Options - Itemize below / attach additional sheet(s) if necessary.
(Note: Unpublished options are items which were not submitted and priced in Contractor's bid.)

Description	Cost	Description	Cost
Total from Unpublished Options Page	$64,954		
		Subtotal C:	$64,954

Check: Total cost of Unpublished Options (C) cannot exceed 25% of the total of the Base Unit Price plus Published Options (A+B). **For this transaction the percentage is:** 7%

D. Total Cost Before Any Applicable Trade-In / Other Allowances / Discounts (A+B+C)

Quantity Ordered:	1	**X Subtotal of A + B + C:**	$945,546	=	**Subtotal D:**	$945,546

E. H-GAC Order Processing Charge (Amount Per Current Policy) **Subtotal E:** $2,000

F. Trade-Ins / Other Allowances / Special Discounts / Freight / Installation

Description	Cost	Description	Cost
		Subtotal F:	$0

Delivery Date:	390 Days ARO	**G. Total Purchase Price (D+E+F):**	$947,546

HGACBuy THE SMART PURCHASING SOLUTION

PUBLISHED OPTIONS

Description	Cost	Description	Cost
5 - LFD Cab Length	$10,895	8 - Cab Exterior Access Short Compt Behind Crew Doors	$4,186
15 - Paint Cab Interior Line-X	$12,424	18 - Change cab entry doors to barrier clear	$754
21 - Cab LH/RH Short EMS Compt with Exterior Access (2)	$8,052	27 - Add Multiplex Control Screen (2)	$4,336
28 - Cab and Body to be Multiplexed	$1,997	31 - Add Blue Sea Fuse Panel (2)	$1,124
34 - Upgrade Engine from 380HP to 450HP	$9,229	41 - Add Engine Brake	$2,900
57 - Upgrade Fuel Tank to 68 Gallon	$420	62 - Upgrade Front Tires, Wheels Suspension to IFS 20,000#	$16,936
64 - Upgrade Rear Tires, Wheels Suspension up to 27,000#	$2,580	72 - Change front wheels to aluminum	$802
73 - Change rear wheels to aluminum	$1,756	74 - Upgrade to Michelin tires	$2,700
77 - Hub and Lug Nut Covers - Single	$340	82 - Auto Lube System	$4,926
83 - Disc Brakes w/ Single Rear Axle	$1,529	86 - Additional Air Reservoir	$548
87 - Add Air Inlet	$475	89 - Upgrade to painted frame rails	$2,822
92 - Extend Bumper to 21"	$2,132	95 - Upgrade Bumper to Severe Duty	$2,653
103 - Bumper Hose Well	$1,365	105 - Q2 Siren	$2,598
107 - Fire Bell	$3,654	111 - Manual Cab Tilt Pump	$398
112 - Power Windows	$2,619	118 - Upgraded Cab Floor Insulation	$4,689
124 - Upgrade Cab Interior to Metal	$3,780	128 - Deluxe Engine Tunnel Console	$2,986
131 - Step Trim Kickplate - Basic	$531	137 - Add Cab Interior Mid Compartment	$3,996
146 - Expanded Seat Riser	$2,125	147 - Exterior Door Handles to Chrome	$996
162 - Upgrade Battery Boxes to SST	$2,252	167 - Upgrade Alternator to 360 A	$1,063
171 - Air Compressor for Cab Air System	$1,187	172 - Battery Charger	$1,389
174 - Auto Eject Inlet - 30 A	$890	175 - Upgrade Headlights to LED	$1,560
180 - Additional Cab Interior Dome Lamp (2)	$1,042	192 - LED Stick Water Gauges - Pair	$1,479
198 - Upgrade Light Bar	$2,931	200 - Pre-Emption GPS	$5,964
203 - Back-Up Camera System	$1,200	207 - Auxiliary Speedometer	$590
208 - Weatherband Radio	$975	209 - Cab Antenna Base (2)	$750
258 - Radio Intercom System	$8,900	270 - 1750 GPM Midship IPO 1250 Midship	$8,094
279 - Change Primer to Trident Air Primer	$895	283 - Walkway Tool Compartments	$2,875
287 - Smart Pump Compartment Panel (2)	$5,150	289 - Pump Compartment Labels Mechanically Fastened	$1,399
292 - Master Gauges	$1,592	294 - Dunnage Area above Pump Compartment	$1,736
297 - Mechanical Seals	$670	300 - Compressed Air Foam System - Waterous	$94,717
320 - Master Intake Valve - Mechanical (2)	$9,700	322 - Thermal Relief Valve	$1,361
325 - Pump Anodes - Two	$685	340 - Change to Speedlays - Two (2)	$2,968
345 - Front Bumper Discharge	$3,086	351 - Manual Deck Gun Extenda-Gun	$3,457
353 - Booster Reel	$5,963	357 - Change to top control pump house with walkway	$11,200
379 - Upgrade Body to Star series	$36,192	387 - Compartment Interior Coating	$5,980
390 - Roll-Up Door Guard (7)	$1,470	391 - Roll-Up Door Strap (6)	$510
397 - Smart Tailboard w/ Slide-Out Step	$4,079	398 - Single Axle Smart Storage	$10,912
409 - Rear Intermediate Step	$892	416 - Increase the hose bed wall height	$974
420 - Upgrade Hose Bed Cover to Roll-Up Door	$9,638	670 - Directional Light - LED	$2,360
676 - Additional Upper/Lower Zones BD Warning Lts - 4 (2)	$3,200	682 - Brow Scene Light - LED	$2,719
686 - Side Cab/Body Recessed Lights - LED (2)	$11,090	690 - Telescoping Scene Light - LED (2)	$5,080
749 - Mobile Radio	$9,500	751 - SCBA Unit (5)	$34,975
752 - SCBA Spare Cylinder (5)	$5,750		
		Subtotal B:	$459,294

UNPUBLISHED OPTIONS

Description	Cost	Description	Cost
Whelen Howler	$789	Upgrade discharge gauges to pressure/flowmeter gauges (10)	$16,800
Bullard - QXT imager, resolution/thermal/zoom upgrades, strap	$10,066	Stihl - rescue saw, chain	$1,400
Holmatro - PCT50 combi tool, batteries, charger, diagnostic	$13,488	Bulldog fire hose compliment	$17,500
Make Ready - mounts, installations	$4,911		

METRO FIRE
Apparatus Specialists, Inc.
514 Michigan / Houston, Texas 77587 / (713) 692-0911 / (713) 692-1591 fax

Midland TX 2021 Pumper Specifications

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified with a view of obtaining the best results and the most acceptable apparatus for service in the Department. These specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor. The manufacturer shall provide loose equipment only when specified by the customer. Otherwise, in accordance with the current edition of NFPA 1901 standards, the proposal shall specify whether the fire department or apparatus dealership shall provide required loose equipment.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of twenty-five (25) years.

Each bidder shall provide satisfactory evidence of their ability to construct the apparatus specified, and shall state the location of the factory where the apparatus is to be built. They shall also show that they are in a position to render prompt service and to furnish replacements parts.

Due to the severe service requirements the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments serving populations of over 250,000 in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

Each bid shall be accompanied by a detailed set of Contractor's Specifications consisting of a detailed description of the apparatus and equipment proposed, and to which the apparatus being furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment.

QUALITY AND WORKMANSHIP

The design of the Apparatus shall embody the latest approved automotive engineering practices. The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points:

Accessibility of the various units, which require periodic maintenance; and ease of operation (including both pumping and driving); and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under Performance tests and requirements. Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair.

All steel welding shall follow (American Welding Society) requirements for AWS D1.1:2012 Structural Welding Code for welding steel structural assemblies. All aluminum welding shall follow (American Welding Society) requirements for AWS D1.2/D1.2M:2003 Structural Welding

Code for any type structure made from aluminum structural alloys. All sheet metal welding shall follow (American Welding Society) AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow (American Society of Mechanical Engineers) ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, (American Welding Society) AWS standards A5.20-E70T1. The manufacturer shall be required to have an American Welding Society certified welding inspector in plant during testing operations within working hours to monitor weld quality.

Employees classified as welders shall be tested and certified to meet American Welding Society and American Society of Mechanical Engineers welding codes.

DELIVERY

To insure proper break-in of all components while still under warranty, the apparatus **shall be delivered under its own power**, rail or truck freight shall not be acceptable. A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire Department personnel in the proper operation, care and maintenance of the equipment delivered.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. The successful bidder shall provide a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

1. The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.

2. The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).

3. The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.

4. The apparatus, when fully loaded, shall have not less than 25 percent or more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.

The apparatus shall be tested and approved by th Underwriter's Laboratories Incorporated in accordance with their standard practices for pumping engines. The contractor shall provide copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer

current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered. The vendor, at their expense, shall have the Underwriter's Laboratories Incorporated conduct the tests required by the Underwriter Laboratories Incorporated (Guide for the Certification of Fire Department Pumper subject 822 dated 1995 or latest). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 / latest revision.)

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, a complete operation and maintenance manual covering the completed apparatus as delivered. A permanent plate shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used) and drive axle lubrication fluid.

The manufacture shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

A permanent plate in the driver's compartment shall be installed, specifying the seating capacity of the enclosed cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

A nameplate indicating the chassis transmission shift selector position to be used when pumping shall be provided in the driving compartment and located so that it can be easily read from the driver's position.

LIABILITY

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance provided under the contract.

BID SPECIFICATION REQUIREMENTS

Item compliance shall be indicated in the “Yes/No” column of each item by all Bidders. Bidders shall submit a detailed proposal. Each bidder shall submit their proposals in the same arrangement as these specifications for ease of evaluation, comparison, and examination of compliance. Bid communications by letter only and/or written on a company letterhead, shall not be acceptable.

EXCEPTIONS TO SPECIFICATIONS

Exceptions shall be allowed if they are equal to or superior to that as specified and providing they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list shall refer to specification page number and paragraph.

MIDLAND FIRE DEPARTMENT

Proposals taking total exception to specifications or total exception to certain parts of the specifications will not be acceptable. The Apparatus shall be inspected upon completion for compliance with specifications. Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder's proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications. Failure to provide this information shall be cause to reject the proposal as being non-responsive. **An exception to these requirements shall not be tolerated.**

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Agency.

The apparatus shall be designed so that the operator could perform all recommended daily maintenance checks easily without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus. The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

BID/PROPOSAL DRAWINGS

For purposes of evaluation, the bidder shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus and other specified equipment, shall be required to be included with the bidder's proposal package.

The drawings shall be large "D" size (minimum 24" x 36"). Smaller size drawings, "similar to" drawings or general sales drawings, shall not be acceptable. Failure to provide a bid evaluation drawing in accordance with these specifications shall be cause for rejection of the bid proposal.

APPROVAL/PRE-CONSTRUCTION DRAWINGS

After the award of the bid, the contractor shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use at the pre-construction conference. The drawings shall include, but shall not be limited to the right, left, top, front and rear views of the apparatus**.**

In addition, a detailed engineering drawing of the pump operator's panel will be provided following the pre construction meeting.

The Customer will sign the final approval drawings.

SINGLE SOURCE MANUFACTURER
Bids shall only be accepted from a single source apparatus manufacturer.
The definition of single source manufacturer is company that designs and manufactures their products utilizing an approach that includes complete product integration, including the apparatus chassis, cab, and body modules being constructed, assembled, and tested on company premises only.
Warranties qualified to the chassis and body design construction (excluding vender component warranties such as engine, axles, transmission, and pumps, etc.) will be from a single source manufacturer and not separated between manufacturers (i.e. body and chassis). The bidder shall provide evidence of maintaining compliance to this requirement.

FINITE ELEMENT ANALYSIS AND TESTING

Finite Element Analysis has been utilized in evaluating and engineering the critical areas of the apparatus body. Prototype bodies have been subjected to rigorous testing over varied terrains simulating different environmental conditions. The purpose of such complex engineering methods of analysis shall be to ensure the longevity of the design by analyzing stress levels throughout the body and incorporating the structural supports wherever necessary.

There shall be a minimum of 3 different load cases (per DOT, FHWA, and TTMA recommended practice) applied and analyzed to properly display the different areas and levels of stresses that will be present under the various operating conditions of the apparatus. This is in addition to the static stress analysis. The analysis shall have included the weight of the structure plus an estimate of all the components that exist on a fully loaded apparatus (i.e. Tank, water, hose

load, equipment in compartments, etc.).

Analysis shall also have been conducted on the mounting system for the apparatus body and pump house. Detailed colored drawings shall be supplied with the bidder's proposal.

SUPPLIED INFORMATION & EXTRAS

The apparatus manufacturer shall supply two (2) copies of apparatus manuals with all manufactured apparatus. The manuals shall include, but not be limited to: all component warranties, users' manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information the manufacturer can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, the manufacturer shall also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and upkeep of the general apparatus.

The manufacturer shall also supply a manufacturer's record of apparatus construction details, including the following information:
Owner name and address;
Apparatus manufacturer, model, and serial number;
Chassis make, model, and serial number;
GAWR of front and rear axles;
Front tire size and total rated capacity in pounds;
Rear tire size and total rated capacity in pounds;
Chassis weight distribution in pounds with water (if applicable) and manufacturer mounted equipment (front and rear)
Engine make, model, serial number, rated horsepower, related speed and no load governed speed;
Type of fuel and fuel tank capacity;
Electrical system voltage and alternator output in amps;
Battery make and model, capacity in CCA:
Paint numbers;
Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose):
Written load analysis and results of the electrical system performance tests;

Transmission make, model, and type;
Pump to drive through the transmission (yes or no);
Engine to pump gear ratio and transmission gear ratio used;
Pump make and model, rated capacity in gallons per minute, serial number, and number of stages;
Pump manufacturer's certification of suction capability;
Pump manufacturer's certification of hydrostatic test;
Pump manufacturer's certification of inspection and test for the fire pump;
Copy of the apparatus manufacturer's approval for stationary pumping applications;
Pump transmission make, model and serial number;
Priming device type;
Type of pump pressure control system;

The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed;
Certification of water tank capacity;

GENERAL WARRANTY

The manufacturer shall provide a two (2) year warranty from the date of delivery.

In the case of a commercial chassis being used, the warranty on the chassis, engine, transmission, tires, storage batteries, generators, electrical lamps and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for the same are to be made directly with the manufacturer by the customer.

STRUCTURAL BODY WARRANTY

A structural Aluminum body warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

PAINT WARRANTY

A ten (10) year Prorated Paint Warranty shall be included with the apparatus.

PUMP WARRANTY

Waterous Co shall provide a limited manufacturer's pump warranty with total protection package (TTP-5) to be free from defects in material and workmanship, under normal use and service, for a period of five (5) years from the date placed into service.

Please see the official warranty document in the appendix (attached) for specific details.

PLUMBING WARRANTY

A Stainless Steel Plumbing/Piping warranty shall be offered for each new fire apparatus manufactured for a period of ten (10) years from the date of delivery.

TANK WARRANTY

A lifetime tank warranty will be provided by the tank manufacturer, Pro Poly.

MULTI-PLEXED ELECTRICAL WARRANTY

A four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Inc; shall be provided by the apparatus manufacture for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of installation.

The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation.

MIDLAND FIRE DEPARTMENT

PUMP CERTIFICATION AND TESTING

The apparatus upon completion will be tested and certified by Underwriters Laboratories, Inc. The certification tests will follow the guide lines outlined in NFPA 1901 "Standard for Fire Apparatus".

There shall be multiple tests performed by the contractor and Underwriter's Laboratories when the apparatus has been completed. The manufacturer shall provide the completed Test Certificate(s) to the purchaser at time of delivery. The inspection services of Underwriters Laboratories are available to all bidders on an equal basis; therefore, no third party certification of testing results shall be acceptable.

The fire pump shall be mounted on the apparatus and shall have a minimum rated capacity of 250 gpm (1000 L/min) at 150 psi (1000 kPa) net pump pressure.

Where the apparatus is designed for pump in-motion operations, the vehicle drive engine and drive train shall be arranged so that the pump can deliver at least 20 gpm (76 L/min) at a gage pressure of 80 psi (550 kPa), while the fire apparatus is moving.

If the pumping system provided is rated at 3000gpm (12,000 L/min) or less, the pump shall be capable of delivering the following:

(1) One hundred percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(2) Seventy percent of rated capacity at 200 psi (1400 kPa) net pump pressure

(3) Fifty percent of rated capacity at 250 psi (1700 kPa) net pump pressure

If the pumping system provided is rated at greater than 3000 gpm (12,000 L/min), the pump shall be capable of delivering the following:

(1) One hundred percent of rated capacity at 100 psi (700 kPa) net pump pressure

(2) Seventy percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(3) Fifty percent of rated capacity at 200 psi (1400 kPa) net pump pressure

If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater, the pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus.

The tests shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test.

A test plate shall be provided at the pump operator’s panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve. The plate shall be completely stamped with all information at the factory and attached to the vehicle prior to shipping.

Pumping Test:

The test site shall be adjacent to a supply of clear water at least 4 ft. (1.2 m) deep, with the water level not more than 10 ft. (3 m) below the center of the pump intake, and close enough to allow the suction strainer to be submerged at least 2 ft. (0.6 m) below the surface of the water when connected to the pump by 20 ft. (6 m) of suction hose.

Tests shall be performed when conditions are as follows:

(1) Air temperature: 0°F to 110°F (−18°C to 43°C)

(2) Water temperature: 35°F to 90°F (2°C to 32°C)

(3) Barometric pressure: 29 in. Hg (98.2 kPa), minimum (corrected to sea level)

Engine-driven accessories shall not be functionally disconnected or rendered inoperative during the tests.

The following devices shall be permitted to be turned off or not operating during the pump test:

(1) Aerial hydraulic pump
(2) Foam pump
(3) Hydraulically driven equipment (other than hydraulically driven line voltage generator)
(4) Winch
(5) Windshield wipers
(6) Four-way hazard flashers
(7) Compressed air foam system (CAFS) compressor

All structural enclosures, such as floorboards, gratings, grilles, and heat shields, not provided with a means for opening them in service shall be kept in place during the tests.

All test gauges shall meet the requirements for Grade A gauges as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, and shall be at least size 3½ perASMEB40.100. The pump intake gauge shall have a range of 30 in. Hg (100 kPa) vacuum to zero for a vacuum gauge, or 30 in. Hg (100 kPa) vacuum to a gauge pressure of 150 psi (1000 kPa) for a compound gauge. The discharge pressure gauge shall have a gauge pressure range of 0 psi to 400 psi (0 kPa to 2800 kPa). All pilot gauges shall have a gauge pressure range of at least 0 psi to 160 psi (0 kPa to 1100 kPa). All gauges shall be calibrated in the month preceding the tests using a dead-weight gauge tester or a master gauge meeting the requirements for Grade 3Aor 4Agauges, as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, that has been calibrated within the preceding year.

The engine speed–measuring equipment shall consist of a nonadjustable tachometer supplied from the engine or transmission electronics, a revolution counter on a checking shaft outlet and a stop watch, or other engine speed–measuring means that is accurate to within ± 50 rpm of actual speed.

If the apparatus is equipped with a fire pump rated at 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test

from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 1⁄2 hour of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 1⁄2 hour of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at 100 psi (700 kPa) net pump pressure, followed by 1⁄2 hour of continuous pumping at 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure and 1⁄2 hour of continuous pumping at 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at less than 750 gpm (3000 L/min), the pump shall be subjected to a 50-minute pumping test from draft consisting of 30 minutes of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 10 minutes of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 10 minutes of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 30-minute test at rated capacity, unless it becomes necessary to clean the suction strainer.

Pumping Engine Overload Test:

If the pump has a rated capacity of 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the apparatus shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 10 minutes.

This test shall be performed immediately following the pumping test of rated capacity at 150 psi (1000 kPa).

The capacity, discharge pressure, intake pressure, and engine speed shall be recorded at least three times during the overload test.

Pressure Control System Test:

If the pump is rated at 3000 gpm (12,000 L/min) or less, the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 150 psi (1000 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer’s instructions to maintain the discharge gauge pressure at 150 psi (1000 kPa) ±5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.

(6) The discharge pressure gauge shall be reduced to 90 psi (620 kPa) by throttling the engine fuel supply, with no change to the discharge valve settings, hose, or nozzles.

(7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 90 psi (620 kPa) ±5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(10) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 250 psi (1700 kPa).

(11) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 250 psi (1700 kPa) ±5 percent.

(12) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(13) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

If the pump is rated at greater than 3000 gpm (12,000 L/min), the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 100 psi (700 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 100 psi (700 kPa) ±5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.

(6) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 200 psi (1400 kPa).

(7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 200 psi (1400 kPa) ±5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

Priming System Tests:

With the apparatus set up for the pumping test, the primer shall be operated in accordance with the manufacturer's instructions until the pump has been primed and is discharging water. This test shall be permitted to be performed in connection with priming the pump for the pumping test.

The interval from the time the primer is started until the time the pump is discharging water shall be noted. The time required to prime the pump shall not exceed 30 seconds if the rated capacity is 1250 gpm (5000 L/min) or less. The time required to prime the pump shall not exceed 45 seconds if the rated capacity is 1500 gpm (6000 L/min) or more.

An additional 15 seconds shall be permitted in order to meet the requirements of 16.13.5.3 and 16.13.5.4 when the pump system includes an auxiliary 4 in. (100 mm) or larger intake pipe having a volume of 1 ft3 (0.03 m3) or more.

Vacuum Test:

The vacuum test shall consist of subjecting the interior of the pump, with all intake valves open, capped or plugged, and all discharge caps removed, to a vacuum of 22 in/Hg (75 kPa) by means of the pump priming system.

At altitudes above 2000 ft. (600 m), the vacuum attained shall be permitted to be less than 22 in/Hg (75 kPa) by 1 in/Hg (3.4 kPa) for each 1000 ft. (305 m) of altitude above 2000 ft. (610 m).

The vacuum shall not drop more than 10 in/Hg (34 kPa) in 5 minutes.

The primer shall not be used after the 5 minute test period has begun and the engine shall not be operated at any speed greater than the governed speed during this test.

Water Tank–to–Pump Flow Test:

A water tank–to–pump flow test shall be conducted as follows:

(1) The water tank shall be filled until it overflows.

(2) All intakes to the pump shall be closed.

(3) The tank fill line and bypass cooling line shall be closed.

(4) Hose lines and nozzles for discharging water at the rated tank-to-pump flow rate shall be connected to one or more discharge outlets.

(5) The tank-to-pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.

(6) The engine throttle shall be adjusted until the required flow rate −0/+5 percent is established.

(7) The discharge pressure shall be recorded.

(8) The discharge valves shall be closed and the water tank refilled.

(9) The bypass line shall be permitted to be opened temporarily, if needed, to keep the water temperature in the pump within acceptable limits.

(10) The discharge valves shall be reopened fully and the time noted.

(11) If necessary, the engine throttle shall be adjusted to maintain the discharge pressure recorded as noted in 16.13.7.1(7).

(12) When the discharge pressure drops by 10 psi (70 kPa) or more, the time shall be noted and the elapsed time from the opening of the discharge valves shall be calculated and recorded.

Volume Discharge Calculation:

The volume discharged shall be calculated by multiplying the rate of discharge in gallons per minute (liters per minute) by the time in minutes elapsed from the opening of the discharge valves until the discharge pressure drops by at least 10 psi (70 kPa).

Other means shall be permitted to be used to determine the volume of water pumped from the tank such as a totalizing flowmeter, weighing the truck before and after, or refilling the tank using a totalizing flowmeter.

The rated tank-to-pump flow rate shall be maintained until 80 percent of the rated capacity of the tank has been discharge.

Engine Speed Advancement Interlock Test

The engine speed advancement interlock system shall be tested to verify that engine speed cannot be increased at the pump operator's panel unless there is throttle-ready indication.

If the apparatus is equipped with a stationary pump driven through split-shaft PTO, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

1. The chassis transmission is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.

2. The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

If the apparatus is equipped with a stationary pump driven through a transmission mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO, the test shall verify that the

engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

- The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.
- The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" position.

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-in-motion, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is on, and the pump shift status in the driving compartment is disengaged.
(2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" or the "OK to Pump In-Motion" position.

If the apparatus is equipped with a stationary pump driven through transfer case PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the transfer case is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
(2) The chassis transmission is in neutral, the transfer case is engaged, the parking brake is off, and the pump shift in the driving compartment is in the road position.
(3) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

LOW-VOLTAGE ELECTRICAL SYSTEM PERFORMANCE TESTING

The apparatus low-voltage electrical system will be tested and certified. Tests shall be performed when the air temperature is between 0°F and 110°F (–18°C and 43°C). The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

Reserve Capacity Test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged.

The engine shall be shut off and the minimum continuous electrical load shall be activated for 10 minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

Alternator Performance Test at Idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed.

The engine temperature shall be stabilized at normal operating temperature.

The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

Alternator Performance Test at Full Load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed.

The test duration shall be a minimum of 2 hours.

Activation of the load management system shall be permitted during this test.

An alarm sounded by excessive battery discharge, as detected by the system required in NFPA 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system or 23.6 V dc for a 24 V nominal system, for more than 120 seconds, shall be considered a test failure.

Low Voltage Alarm Test:

Following the above test, a Low Voltage Alarm Test will be performed in the manner prescribed.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates.

The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.70V for a 12 V nominal system or 23.4 V for a 24 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

FIRE STATION PRE-CONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a pre-construction conference at the fire departments station with individuals from the Midland Fire Department to finalize all construction details.

FINAL INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a final

completion inspection conference at the site of the manufacturing facility with four (4) individuals from the Midland Fire Department to inspect the apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

ON-LINE CUSTOMER INTERACTION

The manufacture shall provide the capability for online access through the manufacture's website. The customer shall be able to view digital photos of their apparatus in the specified phases of construction. The following phases will be captured and displayed on the manufacture's website:

4. Chassis
5. Body – Prior to Paint
6. Body – Painted
7. Pump and Plumbing
8. Assembly – 80% Complete

Due to the complex nature of fire apparatus and the importance of communication between the manufacture and customer, this line item is considered a critical requirement.

PUMP & APPARATUS TRAINING

The successful bidder shall provide a factory-trained technician to provide the following training: A minimum 4 hour structured training course for the fire apparatus mechanics of the department, covering the repair and maintenance of all components of the apparatus called for in the specifications.

The successful bidder shall provide a minimum 4 hour structured training course to be repeated three times to cover each of the 3 shifts of personnel assigned to operate the apparatus, covering nomenclature of components, proper operation of the apparatus, daily operational maintenance checks, and other information necessary for a firefighter/driver/engineer to properly operate and maintain the apparatus.

It is intended that this training be organized in such a manner that both the mechanics and fire personnel receive full benefit of the aforementioned structured training. The firefighter/operator training shall be conducted within one week after the vehicle is fully accepted and readied for service by the "Purchaser" or at a time mutually agreed upon by the "Purchaser" and "Supplier".

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed as detailed and shall NOT exceed a maximum overall length of 425 inches.

MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed as detailed and shall NOT exceed a maximum overall height of 114 inches including the ROM roll up hose bed lip and deck gun.

MIDLAND FIRE DEPARTMENT

MAXIMUM OVERALL WIDTH OF NINETY-NINE (99) INCHES

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of Ninety-nine (99") inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripherals that are 'removable' shall not be incorporated into this measurement.

Items that are considered 'removable' are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Etc.

MAXIMUM WHEEL BASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheel base.

MODEL

The chassis shall be a Metro Star model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2021 model year.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. Spartan Chassis is not responsible for compliance to state, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from Spartan Chassis or their OEM needed to be in compliance with those regulations.

CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English. All applicable caution, warning, and safety notice labels shall be Innovative Controls brand. Where applicable to the location within the specific layout and label package of the cab and chassis, the labels shall include decorative chrome bezels. Designs shall include bezels that fit individual labels or packaged configurations of labels in certain common locations.

The following labels shall be Innovative Controls brand, each including a decorative chrome bezel (where applicable):

- Shoreline
- Aerial Stowed
- Aerial Breakers 2
- Air Conditioner
- Cab Tilt Plate
- Air Compressor Breaker
- Battery Conditioner Breaker
- Helmet Caution
- Horn Tag
- Q2B Tag
- Load Center Plate
- Not a Step Label
- Occupancy Tag
- Do Not Move
- Occupants Must Be Seated
- Do Not Stand
- Danger Do Not Weld
- Danger--Untrained Operator
- Def Tag, including any additional labels selected in the 2907- subcat
- Battery Direct
- Kneeling
- IFS Air Fault
- Engine Brake
- Retarder
- LR 100 Amp Node
- 300 Amp EPU
- 100 Amp Front O/R Node
- 100 Amp T/T Node
- 100 Amp RR O/R Node
- 10 Amp EPU
- Master Power
- 12 Volt Power
- Aerial Hours
- Pump In 4th Gear

Windshield Washer Fluid

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

MIDLAND FIRE DEPARTMENT

VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus shall be a minimum of 8.00 degrees.

NFPA1901 Angle of Approach definition:
“To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground. Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance *V*). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance *H*). Divide the vertical distance by the horizontal distance. The ratio of *V/H* is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if *V* divided by *H* is 0.1405 or larger, the angle of approach is 8.00 degrees or greater.”

AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 20,000 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 26,000 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral and the transmission output speed translates to less than 1 mph. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver’s parking brake control valve shall function normally.

MIDLAND FIRE DEPARTMENT

WATER & FOAM TANK CAPACITY

The chassis shall include a carrying capacity of 750 gallons (2839 liters) to 1250 gallons (4732 liters). The water and/or foam tank(s) shall be supplied and installed by the apparatus manufacturer.

CAB STYLE

The cab shall be a custom, fully enclosed, LFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to ten (10) seating positions.

The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the “A” pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 144.60 inches with 67.50 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 65.38 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

MIDLAND FIRE DEPARTMENT

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

OCCUPANT PROTECTION

The vehicle shall include the Advanced Protection System™ (APS) which shall secure belted occupants and increase the survivable space within the cab. The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The system components shall include:

- Driver steering wheel airbag
- Driver dual knee air bags (patent pending) with energy management mounting (patent pending) and officer knee airbag.
- Large driver, officer, and crew area side curtain airbags
- APS advanced seat belt system - retractor pre-tensioners tighten the seat belts around the occupants, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries
- Heavy truck Restraints Control Module (RCM) - receives inputs from the outboard sensors, selectively deploys APS systems, and records sensory inputs immediately before and during a detected qualifying event

- Integrated outboard crash sensors mounted at the perimeter of the vehicle - detects a qualifying front or side impact event and monitors and communicates vehicle status and real time diagnostics of all critical subsystems to the RCM

- Fault-indicating Supplemental Restraint System (SRS) light on the driver's instrument panel

Frontal impact protection shall be provided by the outboard sensors and the RCM. In a qualifying front impact event the outboard sensors provide inputs to the RCM. The RCM activates the steering wheel airbag, driver side dual knee airbags (patent pending), officer side knee airbag, and advanced seat belts for each occupant in the cab.

Rollover, side impact, and ejection mitigation shall be provided by the outboard sensors and the RCM. In qualifying rollover or side impact events the outboard sensors provide inputs to the RCM. The RCM activates the side curtain airbags and advanced seat belts for each occupant in the cab. The RCM measures roll angle, lateral acceleration, and roll rate to determine if a rollover event or side impact event is imminent or occurring.

In the event of a qualifying offset or other non-frontal impact, the RCM shall determine and intelligently deploy the front impact protection system, the side impact protection system, or both front and side impact protection systems based on the inputs received from the outboard crash sensors.

CAB FRONT FASCIA

The front cab fascia shall be the Evolution style, constructed of lightweight, impact resistant fiberglass reinforced plastic which shall be attached to the front cab skin to offer an appealing exterior. The cab fascia will encompass the front of the aluminum cab structure from the bottom of the windshield to the lower section of the cab.

The fascia shall include modules for two (2) single Hi/Low beam headlamps, the modules shall also provide a turn signal position integrated with the headlight bezel. The headlight bezel shall be removable, when removed there shall be easy access for maintenance of the light assemblies as well as access to the engine air intake ember separator, the electrical bulkhead connections, and the transmission electronic communications module. Stylized louvers are incorporated into the design of the fascia to enhance air flow to the cooling system.

The Evolution fascia shall also provide two (2) warning light positions below each of the headlamp modules for the installation of up to four (4) warning lights on the front cab fascia.

FRONT GRILLE

The fascia shall include a stainless steel flat front grille. The grille shall be installed on the front of the cab fascia. The upper portion of the grille shall be hinged to provide service access behind the grille.

CAB UNDERCOAT

MIDLAND FIRE DEPARTMENT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

CAB PAINT EXTERIOR

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper followed by sealing the seams with SEM brand seam sealer.

The cab shall then be painted the specific color designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene. The paint shall have a minimum thickness of 2.00 mils, followed by a clear top coat not to exceed 2.00 mils. The entire cab shall then be baked at 180 degrees for one (1) hour to speed the curing process of the coatings.

CAB PAINT MANUFACTURER

The cab shall be painted with PPG Industries paint.

CAB PAINT PRIMARY/LOWER COLOR

The primary/lower paint color shall be PPG FBCH 932071 red.

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for ten (10) years from the first owner’s date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

The warranty details can be found in the chassis warranty document.

CAB PAINT INTERIOR

MIDLAND FIRE DEPARTMENT

The visible interior cab structure surfaces shall feature a dark red Spar-Liner spray on bedliner coating which shall mold to each surface of the cab interior. The Spar-Liner shall be environmentally friendly and chemically resistant.

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors shall be barrier clear design resulting in exposed lower cab steps. The doors shall provide approximately 32.00 inches of clearance from the ground to the bottom of the door so cab doors may be opened un-hindered by most obstacles encountered, such as guard rails along interstate highways.

Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.

CAB INSULATION

The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

LH MID EMS COMPARTMENT

The cab shall include a compartment located in the middle of the wall above the left side wheel well. This compartment shall measure 17.00 inches wide X 26.00 inches high X 25.00 inches deep.

LH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a brushed stainless steel inner panel located in the middle of the wall above the left side wheel well. The compartment shall have a clear door opening of 15.00 inches wide X 24.00 inches high.

LH MID EMS COMPARTMENT INTERIOR

MIDLAND FIRE DEPARTMENT

The cab compartment located in the middle of the wall above the left side wheel well shall include solid aluminum walls with no interior access. This compartment shall be finished to customer specification.

LH MID EMS COMPARTMENT DOOR HARDWARE

The left side EMS compartment door shall include an Eberhard chrome plated slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar.

LH MID EMS COMPARTMENT TRIM

The cab shall include a brushed stainless steel scuff plate wrapped around the bottom edge of the compartment opening. The scuff plate shall extend approximately .50 inches onto the painted surface below the left side compartment door.

RH MID EMS COMPARTMENT

The cab shall include a compartment located in the middle of the wall above the right side wheel well. This compartment shall measure 17.00 inches wide X 26.00 inches high X 25.00 inches deep.

RH MID EMS EXTERIOR ACCESS

The cab shall include a hinged box pan door featuring a full length stainless steel piano style hinge and a brushed stainless steel inner panel located in the middle of the wall above the right side wheel well. The compartment shall have a clear door opening of 15.00 inches wide X 24.00 inches high.

RH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the right side wheel well shall include solid aluminum walls with no interior access. This compartment shall be finished to customer specification.

RH MID EMS COMPARTMENT DOOR HARDWARE

The right side EMS compartment door shall include a locking Eberhard chrome plated slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar.

RH MID EMS COMPARTMENT TRIM

The cab shall include a brushed stainless steel scuff plate wrapped around the bottom edge of the compartment opening. The scuff plate shall extend approximately .50 inches onto the painted surface below the right side compartment door.

MID EMS COMPARTMENT LIGHTING

MIDLAND FIRE DEPARTMENT

The interior portion of each of the mid EMS compartments shall include compartment door activated LED lighting to illuminate all usable surfaces within each compartment.

MID EMS COMPARTMENT EXTERIOR FINISH

The EMS compartment exterior shall feature a dark red Spar-Liner spray on bedliner coating.

MID EMS COMPARTMENT INTERIOR FINISH

The EMS compartment interior shall feature a dark red Spar-Liner spray on bedliner coating.

LH EXTERIOR REAR COMPARTMENT

The cab shall offer an exterior compartment on the left side of the cab behind the rear door. The compartment opening shall be 10.00 inches wide X 31.19 inches high. The compartment size shall be 11.34 inches wide X 31.19 inches high X 21.19 inches deep. The compartment shall have a 10.63 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with brushed SST inner panel and a locking Eberhard chrome plated slam latch. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.

There shall be a brushed stainless steel scuff plate wrapped around the bottom edge of the compartment opening. The scuff plate shall extend approximately .50 inches onto the painted cab surface below the compartment door.

LEFT HAND EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) On-Scene brand Access LED strip light installed to illuminate the exterior rear compartment on the left side of the cab. The strip light shall be 18.00 inches long.

LH EXTERIOR COMPARTMENT INTERIOR FINISH

The interior of the left hand exterior compartment shall feature a dark red Spar-Liner spray on bedliner coating.

RH EXTERIOR REAR COMPARTMENT

The cab shall offer an exterior compartment on the right side of the cab behind the rear door. The compartment opening shall be 10.00 inches wide X 31.19 inches high. The compartment size shall be 11.34 inches wide X 31.19 inches high X 21.19 inches deep. The compartment shall have a 10.63 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with brushed SST inner panel and a locking Eberhard chrome plated slam latch. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.

There shall be a brushed stainless steel scuff plate wrapped around the bottom edge of the compartment opening. The scuff plate shall extend approximately .50 inches onto the painted cab surface below the compartment door.

RIGHT HAND EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) On-Scene brand Access LED strip light installed to illuminate the exterior rear compartment on the right side of the cab. The strip light shall be 18.00 inches in length.

RH EXTERIOR COMPARTMENT INTERIOR FINISH

The interior of the right hand exterior compartment shall feature a dark red Spar-Liner spray on bedliner coating.

CAB STRUCTURAL WARRANTY

Summary of Warranty Terms:

THE FOLLOWING IS SUMMARY OF WARRANTY TERMS FOR INFORMATION ONLY. THE ACTUAL LIMITED WARRANTY DOCUMENT, CAN BE FOUND IN THE CHASSIS WARRANTY DOCUMENT, CONTAINS THE COMPLETE STATEMENT OF THE SPARTAN MOTORS USA LIMITED WARRANTY. SPARTAN'S RESPONSIBILITY IS TO BE ACCORDING TO THE TERMS OF THE COMPLETE LIMITED WARRANTY DOCUMENT.

The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. The warranty period shall commence on the date the vehicle is delivered to the first end user.

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

MULTIPLEX DISPLAY

The multiplex electrical system shall include two (2) Weldon Vista IV Touchscreen displays which shall be located one (1) on the left side dash in the switch panel and one (1) on the right

side of the dash in the switch panel. The Touchscreen displays shall feature full color LCD display screens. The display shall include a message bar displaying the time of day, and important messages requiring acknowledgement by the user. There shall be virtual controls for the on-board diagnostics. The display screens shall be video ready for back- up cameras, thermal cameras, and DVD. A DIN type input connector ready for GPS interfacing shall be incorporated into the back of the display.

The Touchscreen displays shall measure approximately 6.25 inches wide x 3.38 inches in height. The displays shall offer varying fonts and background colors. The display shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options.

LOAD MANAGEMENT SYSTEM

The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status
- Master Optical Warning Device Switch Position
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

An OEM body connections bracket shall be installed on the chassis near the left hand battery box. The bracket shall include one (1) set each of 200 amp master power switched and 300 amp battery direct fused power and ground studs.

AUXILIARY ACCESSORY POWER

An auxiliary twelve (12) position Blue Sea Systems 5026 blade type fuse panel shall be installed behind the officer's seat. The fuse panel shall be protected by a 40 amp fuse located at the batteries. The panel shall be capable of carrying up to a maximum 40 amp battery direct load.

EXTRA ACCESSORY POWER

An extra six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed behind the switch panel. The fuse panel shall be protected by a 40 amp fuse located behind the switch panel. The panel shall be capable of carrying up to a maximum 40 amp battery direct load.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

ENGINE

The chassis engine shall be a Cummins L9 engine. The L9 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 450 horse power at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1250 foot pounds of torque at 1400 RPM with 543 cubic inches (8.9 liters) of displacement.

The L9 engine shall feature a VGT™ Turbocharger, a high pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2017 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent 15W40 CK-4 low ash engine oil which shall be utilized for proper engine lubrication.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high.

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with a virtual Vista button and an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the engine is running and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral. There shall be an indicator on the Vista display and control screen for the high idle speed control.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle’s brake lights.

The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The compression brake shall be controlled via an off/low/medium/high virtual button on the Vista display and control screen. The multiplex system shall remember and default to the last engine brake control setting when the vehicle is shut off and re-started.

MIDLAND FIRE DEPARTMENT

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.

FLUID FILLS

The engine oil, coolant, transmission, and power steering fluid fills shall be located under the cab. The windshield washer fill shall be accessible through the front left side mid step.

ENGINE DRAIN PLUG

The engine shall include an original equipment manufacturer installed oil drain plug.

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

REMOTE THROTTLE CONTROL

A Fire Research Pump Boss 400 governor with dual pressure sensors shall be provided for the electronic engine. It shall include a remote mountable control head.

The Pump Boss 400 shall regulate the pump pressure and monitor all essential engine parameters.

LED readouts shall display RPM, PSI, pump discharge and intake pressure, engine oil pressure, engine temperature, transmission temperature, and battery voltage. An audible alarm shall also be part of the system.

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine shall be supplied with the chassis. The harness shall include a connector for connection to the chassis harness which shall terminate in the left frame rail behind the cab for reconnection by the apparatus builder. The harness shall contain connectors for a FRC Pump Boss pressure governor and a multiplexed gauge. Separate circuits shall be included for pump controls, “Pump Engaged” and “OK to Pump” indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the park brake be set. The harness shall be designed for a top mount pump panel.

An apparatus interface wiring harness shall also be included which shall be wired to the cab harness interface connectors and shall incorporate circuits with relays to control pump functions. This harness shall control the inputs for the transmission lock up circuits, governor/hand throttle

controls and dash display which shall incorporate “Pump Engaged” and “OK to Pump” indicator lights. The harness shall contain circuits for the apparatus builder to wire in a pump switch.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator. This ember separator shall be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy duty galvanized steel frame. This multilayered screen shall trap embers and allow them to burn out before passing through the pack.

The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton clutched type fan drive.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall be electronically programmed to vary through thermostatic control to run as efficiently and quietly as required to maintain temperature.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to observe coolant in the system. A cold fill and observation line shall be included within the frame mounted translucent recovery bottle to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps meeting the engine manufacturer's requirements.

The radiator and charge air cooler shall be removable through the bottom of the chassis.

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame components.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

ENGINE COOLANT OVERFLOW BOTTLE

A remote engine coolant overflow expansion bottle shall be provided in the case of over filling the coolant system. The overflow bottle shall capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.

ENGINE EXHAUST SYSTEM

The exhaust system shall include an end-in end-out horizontally mounted single module after treatment device, downpipe from the charge air cooled turbo. The single module shall include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the between the DPF and SCR.

The system shall utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The single module after treatment through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.

The exhaust system after treatment module shall be mounted below the frame in the inboard position. The mounting brackets shall be mounted on the inside of the frame.

DIESEL EXHAUST FLUID TANK

The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left hand side of the chassis frame behind the batteries below the frame.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help

prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

ENGINE EXHAUST ACCESSORIES

The vehicle will include a Plymovent Magnetic Grabber exhaust extraction system collar which shall be shipped loose.

The tail pipe shall have a drop in it to allow additional clearance from the body.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

TRANSMISSION

The drive train shall include an Allison model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

1st	3.49:1
2nd	1.86:1
3rd	1.41:1
4th	1.00:1
5th	0.75:1
6th	0.65:1 (if applicable)
Rev	5.03:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select a six (6) speed operation without the need to press the mode button.

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V-E transmission EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the

transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

Function ID	Description	Wire assignment
Inputs		
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)
G	PTO Enable Output	130
	Signal Return	103

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

MIDLAND FIRE DEPARTMENT

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

PTO LOCATION

The transmission shall have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock position and one (1) in the 4:00 o'clock position.

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with MSI 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®. The drivelines shall include Meritor brand u-joints with thrust washers.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer. Holes shall be provided as specified by the OEM for mounting a Darley brand pump.

See PDF for specific hole pattern.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Waterous CSUC20 pump.

MIDSHIP PUMP GEARBOX DROP

The Waterous pump gearbox shall have a "C" (medium length) drop length.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.27:1.

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 104.00 inches.

PUMP SHIFT CONTROLS

One (1) air pump shift control panel shall be located on the left hand side of the engine tunnel, integrated with the shifter pod. The following shall be provided on the panel: a three (3) position control lever; an engraved PUMP ENGAGED identification light; and an engraved OK TO PUMP identification light. The pump shift control panel shall be black with a yellow border outline and shall include pump instructions. An instruction plate describing the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA **16.10.1.3**. The road mode shall be selected when the control lever is in the forward position and pump mode shall be selected when the control lever is in the rearward position.

The control lever center position shall exhaust air from both pump and road sides of the pump gear box shift cylinder.

PUMP SHIFT CONTROL PLUMBING

Air connections shall be provided from the air supply tank to the pump shift control valve and from the pump shift control valve to the frame mounted bracket. The frame mounted bracket shall include labeling identifying the pump and road connection points with threaded 0.25 inch NPT fittings on the solenoid for attaching the customer installed pump. The air supply shall be pressure protected from service brake system.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS1098 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter shall be included as approved by the engine manufacturer.

FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL TANK

The fuel tank shall have a capacity of sixty-eight (68) gallons and shall measure 35.00 inches in width X 17.00 inches in height X 29.00 inches in length.

The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with “U” straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK MATERIAL AND FINISH

The fuel tank shall be constructed of 12 gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.

Any proposals offering painted fuel tanks with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

FUEL TANK FILL PORT

The fuel tank fill ports shall be provided with two (2) left fill ports located one (1) in the forward position and one (1) in the middle position and the right fill port located in the middle position of the fuel tank.

A 1.50 inch diameter hole shall be provided in the left and right frame rails for vent hose routing provisions. The holes shall be located adjacent to the fuel tank and 5.13 inches up from the bottom of each rail.

FUEL TANK SERVICEABILTY PROVISIONS

The chassis fuel lines shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 8.00 feet of length shall be located above the fuel tank and shall be coiled and secured. The fuel line fittings shall be pointed towards the right side (curbside) of the chassis.

FUEL TANK DRAIN PLUG

A 0.5 inch NPT magnetic drain plug shall be centered in the bottom of the fuel tank.

FRONT AXLE

The front axle shall include an independent front suspension (IFS) offering superior ride and improved handling.

The suspension shall utilize fully independent double wishbone arms with carrier and kingpin for optimized scrub radius. Air springs are tuned for ride and help reduce suspension weight. The IFS reduces turn radius with improved wheel cut over beam axles. The hydraulic damper shall feature rebound control to ensure the maximum load stability and superior driver comfort. The IFS system shall improve handling and offer better braking because of improved ground to tire ratio. This design shall allow for independent adjustment of the vehicle's alignment settings.

Proposals offering independent front axles comprised of torsion bar style suspensions shall not be considered.

FRONT AXLE WARRANTY

The front axle shall be warranted by Tuthill for three (3) years or 150,000 miles, which ever comes first. Details of the Tuthill warranty are provided on the PDF document attached to this option.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Koni shock absorbers shall be provided and installed as part of the front suspension system. Each shock shall deliver improved road handling and durability.

FRONT SUSPENSION

The independent front suspension (IFS) system shall improve handling and offer better braking because of improved ground to tire ratio. Lower spring rates and independent wheel travel shall reduce the shock within the wheel and feedback throughout the axle. Increased roll stiffness reduces chassis lean in cornering. The suspension travel of the IFS shall be approximately 6.50 inches, providing 3.00 inches jounce and 3.50 inches rebound of the suspension. This feature shall offer a smoother ride for personnel and sensitive equipment. The IFS front axle shall be rated between 18,000 and 20,000 pounds.

Proposals offering independent front axles comprised of torsion bar style suspensions shall not be considered.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel

located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers V20F and shall be gear driven from the engine. The pump shall be a fixed displacement vane type. The power steering system shall include an oil to air passive cooler.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 53-degrees to the left and right.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 85/RCS 85.

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle shall be a Meritor model RS-25-160 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.63 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE WARRANTY

The rear axle shall be warranted by Meritor for five (5) years with unlimited miles under the general service application. Details of the Meritor warranty are provided on the PDF document attached to this option.

WHEEL HUB PAINT

Each of the wheel hubs shall be coated with primer and finish top coat painted the same as the lower color of the cab.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 75 MPH +/-2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type parabolic five (5) leaf spring pack suspension with 57.50 inch X 3.00 inch springs. The suspension shall also utilize one (1) adjustable and one (1) fixed torque rod.

The rear suspension capacity shall be rated from 21,000 to 26,000 pounds.

TIRE INTERMITTENT SERVICE RATING

The chassis shall be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.

FRONT TIRE

The front tires shall be Michelin 385/65R22.5 “L” tubeless radial X Multiway HD XZE regional tread.

The front tire stamped load capacity shall be 22,000 pounds per axle with a nominal speed rating of 68 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 23,540 pounds per axle with a maximum speed of 68 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall be 22,000 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XZE regional tread.

The rear tire stamped load capacity shall be 27,120 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Tire Intermittent Service Rating load capacity shall be 28,880 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch. The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to one (1) hour of loaded travel with a one (1) hour cool down prior to another loaded run.

REAR AXLE RATIO

The rear axle ratio shall be 4.89:1.

TIRE PRESSURE INDICATOR

There shall be a PressurePro™ electronic tire pressure indication transmitter at each valve stem on the vehicle that shall transmit a signal to an easy read monitor which shall be shipped loose for installation by the OEM. The monitor shall display real time tire pressure and temperature readings. The monitor shall have six (6) customizable alerts that can be adjusted by the end user, two (2) low pressure alerts, a high pressure alert, high temperature alert, across axle deviation % alert, and leak detection alert.

The monitor shall come programed with two low pressure alert levels, the first at 15.6% and the second at 25% drop in pressure, additionally the high pressure alert level shall be preset at 25% increase in pressure. The high pressure alert shall be set to 200 degrees Fahrenheit. The across axle deviation % alert shall be set to 20% deviation. The leak detection alert shall be set to OFF.

The monitor shall have self-tests for signal strength and sensor packet counts along with datalogging capabilities.

The extended cabled antenna shall be mounted on the left hand forward roof position rearward of any front lightbar. The antenna and display power cables shall be prewired and routed behind the front left hand overhead radio speaker with any additional cable looped for final installation by the body builder.

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch LvL One™ polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall feature one-piece forged strength and shall include Alcoa's Dura-Bright® finish with XBR technology as an integral part of the wheel surface. Alcoa Dura-Bright® wheels keep their shine without polishing. Brake dust, grime and road debris are easily removed by simply cleaning the wheels with soap and water.

REAR WHEEL

The rear wheels shall be Alcoa hub piloted, heavy duty, 22.50 inch X 9.00 inch LvL One™ polished aluminum wheels with Alcoa Dura-Bright® wheel treatment with XBR® technology as an integral part of the wheel. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

BALANCE WHEELS AND TIRES

All of the wheels and tires, including any spare wheels and tire assemblies, shall be dynamically balanced.

AUXILIARY LUBRICATION SYSTEM

A Lincoln automatic lubrication system shall be installed on the chassis. The system shall be capable of lubricating eighteen (18) grease points on the chassis. A park brake interlock shall be incorporated into the ignition system to keep the system from operating while parked. The system shall be mounted on the left hand frame rail.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

A virtual style switch shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle’s motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle’s lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

FRONT BRAKES

The front brakes shall be Bendix ADB 22X disc brakes with 17.00 inch vented rotors.

REAR BRAKES

The rear brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted in the left hand switch panel.

AIR DRYER

The brake system shall include a Bendix AD-9 fully self contained air dryer which shall not require an extra purge tank or additional valves. The AD-9 system shall include a spin-off desiccant filter with a 12-volt, 75-watt thermostatically controlled heating element. The air dryer shall feature 3.9 pounds of premium, high crush strength desiccant which shall be produced with a composition that shall be more effective and longer lasting than other desiccants. It shall also offer protection against contamination and desiccant breakdown. The air dryer shall be located on the right frame rail forward of the front wheel behind the right hand cab step.

MIDLAND FIRE DEPARTMENT

FRONT BRAKE CHAMBERS

The front brakes shall be provided with type 24 brake chambers as supplied with the independent front suspension axle.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 24/30 H.O.T. (High Output Technology) brake chambers shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake pads against the brake rotor.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket on the left frame rail behind the battery box.

AUXILIARY AIR RESERVOIR

One (1) auxiliary air reservoir with a 2084 cubic inch capacity shall be installed on the chassis to act as an additional reserve supply to the air system for air horn, air tool, or other non-service brake use. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

MOISTURE EJECTORS

Manual cable actuated drain valves shall be installed on all reservoirs of the air supply system. The actuation pull cables shall be coiled and tied at each drain valve. The supplied cables when extended shall be sufficient in length to allow each drain to be activated from the side of the apparatus.

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

MIDLAND FIRE DEPARTMENT

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

AIR INLET CONNECTION

An air connection for the shoreline air inlet shall be supplied.

AIR INLET LOCATION

The air inlet shall be installed in the left hand side lower front step in the forward position.

AIR INLET/ OUTLET FITTING TYPE

The air connector supplied shall be a 0.25 inch size Tru-Flate Interchange style manual connection which is compatible with Milton ‘T’ style, Myers 0.25 inch Automotive style and Parker 0.25 inch 10 Series connectors.

AIR TANK SPACERS

There shall be spacers included with the air tank mounting. The spacers shall move the air tanks 1.50 inches inward towards the center of the chassis. This shall provide clearance between the air tanks and the frame for body U-bolt clearance.

REAR AIR TANK MOUNTING

If a combination of wheel base, air tank quantity, or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted perpendicular to frame.

WHEELBASE

The chassis wheelbase shall be 234.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 47.00 inches.

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the “box method” shall not be considered.

MIDLAND FIRE DEPARTMENT

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.
.
Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request.

Proposals offering warranties for frames not including cross members shall not be considered.

FRAME WARRANTY

Summary of Warranty Terms:

THE FOLLOWING IS SUMMARY OF WARRANTY TERMS FOR INFORMATION ONLY. THE ACTUAL LIMITED WARRANTY DOCUMENT, CAN BE FOUND IN THE CHASSIS WARRANTY DOCUMENT, CONTAINS THE COMPLETE STATEMENT OF THE SPARTAN MOTORS USA LIMITED WARRANTY. SPARTAN'S RESPONSIBILITY IS TO BE ACCORDING TO THE TERMS OF THE COMPLETE LIMITED WARRANTY DOCUMENT.

The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty period shall commence on the date the vehicle is delivered to the first end user.

MISCELLANEOUS FRAME OPTIONS

The frame shall include hole patterns which shall be specific to Crimson Vibratorque style body mounting. There shall be nine (9) mounting locations forward of the centerline of rear axle, seven (7) mounting locations rearward of the centerline of rear axle, and one (1) mounting location centered over the centerline of rear axle.

See PDF for OEM specified pattern.

REAR TOW DEVICE

The frame rails shall contain (6) holes per frame in a pattern specified by the OEM for mounting Spartan ERV tow eyes at the rear of the frame at a location defined by the OEM.

MIDLAND FIRE DEPARTMENT

FRAME PAINT

The frame rails shall be hot dip galvanized prior to assembly and attachment of any components. The components that shall be galvanized shall include:

- Main frame “C” channel or channels

The frame parts which are not galvanized shall be powder coated prior to any attachment of components. Parts which shall be powder coated shall include but are not limited to:

- Steering gear bracket
- Front splayed rails and fish plates
- Bumper extensions
- Cross members
- Cross member gussets
- Fuel tank mounting brackets
- Fuel tank straps (unless material/finish is specified in 3130 subcat)
- Air tanks (unless color coded tanks are specified in 3205 subcat)
- Air tank mounting brackets
- Exhaust mounting brackets
- Air cleaner skid plate
- Radiator skid plate
- Battery supports, battery trays and battery covers

Other non-galvanized under carriage components which are received from the suppliers with coatings already applied shall include but are not limited to:

- Suspension components
- Front and rear axles

All powder coatings, primers and paint used on the non-galvanized components shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

The chassis under carriage consisting of frame, axles, driveline running gear, air tanks and other assorted chassis mounted components shall then be painted the primary lower cab color. Paint shall be applied prior to airline and electrical wiring installation.

REAR MUD FLAP

The unit shall be equipped with a temporary wooden fender and mud flap assembly for transport to the body manufacturer.

FRONT BUMPER

The chassis shall include a formed channel front bumper. The bumper shall be constructed of 110 psi high strength low alloy steel. The bumper material shall measure 10.25 inches high with

a 3.50 inch flange and shall be 0.38 inch thick and 99.00 inches wide, with 51.00 degree angled front corners. Outside of the left hand bumper frame rail extensions to the angled corners shall be a 5.00 inches deep recessed provision in the face. The recessed provisions shall allow for recession of left face mounted equipment, horizontal through suction, or horizontal through discharge lines.

The bumper shall be primed and painted as specified.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 21.00 inches ahead of the cab.

FRONT BUMPER REINFORCEMENT

The bumper shall feature a 0.12 inch thick ASTM A36 steel plate that shall be welded directly behind the entire perimeter of the bumper face which shall offer additional strength.

FRONT BUMPER PAINT

The front bumper shall be painted the same as the lower cab color.

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet. The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. The siren shall include mounting hardware designed to recess or flush mount.

MECHANICAL SIREN LOCATION

The siren shall be recess mounted on the left side of the front fascia of the bumper approximately in the center of the flat surface between the bumper radius and the frame rail. The siren shall be mounted completely behind the face of the bumper to protect the siren from damage.

AIR HORN

The chassis shall include two (2) Grover brand Stutter Tone air horns which shall measure 24.50 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face on the right side of the bumper in the inboard and outboard positions relative to the right hand frame rail.

AIR HORN RESERVOIR

MIDLAND FIRE DEPARTMENT

One (1) air reservoir, with a 2084 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

There shall be two (2) Whelen Engineering Inc. model SA314A, 100 watt speakers provided. Each speaker shall measure 6.40 inches tall X 6.17 inches wide X 3.14 inches deep. Each speaker shall have a natural cast aluminum finish and shall be installed using a polished custom Spartan grille.

ELECTRONIC SIREN SPEAKER LOCATION

The two (2) electronic siren speakers shall be located on the front bumper face between the frame rails in the right and left side outboard positions.

AUXILIARY ELECTRONIC SIREN SPEAKER

There shall be two (2) Whelen Engineering Inc. Howler auxiliary electronic siren speakers provided. Each speaker shall measure approximately 7.25 inches in diameter X 9.00 inches deep.

AUXILIARY ELECTRONIC SIREN SPEAKER LOCATION

The auxiliary electronic siren speakers shall be shipped loose for the body manufacturer to install in the face of the bumper. The body manufacturer shall cut all holes required for the installation.

FIRE BELL

A chromed cast formed fireman's bell shall be installed on the front bumper. The bell shall include an eagle perched at the top and feature a polished chrome finish. The bell shall measure approximately 17.50 inches in height from the top of the eagle to the base of the bell.

FIRE BELL LOCATION

A fire bell shall be shipped loose for mounting to the bumper extension by the body builder.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the frame components, shall be installed in the rearward position out of the approach angle area, bolted directly to the side of each chassis frame rail with grade 8 bolts.

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.

MIDLAND FIRE DEPARTMENT

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the “Down” button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT AUXILIARY PUMP

A manual cab tilt pump module shall be attached to the cab tilt pump housing.

CAB TILT LIMIT SWITCH

A cab tilt limit switch shall be installed. The switch will effectively limit the travel of the cab when being tilted. The limit adjustment of the switch shall be preset by the chassis manufacturer to prevent damage to the cab or any bumper mounted option mounted in the cab tilt arc. Further adjustment to the limit by the apparatus manufacturer shall be available to accommodate additional equipment.

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis.

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.

MIDLAND FIRE DEPARTMENT

In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self locking window rubber.

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished using electric actuation. The left and right front door windows shall be controlled using a switch on each respective side inner door panel. The driver's door shall include a switch for each powered door window in the cab.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as "cozy glass" ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR DOOR RH

The rear right hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the door panel ledge and on the driver's control panel.

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear window shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR DOOR LH

MIDLAND FIRE DEPARTMENT

The rear left hand side crew door shall include a window which is 27.00 inches in width X 26.00 inches in height. The window shall be a powered type and shall be controlled by a switch on the door panel ledge and on the driver's control panel.

GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS SIDE MID RH

The cab shall include a window on the right side behind the front and ahead of the crew doors which shall measure 16.00 inches wide X 14.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID RIGHT HAND

The window located on the right hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS SIDE MID LH

The cab shall include a window on the left side behind the front door and ahead of the crew door and above the wheel well which shall measure 16.00 inches wide X 14.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID LEFT HAND

The window located on the left hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR WALL OUTER UPPER

The rear wall of the cab on the left and right sides shall include a window which shall measure 16.00 inches in width X 16.00 inches in height. These windows shall be fixed within this space and shall be square in shape. The windows shall be mounted using black self locking window rubber.

GLASS TINT REAR WALL OUTER UPPER

The windows located in the rear wall of the cab on the left and right outer upper corners shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

MIDLAND FIRE DEPARTMENT

CLIMATE CONTROL

A ceiling mounted combination defroster and cabin heating and air conditioning system shall be located above the engine tunnel area. The system covers and plenums shall be of severe duty design made of aluminum which shall be coated with a customer specified interior paint. The design of the system's covers shall provide quick access to washable air intake filters as well as easy access to other serviceable items.

The air delivery plenums provide targeted airflow directly to the vehicle occupants. Six (6) adjustable louvers will provide comfort for the front seat occupants and ten (10) adjustable louvers will provide comfort for the rear crew occupants.

The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122˚ F (+/- 3˚ F) to 80˚ F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646.

The system shall also provide heater pull up performance which meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381.

A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction.

The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and Aeroquip flexible hose with Aeroquip EZ-Clip fittings.

The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position.

Any component which needs to be accessed to perform system troubleshooting shall be accessible by one person using basic hand tools. Regularly serviced items shall be replaceable by one person using basic hand tools.

Spartan Motors Inc. recommends that the overall climate system performance be based off third-party testing in accordance to Society of Automotive Engineering standards as a complete system.

Individual component level BTU ratings is not an accurate indicator of the performance capability of the completed system. System individual component BTU ratings:

- Air conditioning evaporator total BTU/HR: 82,000
- Air conditioning condenser total BTU/HR: 59,000
- Heater coil total BTU/HR: 98,000

MIDLAND FIRE DEPARTMENT

Performance data specified is based on testing performed by an independent third-party test facility using a medium four-door 10" Raised roof Gladiator chassis equipped with an ISL engine.

CLIMATE CONTROL DRAIN

The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.

CLIMATE CONTROL ACTIVATION

The heating, defrosting and air conditioning controls shall be in the center dash center switch panel, in a position which is easily accessible to the driver. The climate control shall be activated by a rotary switch.

HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with a multi-tone dark red texture finish.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted compressor. The compressor shall be compatible with R134-a refrigerant.

Spartan Motors Inc. recommends that the overall climate system performance be based off third-party testing in accordance to Society of Automotive Engineering standards as a complete system.

Individual component level ratings are not an accurate indicator of the performance capability of the completed system.
Refrigerant Compressor displacement: 19.1 cubic inches per revolution.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation shall measure approximately 0.30 inch thick including a multi-layer foil faced glass cloth and polyester fiber layer. The foil surface acts as protection against heat,

moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The cab floor insulation shall measure 0.56 inch thick including a 1.0#/sf PVC barrier and a moisture and heat reflective foil facing, reinforced with fiberglass strands. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by acrylic pressure sensitive adhesive. In addition, the insulation on the underside of the cab floor shall have aluminum pins with hard hat, hold in place fastening heads and an expanded metal overlay to assist in retaining the insulation tight against the cab. The insulation inside the tunnel shall have a removable aluminum overlay installed to protect the insulation and assist in retaining the insulation tight against the engine tunnel surfaces.

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

INTERIOR TRIM

The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.

REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with vinyl.

HEADER TRIM

The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum.

TRIM CENTER DASH

The main center dash area shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate. There shall be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation. The center dash electrical access cover shall include a gas cylinder stay which shall hold the cover open during maintenance.

TRIM LH DASH

The left hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate for a perfect fit around the instrument panel. For increased occupant protection the

extreme duty left hand dash utilizes patent pending break away technology to reduce rigidity in the event of a frontal crash. The left hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.

TRIM RH DASH

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.38 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

POWER POINT DASH MOUNT

The cab shall include one (1) 12 volt cigarette lighter type receptacle in the cab dash electrical panel to provide a power source for 12 volt electrical equipment. The receptacle shall be wired to be live with the battery master switch.

The cab dash electrical panel shall also include one (1) Dual universal serial bus (USB) charging receptacle in the cab dash rocker switch cutout to provide a power source for USB chargeable electrical equipment. One (1) USB port shall be capable of a 5 Volt-1 amp output and One (1) USB port shall be capable of a 5 Volt-2.1 amp output. The receptacles shall be live with the battery master switch and include a backlit legend.

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of SAE 304 stainless steel with embossed perforations and diamond shaped cutout. The perforations and cutouts shall allow water and other debris to flow through rather than becoming trapped within the stepping surface. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have drainage holes beneath the back of the step to allow debris and water to flow through rather than becoming trapped within the stepping surface. The stainless steel material shall have a number 8 mirror finish. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.

STEP TRIM KICKPLATE

The cab steps shall include a kick plate in the rise of each step. The risers shall be trimmed in SAE 304 stainless steel with a brushed finish.

UNDER CAB ACCESS DOOR

MIDLAND FIRE DEPARTMENT

The cab shall include an access door in the left crew step riser constructed of SAE 304 stainless steel with a push and turn latch. The under cab access door shall include a brushed finish and shall provide access to the diesel exhaust fluid fill.

INTERIOR DOOR TRIM

The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

CAB DOOR TRIM REFLECTIVE

In accordance with the current standards of NFPA, the body builder shall provide 96.00 square inches of reflective material on the interior of each cab door.

INTERIOR GRAB HANDLE "A" PILLAR

A rubber covered 11.00 inch grab handle shall be provided on the inside of the cab on the hinge post at the driver and officer doors. The handle shall assist personnel in exiting and entering the cab. The handle shall be yellow in color.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured yellow powder coat finish to assist personnel entering and exiting the cab.

INTERIOR GRAB HANDLE REAR DOOR

A yellow powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.

INTERIOR MID COMPARTMENT

The cab shall include a compartment located in the middle of the cab behind the engine tunnel adjacent to the rear facing outboard seating positions. This compartment shall measure the full width of the engine tunnel, 29.50 inches high, and 17.00 inches total depth over the engine tunnel. The compartment shall be 12.00 inches deep at the base and follow the slope of the engine tunnel. The compartment shall be accessible from the interior of the cab through an opening in the rear of the compartment. The interior of the compartment shall be natural finished aluminum. The exterior compartment finish shall be painted to match the cab interior paint.

MIDLAND FIRE DEPARTMENT

INTERIOR MID COMPARTMENT SHELF

The compartment located behind the engine tunnel shall include one (1) aluminum shelf which shall be secured using Unistrut channel on two (2) sides of the interior walls of the compartment. The shelf shall feature a 1.00 inch lip around the edges.

INTERIOR MID COMPARTMENT LIGHTING

The interior portion of the interior compartment behind the engine tunnel inside the crew area of the cab shall include two (2) On-Scene brand Access LED lights to illuminate all usable surfaces within the compartment. The lights shall be activated by one (1) rocker switch located vertically in the upper officer side of the compartment on a bracket.

INTERIOR SOFT TRIM COLOR

The cab interior soft trim surfaces shall be black in color.

INTERIOR TRIM SUN VISOR

The header shall include two (2) sun visors, one (1) on each side forward of the driver and officer seating positions above the windshield. The sun visors shall be constructed of impact resistant, transparent acrylic polycarbonate sun visors with a smoke gray tint.

The see thru visors are designed for maximum flexibility of positioning utilizing an arm with virtually unlimited adjustability with lateral travel of the tinted visor at the end of the arm which can be locked in place by a thumbscrew.

The visors are easily adjusted and can be placed into a chosen position with one hand. The sun visors will help protect vehicle occupants from solar glare without obscuring their vision.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be black in color.

CAB PAINT INTERIOR

The inner door panel surfaces shall feature a dark red Spar-Liner spray on bedliner coating.

HEADER TRIM INTERIOR PAINT

The metal surfaces in the header area shall feature a dark red Spar-Liner spray on bedliner coating.

TRIM CENTER DASH INTERIOR PAINT

The entire center dash and any accessory pods attached to the dash shall feature a dark flat red Spar-Liner spray on bedliner coating.

TRIM LEFT HAND DASH INTERIOR PAINT

The left hand dash shall feature a dark flat red Spar-Liner spray on bedliner coating.

TRIM RIGHT HAND DASH INTERIOR PAINT

The right hand dash shall feature a dark flat red Spar-Liner spray on bedliner coating.

DASH PANEL GROUP

The main center dash area shall include three (3) aluminum removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The panels shall be coated with a black texture finish. The center panel shall be within comfortable reach of both the driver and officer.

SWITCHES CENTER PANEL

The center dash panel shall include one (1) rocker switch position in the panel.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SWITCHES LEFT PANEL

The left dash panel shall include one (1) windshield wiper/washer control switch located in the left hand side of the panel. The switch shall have backlighting provided.

SWITCHES RIGHT PANEL

The right dash panel shall include no rocker switches or legends.

SEAT BELT WARNING

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the Vista display and control screen(s), an indicator light in the instrument panel, and an audible alarm. The wiring connections at each seat shall have heat shrink tubing applied so that the wiring cannot be easily disconnected to disable the system.

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and audible alarm shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The Bostrom Firefighter seats shall include a covering of extra high strength, wear resistant fabric made of durable Durawear Plus™ ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or

contaminated by fluids. Durawear Plus™ meets or exceeds specification of the common trade name Imperial 1800. The material meets FMVSS 302 flammability requirements.
If applicable, Theatre style seats located in the cab shall be high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

All seats supplied with the chassis shall be black in color. All seats shall include red seat belts.

SEAT BACK LOGO

The seat back shall include the “Spartan” logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 500 Series Firefighter Sierra model seat with air suspension. The four-way seat shall feature a 3.00 inches vertical travel air suspension and manual fore and aft adjustment with 5.00 inches of travel. The suspension control shall be located on the seat below the left front corner of the bottom cushion. The seat shall also feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver’s seat shall include a standard seat back incorporating the all belts to seat feature (ABTS) as described above. The seat back shall recline up to 19-degrees.

MIDLAND FIRE DEPARTMENT

SEAT MOUNTING DRIVER

The driver's seat shall be installed in an ergonomic position in relation to the cab dash.

OCCUPANT PROTECTION DRIVER

The driver's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The driver's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the driver, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

- Large side curtain airbag - protects the driver's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the driver in a qualifying event by covering the window and the upper portion of the door.

- Dual knee airbags (patent pending) with energy management mounting (patent pending) - protects the driver's lower body from dangerous surface contact injuries, acceleration injuries, and from intrusion as well as locks the lower body in place so the upper body shall be shall be slowed by the load limiting seat belt.

Steering wheel airbag - protects the driver's head, neck, and upper torso from contact injuries, acceleration injuries, and contact points with intrusive surfaces as a result of a collision.

SEAT OFFICER

The officer's seat shall be a H.O. Bostrom 500 Series Sierra seat model. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic

sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

The officer's seat back shall include an IMMI brand SmartDock® Gen 2 hands-free self contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.

The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA fitted seat occupant rises.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT MOUNTING OFFICER

The officer's seat shall be installed in an ergonomic position in relation to the cab dash.

OCCUPANT PROTECTION OFFICER

The officer's position shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

The officer's seating area APS shall include:

- Advanced seat belt system - retractor pre-tensioner tightens the seat belt around the officer, securing the occupant in the seat and the load limiter plays out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

- Large side curtain airbag - protects the officer's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to the officer in a qualifying event by covering the window and the upper portion of the door.

Knee airbags - protects the officer's lower body from dangerous surface contact injuries, acceleration injuries, and from contact points with intrusive surfaces as a result of a collision as well as locks the lower body in place so the upper body shall be slowed by the load limiting seat belt.

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

SEAT FORWARD FACING OUTER LOCATION

The crew area shall include two (2) forward facing outboard seats, which include one (1) located next to the outer wall of the cab on the left side of the cab and one (1) located next to the outer wall on the right side of the cab.

SEAT CREW FORWARD FACING OUTER

The crew area shall include a seat in the forward facing outer position which shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position. The seat and cushion shall be hinged and compact in design for additional room. The seat shall include a “Fold and Hold” feature so that the cushion shall remain in the seated position and simply touched to flip up.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING OUTER

The crew area seat backs shall include an IMMI brand SmartDock® Gen 2 hands-free self contained breathing apparatus (SCBA) holder. The hands-free holder shall meet NFPA 1901-

03 9G dynamic requirements for cylinder restraint systems for use in crew compartments of emergency response vehicles. The bracket shall accommodate and secure most types of self-contained breathing apparatus cylinders.

The hands-free holder shall consist of a back plate, bottom cradle, non-marring top claws, and claw height adjustment knob. The height adjustment knob shall allow for easy adjustment of the claws to the SCBA. The hands-free holder's claws shall lock from inertial forces to prevent the SCBA from becoming a projectile in the event of a crash to meet the NFPA 1901-03 standard for SCBA retention. The SCBA holder shall offer single-motion insertion into the claws and hands-free release when the SCBA fitted seat occupant rises.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT MOUNTING FORWARD FACING OUTER

The forward facing outer seat shall be installed in a special mounting position moved inboard from the outer walls towards the center of the cab providing approximately 10.00 inches between the seat and the side wall.

OCCUPANT PROTECTION FFO

The forward facing outer seat position(s) shall be equipped with the Advanced Protection System™ (APS). The APS shall selectively deploy integrated systems to protect against injuries in qualifying frontal impact, side impact, and rollover events. The increase in survivable space and security of the APS shall also provide ejection mitigation protection.

Each forward facing outer seating position APS shall include:

- APS advanced seatbelt system - retractor pre-tensioners tighten the seat belts around each occupant, securing the occupants in seats and load limiters play out some of the seat belt webbing to reduce seat belt to chest and torso force upon impact as well as mitigate head and neck injuries.

Side curtain airbag - protects each occupant's head, neck, and upper body from dangerous cab side surfaces and contact points with intrusive surfaces as a result of a collision as well as provides ejection mitigation protection to each occupant in a qualifying event by covering the windows and walls adjacent to each seating position with an airbag custom designed for each cab configuration.

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include a full width seat frame located and installed at the rear wall. The seat frame shall span the available space on the rear wall. The seat frame shall be 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be painted with the same color as the remaining interior.

SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points to the storage area centered on the front of the seat frame. Each access point shall be covered by a hinged door to allow access for storage in the seat box.

SEAT FRAME EXTERIOR REAR COMPARTMENT ACCESS

The seat frame shall be open to the exterior rear compartment on both the right hand side and the left hand side. This shall allow interior access to the left and right exterior rear compartments.

CAB FRONT UNDERSEAT STORAGE ACCESS DOOR

The right under seat storage area shall have a solid aluminum hinged door with non-locking latch.

SEAT COMPARTMENT DOOR FINISH

All underseat storage compartment access doors shall feature a dark red Spar-Liner spray on bedliner coating.

WINDSHIELD WIPER SYSTEM

The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position. The windshield wipers shall be interlocked with the park brake allowing activation only when the park brake is released.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of aluminum with a chrome plated finish.

The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the

respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

DOOR LOCK LH EMS COMPARTMENT

The left hand side EMS compartment shall feature a manual door lock.

DOOR LOCK RH EMS COMPARTMENT

The right hand side EMS compartment shall feature a manual door lock.

DOOR LOCK LH REAR CAB COMPARTMENT

The left hand side rear compartment shall feature a manual door lock.

DOOR LOCK RH REAR CAB COMPARTMENT

The right hand side rear compartment shall feature a manual door lock.

GRAB HANDLES

The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of SAE 304 stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

AUXILIARY GRAB HANDLE

There shall be a 7.00 inch molded stainless steel grab handle with a bright finish attached to the front fascia of the cab in the center below the windshield. The handle installation shall include a stainless steel scuff plate behind the grab handle to protect the painted surface.

REARVIEW MIRRORS

Retrac Aerodynamic West Coast style dual vision mirror heads model 613305 shall be provided and installed on each of the front cab doors.

The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.

The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted on the extreme duty dash shifter and control console, adjacent to the shift selector for easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.

The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.

REARVIEW MIRROR HEAT SWITCH

MIDLAND FIRE DEPARTMENT

The heat for the rearview mirrors shall be controlled through a virtual button on the Vista display and control screen.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 5.00 inches wide made of polished aluminum.

MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include three (3) Spartan emblems. There shall be one (1) installed on the front air intake grille and two (2) for the exterior sides of the cab shipped loose with the chassis for installation by the body manufacturer. The cab shall also include one (1) Advanced Protection System shield emblem on each front door.

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the “ON” position.

The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.

BATTERY

The single start electrical system shall include six (6) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

BATTERY TRAY

The batteries shall be installed within two (2) stainless steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be unpainted.

The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the tray to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

MIDLAND FIRE DEPARTMENT

BATTERY BOX COVER

Each battery box shall include a stainless steel cover which protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening. The battery box covers shall be un-painted.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step, 8.00 inches apart. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The charging system shall include a 360 amp Niehoff 12 volt alternator. The alternator shall include an ignition excited external regulator.

STARTER MOTOR

The single start electrical system shall include a Delco brand starter motor.

BATTERY CONDITIONER

A Kussmaul Auto Charge 40 LPC battery conditioner shall be supplied. The battery conditioner shall provide a 40 amp output for the chassis batteries and a 15 amp output circuit for accessory loads. The battery conditioner shall be mounted in the cab in the LH rear facing outer seating position. The battery conditioner shall include an additional 5.00 feet of coiled wire for relocation by the body manufacturer.

BATTERY CONDITIONER DISPLAY

A Kussmaul Auto Charge Deluxe Watertight Status Center battery conditioner display shall be supplied. The battery conditioner display shall be mounted in a red bezel in the left side of the cab above the wheel well above the electrical inlet receptacle.

AUXILIARY AIR COMPRESSOR

A Kussmaul Pump 12V air compressor shall be supplied. The air compressor shall be installed behind the driver's seat. The air compressor shall be plumbed to the air brake system to maintain air pressure.

MIDLAND FIRE DEPARTMENT

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well in the forward position rear of the grab handle and above the door entry key pad if applicable.

ELECTRICAL INLET

A Kussmaul 30 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:
Kussmaul 40 LPC Charger - 5 Amps
Kussmaul 40/20 Charger - 8.5 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul EV-40 - 6.2 Amps
Blue Sea P12 7532 - 7.5 Amps
Iota DLS-45/IQ4 - 11 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner.

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a red cover.

HEADLIGHTS

Two (2) headlamp and combination side marker/turn lamp modules shall be part of the front cab fascia. Each module shall include one (1) rectangular LED high/low beam headlamp.

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly above the front warning lights.

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model M6 4.00 inch X 6.00 inch programmable LED amber turn signals which shall be installed above the headlights.

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) Weldon 9186-8589-24 LED round side marker lights which shall be provided just behind the front cab radius corners.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) Techniq S170 LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level. The lights shall be amber with chrome bezels.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled via a virtual button on the Vista display. The headlights shall turn on in the low beam setting when the park brake is disengaged. The headlights shall turn off when the park brake is engaged. The marker lights shall turn on when the ignition switch is in the "On" position. There shall be a virtual dimmer control on the Vista display to adjust the brightness of the dash lights.

GROUND LIGHTS

Each door shall include a Tecniq T44 LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

GROUND LIGHTS

The ground lighting shall be activated when the parking brake is set, by the opening of the door on the respective cab side, and through a virtual button on the Vista display and control screen.

LOWER CAB STEP LIGHTS

The middle step located at each door shall include a recess mounted 4.00 inch round LED light which shall activate with the opening of the respective door.

INTERMEDIATE STEP LIGHTS

The intermediate step well area at each door shall include a TecNiq D06 LED light within a chrome housing. The Egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights shall activate with Entry step lighting.

LIGHTBAR PROVISION

There shall be one (1) light bar installed on the cab roof. The light bar shall be provided and installed by Spartan Chassis. The light bar installation shall include mounting and wiring to a control switch on the cab dash.

CAB FRONT LIGHTBAR

The lightbar provisions shall be for one (1) Whelen brand Freedom IV LED lightbar mounted centered on the front of the cab roof. The lightbar shall be 72.00 inches in length. The lightbar

shall feature fourteen (14) red LED light modules, two (2) clear and two (2) blue LED light modules. The entire lightbar shall feature a clear lens. The clear lights shall be disabled with park brake engaged. The cable shall exit the lightbar on the right side of the cab.

LIGHTBAR SWITCH

The light bar shall be controlled by a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.

FRONT SCENE LIGHTS

The front of the cab shall include one (1) Fire Research Spectra MAX-S model, contour roof mount scene light installed on the brow of the cab.

The lamp head shall have seventy-two (72) ultra-bright white LEDs, seventy-two (72) for flood lighting or thirty-six (36) to provide a spot light beam pattern. The lamp head shall draw 20.8 amps and generate 28,000 lumens. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamp head shall incorporate heat-dissipating fins and be no more than 6.00 inches high by 14.00 inches wide. The lamp head shall be powder coated black.

FRONT SCENE LIGHT LOCATION

There shall be one (1) scene light mounted center on the front brow of the cab.

FRONT SCENE LIGHTS ACTIVATION

The front scene lighting shall be activated by a virtual button on the Vista display and control screen.

SIDE SCENE LIGHTS

The side of the cab shall include two (2) Fire Research Spectra MAX model scene lights, one (1) each side, which shall be surface mounted.

Each lamp head shall have sixty (60) ultra-bright white LEDs, fifty-six (56) for flood lighting and four (4) to provide a spot light beam pattern. Each lamphead shall draw 13.8/6.9 amps, and generate 20,000 lumens of light. The lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. Each lamp head shall be no more than 5.88 inches high by 14.50 inches wide and have a profile of less than 1.75 inches beyond the mounting surface and shall be powder coated. The lamphead shall feature a black bezel.

SIDE SCENE LIGHT LOCATION

The scene lighting located on the left and right sides of the cab shall be mounted rearward of the cab “B” pillar in the 10.00 inch raised roof portion of the cab between the front and rear crew doors.

SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) virtual buttons on the Vista display and control screen(s), one (1) for each light.

INTERIOR OVERHEAD LIGHTS

The cab shall include a two-section, red and clear Weldon LED dome lamp located over each door. The dome lamps shall be rectangular in shape and shall measure approximately 7.00 inches in length X 3.00 inches in width with a black colored bezel. The clear portion of each lamp shall be activated by opening the respective door and via the multiplex display and both the red and clear portion can be activated by individual push lenses on each lamp.

An additional two-section, red and clear Weldon LED dome lamp shall be provided over the engine tunnel which can be activated by individual switches on the lamp.

AUXILIARY DOME LIGHT LH

The cab shall include one (1) Whelen brand 60CREGCS 6.00 inch diameter red/clear type round shaped LED auxiliary dome light above the left hand front seat position. The light shall be activated by individual switches located on the side of the light.

AUXILIARY DOME LIGHT RH

The cab shall include one (1) Whelen brand 60CREGCS 6.00 inch diameter red/clear type round shaped LED auxiliary dome light above the right hand front seat position. The light shall be activated by an individual switches located on the side of the light.

ENGINE COMPARTMENT LIGHT

There shall be two (2) LED NFPA compliant lights mounted under the engine tunnel for area work lighting on the engine. The lights shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The lights shall activate automatically when the cab is tilted.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red Whelen Ion LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included, as a virtual button on the Vista display and control screen which shall be labeled “E Master” for identification. The button shall feature control over all

devices wired through it. Any warning device switches left in the “ON” position when the master switch is activated shall automatically power up.

The rear view camera video display shall remain active when the master switch is pressed.

5422-018

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. Programming wires for the lights shall be provided underneath the rocker switch panel for customer use. The lights shall be mounted to the front fascia of the cab within a chrome bezel.

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red with a clear lens.

OUTBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right outboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. Programming wires for the lights shall be provided underneath the rocker switch panel for customer use. The lights shall be mounted to the front fascia of the cab within a chrome bezel.

OUTBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the outboard position shall be red with a clear lens.

FRONT WARNING SWITCH

The front warning lights shall be controlled through a virtual control on the Vista display and control screen. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn. Programming wires for the lights shall be provided underneath the rocker switch panel for customer use. The lights shall be mounted within a chrome bezel.

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be blue in color with a clear lens.

MIDLAND FIRE DEPARTMENT

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be recess mounted into the side face of the bumper.

SIDE WARNING LIGHTS

The cab sides shall include two (2) Whelen M6 Super LED warning lights, one (1) on each side. Programming wires for the lights shall be provided underneath the rocker switch panel for customer use.The lights shall be mounted to the sides of the cab within a chrome bezel.safa

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the cab shall be red with clear lens.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well forward from the center of the front axle.

SIDE AND INTERSECTION WARNING SWITCH

The side warning lights shall be controlled through a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.

TANK LEVEL LIGHTS

There shall be two (2) FRC MaxVision surface mount water level light strips.

The light strips shall feature four (4) colors of LED lights to indicate the fluid level of a tank. The colors from top to bottom shall be green, blue, amber, and red.

TANK LEVEL LIGHTS ACTIVATION

The tank level lights shall be pre-wired and coiled at rear of the cab for connection to the apparatus by the body builder.

TANK LEVEL LIGHTS LOCATION

There shall be water level lights mounted on each side of the cab, centered between the rear cab doors and the rear corners of the cab.

REAR WARNING LIGHTS

The cab shall have a Whelen TACTL5 Traffic Advisor control head installed and wired in the header above the driver. There shall be a virtual button on the vista control screen to control the flashing feature of the traffic advisor.

The power to the control head shall be ignition switched and outside response mode, activation shall be dependent upon the state of the controllers switched position.

MIDLAND FIRE DEPARTMENT

Wiring provisions shall be provided routed to the rear of the frame for OEM installation of up to eight (8) individual traffic advisor warning lights rated at no more than one (1) amp each.

SIREN CONTROL HEAD

A Whelen 295HFSC9 electronic siren control head shall be provided. The siren head shall feature a 200-watt output, wail, yelp, manual siren, and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected. The siren shall be mounted to protrude through the center panel of the cab dash in the lower left section of the center panel.

STEERING WHEEL HORN BUTTON SELECTOR SWITCH

A virtual button on the Vista display and control screen shall be provided to allow control of either the electric horn or the mechanical siren from the steering wheel horn button. When the emergency master switch is on the horn button selector shall default to siren activation. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements.

AUDIBLE WARNING LH FOOT SWITCH

A foot switch wired as an auxiliary activation to the electric siren shall be mounted in the front section of the cab for use by the driver.

ELECTRIC SIREN FOOT SWITCH LH

The electric siren foot switch shall be a Linemaster model 491-S.

ELECTRIC SIREN FOOT SWITCH LH LOCATION

The electric siren foot switch shall be located on the left hand side accessible to the driver between the steering column and the door.

ELECTRIC SIREN FOOT SWITCH LH POSITION

The electric siren foot switch shall be positioned outboard of any other foot switch, if applicable.

AUDIBLE WARNING LH FOOT SWITCH BRACKET

A 30.00 degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be installed outboard of the steering column for specified driver accessible foot switch activations.

AUDIBLE WARNING RH FOOT SWITCH

A foot switch wired to actuate the mechanical siren(s) shall be mounted in the front section of the cab for use by the officer.

MECHANICAL SIREN FOOT SWITCH RH

MIDLAND FIRE DEPARTMENT

The mechanical siren foot switch shall be a Linemaster model 491-S.

MECHANICAL SIREN FOOT SWITCH RH LOCATION

The mechanical siren foot switch shall be temporarily tied up with a coiled wire drop at the firewall inboard for installation by the customer on the right hand side accessible to the officer.

AIR HORN AUXILIARY ACTIVATION

The air horn activation shall be accomplished by two (2) lanyard cables, one (1) on the left hand side accessible to the driver and one (1) on the right hand side accessible to the officer. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION

The mechanical siren shall be actuated by a black push button in the switch panel on the dash. A virtual button for the siren brake shall be provided on the Vista display.

MECHANICAL SIREN INTERLOCK

The siren shall only be active when master warning switch is on to prevent accidental engagement.

ELECTRONIC SIREN AUXILIARY ACTIVATION

The Howler™ siren shall include activation by a black push button on the switch panel.

BACK-UP ALARM

A Preco-Matic model 1040 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

FIRE BELL ACTIVATION

There shall be a black push button located on the switch panel which shall actuate the fire bell. The button shall be clearly labeled for identification.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

A twenty eight (28) icon lightbar message center with integral LCD odometer/trip odometer shall be included. The odometer shall display up to 999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.

MIDLAND FIRE DEPARTMENT

The instrument panel shall contain the following gauges:

One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H. The scale on the fuel and DEF level gauges shall read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm shall indicate low fuel or low DEF at 1/8th tank level.

One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. The scale on the engine oil pressure gauge shall read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (°F) with a red line zone indicating critical coolant temperatures. A red indicator light in the gauge and audible alarm shall indicate high coolant temperature. The scale on the voltmeter shall read from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm shall indicate high or low system voltage. The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The scale on the transmission temperature gauge shall read from 100 to 300 degrees °F with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature.

The light bar portion of the message center shall include twenty-eight (28) LED backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED INDICATORS

Stop Engine - indicates critical engine fault
Air Filter Restricted - indicates excessive engine air intake restriction
Park Brake - indicates parking brake is set
Seat Belt - indicates a seat is occupied and corresponding seat belt remains unfastened
Low Coolant - indicates critically low engine coolant
Cab Tilt Lock - indicates the cab tilt system locks are not engaged.

AMBER INDICATORS

Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault
Check Engine - indicates engine fault
Check Transmission - indicates transmission fault
Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault

High exhaust system temperature – indicates elevated exhaust temperatures
Water in Fuel - indicates presence of water in fuel filter
Wait to Start - indicates active engine air preheat cycle
Windshield Washer Fluid – indicates washer fluid is low
DPF restriction - indicates a restriction of the diesel particulate filter
Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator
Range Inhibit - indicates a transmission operation is prevented and requested shift request may not occur.
SRS - indicates a problem in the supplemental restraint system
Check Message - indicates a vehicle status or diagnostic message on the LCD display requiring attention.

GREEN INDICATORS
Left and Right turn signal indicators
ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system
High Idle - indicates engine high idle is active.
Cruise Control - indicates cruise control is enabled
OK to Pump - indicates the pump is engaged and conditions have been met for pump operations
Pump Engaged - indicates the pump transmission is currently in pump gear
Auxiliary Brake - indicates secondary braking device is active

BLUE INDICATORS
High Beam indicator

AUDIBLE ALARMS
Air Filter Restriction
Cab Tilt Lock
Check Engine
Check Transmission
Open Door/Compartment
High Coolant Temperature
High or Low System Voltage
High Transmission Temperature
Low Air Pressure
Low Coolant Level
Low DEF Level
Low Engine Oil Pressure
Low Fuel
Seatbelt Indicator
Stop Engine
Water in Fuel
Extended Left/Right Turn Signal On
ABS System Fault

BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.

MIDLAND FIRE DEPARTMENT

AUXILIARY SPEEDOMETER

The dash shall include an auxiliary speedometer which shall feature a digital readout.

RADIO

A Jensen radio with weather band, AM/FM stereo receiver, compact disc (CD) player, and four (4) speakers shall be installed in the cab. The radio shall include rear RCA input pigtail connector, satellite radio capability, and a covered front auxiliary mini stereo input with iPod ready USB jack. The CD player shall be compatible with CD-R, CD-RW and MP3 format discs. The radio shall be installed in the right hand overhead position. The speakers shall be installed inside the cab with two (2) speakers recessed within the headliner of the front of the cab just behind the windshield and two (2) speakers on the upper rear wall of the cab. The receiver shall also have an auxiliary RCA input jack in the center dash panel, and an iLink input cable prewired behind the center panel for an iPod connection.

AM/FM ANTENNA

A small antenna shall be located on the right hand side of the cab roof for AM/FM and weather band reception.

CAMERA RIGHT HAND

One (1) Audiovox Voyager heavy duty rearview teardrop shaped chrome plated housing camera shall be mounted on the officer side of the cab below the windshield ahead of the front door at approximately the same level as the cab door handles. The camera display shall activate when the right side turn signal is activated.

CAMERA DISPLAY

The camera system shall be wired to two (2) Weldon Vista display located on the driver's and officer's side dash. The camera system display can be activated through the Vista display panels.

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

MIDLAND FIRE DEPARTMENT

WARRANTY

Summary of Warranty Terms:

THE FOLLOWING IS SUMMARY OF WARRANTY TERMS FOR INFORMATION ONLY. THE ACTUAL LIMITED WARRANTY DOCUMENT, WHICH IS ATTACHED TO THIS OPTION, CONTAINS THE COMPLETE STATEMENT OF THE SPARTAN MOTORS USA LIMITED WARRANTY. SPARTAN'S RESPONSIBILITY IS TO BE ACCORDING TO THE TERMS OF THE COMPLETE LIMITED WARRANTY DOCUMENT.

The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twenty-four (24) months, or the first 36,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the first end user.

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:

(1) Hard copy of the Engine Operation and Maintenance manual with digital copy

(1) Digital copy of the Transmission Operator's manual

(1) Digital copy of the Engine Owner's manual

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include one (1) digital copy of wiring schematics and option wiring diagrams.

AS BUILT AIR PLUMBING DIAGRAM

The cab and chassis shall include one (1) digital copy of the as built air plumbing system and option air plumbing diagrams.

SALES TERMS

The sale of the Spartan Chassis shall be governed by the terms contained on the Sales Terms – Acceptance of Purchase Order document, a copy of which is attached to this option.

DRIVELINE LAYOUT CONFIRMATION

During the design phase of the chassis the Spartan Chassis driveline engineer shall submit the driveline layout to an OEM engineer to review the chassis design for any potential problems

integrating the OEM body to the chassis. The OEM engineer shall provide approval to the driveline engineer prior to driveline bills of materials being released.

SIREN SPEAKER

Two (2) Holwer speakers shipped loose with the chassis shall be installed.

HOWLER SIREN SPEAKER LOCATION

The two (2) Holwer speakers shall be located under the front bumper outboard of the frame rails with one (1) on the right side and one (1) on the left side in best fit location.

FIRE BELL

The chassis provided bell shall be installed on the right hand side of the bumper extension. Brandon is installing the gravel shield.

Location to replicate previous builds.

TIRE PRESSURE INDICATOR VOUCHER

Spartan ER will mount the chassis supplied tire pressure monitor on the overhead AC cover to match 215168 build.

FRONT BUMPER APRON

The area between the grille and the bumper shall be overlaid with .188 inch thick aluminum with a black Line-X Finish.

FRONT HOSE WELL

The front bumper extension shall include a compartment in the bumper apron located in the center between the frame rails which may be used as a hose well.The hose well shall be maximized to go from frame rail to frame rail and extend into the front bumper flange The compartment shall include Black modular floor tiles located in the bottom drain holes in the bottom corners to allow excess moisture to escape. The compartment shall be 12.75" tall X 38.00 inches wide X 14.25 inches deep. The clear opening shall be 12.88 inches deep X 37.75 inches wide. There will be a 2" lip on the back side of the apron that reduces the gab between the apron and the bottom of the cab.

Match what was done on prior unit 217198

FRONT BUMPER COVER

An aluminum(smooth) cover shall be installed on the front bumper compartment. The cover shall also be notched in the front corner adjacent to the front discharge to allow the cover to be closed while the hose is connected to the front discharge outlet. The notch shall be located in the front portion of the cover on the driver's side and shall be **9.00** inches in length by **2.00** inches wide and NO radius to encompass both hose loads. Match 217198.

The cover shall be painted black Line-X finish.

The rear edge of the cover shall be attached with a stainless steel hinge. The cover shall be equipped with a D-ring style handle to secure the cover in the closed position. A hold open device shall be installed on the opposite side of the notch to hold the cover in the "Open" position.

The hose well shall be located in the center front bumper of the apparatus and shall be designed to hold 100' of 1.75"and 100' of 1" forestry line hose with nozzles. There shall be a 3/16" divider from side to side 7" front the back of the hose well.

CAB TILT CONTROL

There shall be a cab tilt pendant control provided and installed on the right side of the apparatus. The pendant shall be located directly behind the upper auxiliary pump access panel as far forward as possible.

There shall also be a cab tilt instruction plate located inside the right side upper pump panel door on the front lower corner.

GREASE SYSTEM RELOCATION

The chassis installed grease system shall be relocated to the pumphouse in the right side lower pump panel door on the rearward side of the LDH cavity, accessible through the pump panel.

HEAT EXCHANGER

The supplementary heat exchanger cooling system shall be provided and installed to the discharge side of the fire pump through to the engine compartment without intermixing, for absorption of excess heat.

The heat exchanger shall be adequate in size to maintain safe operating temperature of the coolant in the pump drive engine and not in excess of the engine manufacturer's temperature rating, under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing.

SMART STORAGE FUEL FILL ASSEMBLY

There shall be a fuel fill assembly located on the apparatus body accessing the chassis supplied fuel tank. The assembly shall be located in the left rear Smart Storage module behind the rear axle.

The fuel fill assembly will have a door that matches the Smart Storage module doors. There shall be a drain in the fuel fill assembly to allow over flow to drain on the back side of the apparatus body. The fuel fill cap shall be manufactured of plastic materials, green in color and equipped with a tether.

The fuel fill cap shall be labeled "DIESEL FUEL". The stainless steel fuel fill neck shall have a 3/8" inside diameter vent line installed from the top of the fuel tank to the fill tube.

MIDLAND FIRE DEPARTMENT

LAPTOP LOCKING SLIDE TRAY

A locking slide tray shall be installed in the officer dash area for installation of a laptop computer. The platform shall be capable of sliding towards the officer and lock in both the in and out positions for ease of operation. Austin Hardware 10" slides shall be utilized.

The platform shall be constructed of 3/16" smooth aluminum and finished with red speedliner to match the cab interior.

AIR TANK DRAIN CABLES (extended)

There shall be manual pull air tank drain cables provided with the apparatus. The air line and valve shall be extended to the outer edge of the apparatus under the L1 compartment to facilitate draining moisture from the chassis air tanks. Each drain shall have a key ring to facilitate activating the drain. A label shall be affixed indicating “Air Tank Drain”.

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided and installed in the cab and be visible from all seating positions.

There shall be a lubrication plate mounted inside cab listing the type and grade of lubrication used in the following areas on the apparatus and chassis:

Engine oil
Engine Coolant
Transmission Fluid
Pump Transmission Lubrication Fluid (if applicable)
Drive Axle Lubrication Fluid
Generator Lubrication Fluid (if applicable)
Tire Pressures

ICC Brand Labels shall be installed.

APPARATUS INFORMATION LABEL

A high-visibility label shall be provided and installed in a location clearly detectable to the driver while in the seated position indicating the following:

The label shall indicate the following specified information.
Overall Height listed in feet and inches.
Overall Length listed in feet and inches.
Overall GVWR listed in tons.

ICC Brand Labels shall be installed

CAB HELMET WARNING LABEL

A high-visibility label shall be installed in a location clearly detectable from each seating

position. The label shall indicate the following specified information.

“DO NOT WEAR HELMET WHILE SEATED”

ICC Brand Labels shall be installed

HELMET RESTRAINTS

All NFPA required helmet restraints will be supplied and installed by the Customer prior to the truck being placed into service.

MUD FLAPS

Heavy-duty rubber mud flaps shall be provided behind the rear wheels. The mud flaps shall be black rubber type and be bolted in place.

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that is encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

The pump compartment module shall be approximately 74.00 inches (1.88 m) in width measured laterally across the apparatus.

The pump compartment top control and gauge panel shall be exposed from the sides (tapered down). Match 213192. The trim installed on the tapered sides shall have a lip installed on the cap on the inside of the control surface area.

VIBRA-TORQUE™ PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The pump module substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each pump compartment mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the pump module, apparatus body, equipment, tank,

water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All pump module to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature pump module structural failures. The Vibra-Torque™ mounting system shall have a lifetime warranty.

PUMP COMPARTMENT WORK LIGHT

Two (2) LED OnScene Solutions "Access" Series 8.00 inch (203.20 mm) tube lights shall be installed inside the pump compartment module to illuminate the piping and plumbing components.

The lights shall be activated by a weather resistant toggle switch installed inside the pump compartment.

OPERATORS PANEL

The operators' panel shall be a "top mount", constructed on two (2) incline surfaces.

The lower panel housing shall be used for valve controls. The upper panel housing shall be used for gauges, pump controls and any other activation controls specified.

The valve control levers shall be immediately adjacent to the respective gauges neatly arranged for easy access and visible for the operator.

VALVE CONTROL – TOP MOUNT ASSEMBLY

Unless specified otherwise, the valves shall be controlled from a top mounted locking valve actuation control assembly that shall be installed on the specified discharge and suction. The Class 1 assembly shall have a round chrome plated handle with an ergonomically designed surface to allow for a secure grip to turn and lock the handle. The assembly shall have a name plate insertion recess area. A brass bushing and stainless steel rod shall never require lubrication. The valve operating mechanism will indicate the position of the valve at all times.

PANEL LIGHTS

There shall be adequate illumination provided at the top operator's panel and at the side pump panels.

For the top mount panel there shall be a brushed stainless steel shielded light assembly provided. The shield shall contain one (1) full length OnScene LED "Access" light.

At each side panel there shall be gusseted reinforced 3/16 smooth aluminum shielded light assemblies installed on a stationary surface. The light sheild shall have reinforced handrails with hand hold cutouts installed. The light shields shall be coated with Black Line-X (squared ends on light sheilds).

Each shield shall contain one (1) full length OnScene LED "Access" light.

PUMP PANEL LIGHT ACTIVATION

The operator's panel and side panel lights shall be activated by a switch located at either side of the pump compartment. The switch shall be located at final

SPEEDLAY HOSE BEDS

Three (3) vertically stacked speedlay hose beds shall be provided in the forward portion of the pump compartment module. The speedlay hose beds shall be constructed as an integral part of the pump compartment tubular structure. Stainless steel scuff plates shall be installed at the bottom and at the vertical edges of the crosslay openings to protect the hose and hose ends.

The speedlay hose beds shall be tall and wide enough for laying each hose size specified in the plumbing specifications.

The speedlay hose beds shall span the entire width of the pump compartment module. Slotted flooring shall be provided for hose area drainage.

PUMP COMPARTMENT SERVICE

The front portion of the pump compartment structure shall be left open.

The front of the pump box, behind the speedlays, shall be constructed so that when the speedlay hose trays are removed it provides a large opening to the center of the pump box for maintenance.

REMOVABLE SPEEDLAY TRAYS

Removable speedlay hose bed trays shall be provided to facilitate hose loading. The speedlay hose beds trays shall be accessible from either side and be easily removed from the pump compartment tubular structure.

A removable speedlay hose bed tray shall be provided for each bay specified.

ALUMINUM SPEEDLAY TRAYS

The removable speedlay trays shall be made of .188-inch aluminum material with a DA finish.

Each tray shall have vertical and horizontal hand holds for ease of handling. Slots shall be provided in the floor of the tray for hose drainage.

PUMP COMPARTMENT WIDTH

The width of the pump compartment (front to back) shall be 68.00 inches.

ALUMINUM WALKWAY

The walkway shall be located between the cab and pump house where flex joints shall be provided between the walkway and pump compartment as well as between walkway and the chassis cab. These flex joints shall be required to reduce the negative effects that chassis frame rail twist can induce into structural components.

The walkway shall be constructed of aluminum tubing to provide a framework for stepping and standing areas.

Each side of the walkway shall have an intermediate step which facilitates access to the walkway standing surface from the running board level. The surface of the walkway, intermediate steps, running board areas and the exterior vertical side panels of the tool compartments of the walkway shall be constructed of 3/16" Smooth Aluminum and coated with Black Line-X. There shall be no diamond plate provides on any area of the walkway structure.

The running board stepping surface shall be flush with the top of the supportive tubular framework.

WALKWAY STEP LIGHTING

The secondary walkway step area shall be illuminated with one (1) "Access" LED 8.00 inch strip light installed on each side of the walkway with a chrome bezel.

The light shall be manufactured by OnScene Solutions with a 5 year replacement warranty.

WALKWAY LIGHTING ACTIVATION

The walkway step lights shall be activated when the park brake is set.

WALKWAY WIDTH

The walkway area immediately forward of the pump compartment shall be approximately 21.00 inches in width.

WALKWAY TOOL COMPARTMENTS

Two (2) walkway tool compartments shall be provided, one (1) on each side of the walkway step area. The steps shall be incorporated into hinged (NON-DIAMOND PLATE) 'lift-up' style doors completely enclosing and concealing the integral tool and or equipment storage compartment directly behind the door. The walkway doors shall be smooth aluminum and coated with Black Line-X.

The doors shall be hinged at the top and open with the assistance of a gas filled cylinders. The cylinder shall also serve as a hold open/close device for ease of operator use and elimination of a mechanical latching system.

MIDLAND FIRE DEPARTMENT

There shall be one (1) chrome handle installed horizontally to each door to assist in opening the tool compartment doors.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the hazard light in the cab to alert the crew.

TOOL COMPARTMENT LIGHTING

Each tool compartment shall be illuminated with one (1) OnScene "Access" 8.00 inch LED Tube light mounted to the forward edge in an aluminum housing. Each light shall be activated when the respective door is open.

TOOL COMPARTMENT INTERIOR FINISH

The tool compartment interior shall be painted with Speedliner medium gray finish.

WALKWAY LIGHTING

The pump operator's walkway area shall be illuminated with two (2) OnScene "Access" 18.00 inch LED strip lights installed on the forward face of the pump compartment. The lights shall be mounted in aluminum housing.

The lights shall be mounted on the upper tube of the speedlay area since there will be no front covering the speedlays.

The light shall be manufactured by OnScene Solutions with a 5 year replacement warranty.

WALKWAY LIGHTING ACTIVATION

The walkway step lights shall be activated when the park brake is set.

18" HANDRAILS

All handrails shall be 1.25 inches in diameter, constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip.

There shall be a minimum of 2.00 inches of clearance between the bracket and the body. The light shall illuminate an area adjacent to the handrail and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements.

Two (2) 18.00 inch handrails shall be installed on the pump compartment, one (1) each side near the walkway steps to facilitate access up to the operator's panel area.

The 18" handrails (paragraph above) shall be installed on the outward face of the pump panel just forward of the speedlay openings. The 18" handrails shall be installed inline with the cab side handrails and the additional handrails on the rear sides of the cab (paragraph below).

There shall be two (2) additional 18.00 inch handrails installed on sides of the cab , one (1) each side, near the walkway steps to facilitate access up to the operator's panel area. The handrails shall be installed inline with the cab grab handles on the rear sides of the cab.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

BLACK LAMINOL TOP CONTROL PANEL

The surface of the operator's control and gauge panel shall be manufactured from heavy duty non-glare black “Laminol”, aluminum that is capable of withstanding the effects of extreme weather and temperature.

HINGED RIGHT & LEFT SIDE PUMP PANELS

There shall be two (2) pump panels on the right and left sides of the pump compartment, one (1) upper and one (1) lower. All panels shall be vertically hinged on the rearward or body side of the panel and shall include hat channels for added strenght. Openings shall be accessible by quick-release mechanical type latches. All panels shall have a gas strut hold open device and plastic coated safety cables. The upper right and left side pump panels shall be wired to the open door warning circuit.

When opened the panels shall provide a large access opening to the pump for ease of serviceability.

The upper panel shall open first and there shall not be a fixed middle sill between the hinged panels.

RIGHT & LEFT SIDE BLACK LAMINOL FINISH FOR PANELS AND OVERLAYS

All panels shall be made from heavy duty “Black Laminol” covered aluminum, capable of withstanding the effects of extreme weather and temperature.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and each shall be made of “Black Laminol” covered aluminum.

SOFT SUCTION HOSE STORAGE

There shall be a recessed cavity on the left side of the pump compartment module integrated into the side panel to store a roll of 25 feet of 5.00 inch suction hose. The cavity shall be approximately 11.00 inches wide. The compartment shall have brushed stainless steel trim provided around the opening. The floor area shall have a light taper downward so assist in restraining the hose. Drain holes shall be provided in the rear corners.

COMPARTMENT LOCATION

The storage cavity shall be located forward of the steamer inlet on the pump panel.

MIDLAND FIRE DEPARTMENT

ENGINEER STORAGE CAVITY INTERIOR FINISH

The interior of the engineer storage compartment shall feature a painted medium gray speedliner finish.

SOFT SUCTION HOSE STORAGE

There shall be a recessed cavity on the right side of the pump compartment module integrated into the side panel to store a roll of 25' of 5" suction hose. The cavity shall be approximately 11.00 inches wide. The compartment shall have brushed stainless steel trim provided around the opening. The floor area shall have a light taper downward so assist in restraining the hose and notched as required for exhaust configurations. Drain holes shall be provided in the rear corners.

COMPARTMENT LOCATION

The storage cavity shall be located forward of the steamer inlet on the pump panel.

ENGINEER STORAGE CAVITY INTERIOR FINISH

The interior of the engineer storage compartment shall feature a painted medium gray speedliner finish.

RUNNING BOARDS

The pump compartment running boards shall be made of a structural tubular framework. The tubular frame support all loads by transmitting the loads through the pump compartment structure directly to the chassis frame rails.

The running boards shall be independent of the apparatus body and shall be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration. Slip-resistant abrasive adhesive materials shall be applied to the top surface of the running board framework to provide a suitable stepping surface where applicable.

RUNNING BOARDS

The side running boards shall be 3/16" Smooth aluminum with Black Line-X installed. The surface areas shall be as large as possible by extending to the perimeter of the inside of the structural running board framework.

APPARATUS PLUMBING LABELING

The apparatus shall be descriptively tagged with color coded metal labels.

The labels shall be applied near the apparatus features that require a user function description. Wherever necessary, the labels shall be color coded to differentiate controls and their respective functions to simplify and clarify complex configurations.

The colors and labeling shall match the last Midland, 217198.

There shall be an additional discharge label installed on the bottom side of the top control linkage opening on the control surface. Ref 219193.

FASTENERS FOR LABELS

All labels that are not installed into discharge handles shall be attached with mechanical fasteners.

BEZELS FOR VALVE CONTROL HANDLES

Brushed Stainless steel bezels shall be supplied around the openings in the pump panels for all valve control handles.

BEZELS FOR DISCHARGES AND INLETS

Brushed stainless steel bezels shall be supplied around the openings in the pump panels for all discharge & suction inlet fittings. Any additional cutouts on the pump panels used for access to pump components, such as manual overrides, shall also have bezels provided.

ROCKER SWITCH PANEL

All specified lighting fixtures and electrical components activated at the pump operator's panel shall be activated by Carling W-series rocker style switches.

The switches shall be located on a separate matte black Innovative Controls 4-position electrical panel, complete with backlit name tags describing the function of each individual switch.

PRESSURE GOVERNOR

The Pressure Governing System provided with the chassis shall be installed on the pump operator's panel.

MASTER GAUGES

Thuemling 4.50 inch (115 mm) gauges shall be supplied for the master intake and master discharge gauges.

The gauges shall be model FA-LFP-410.

GAUGE SCALE

The master intake gauge shall be marked for a reading from -30 to 400 PSI and the master discharge shall be marked for reading a discharge pressure of 0 to 400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump. They shall have 0.25 in. standard pipe thread connections and be manufactured of non-corrosive polished stainless steel or brass plugs.

PUMP COMPARTMENT TOP OVERLAY

The top cap of the pump compartment shall be overlaid with materials of .125 inch smooth aluminum and coated with Black Line-X.

DUNNAGE AREA

A single wall dunnage area shall be provided above the pump house compartment for equipment mounting and storage space. The side walls shall and flooring shall be 3/16" smooth aluminum coated with Black Line-X.

The dunnage area shall be as wide as possible from side to side, and as deep as allowed with the available space.

LED PUMP HOUSE DUNNAGE LIGHTING

Two (2) OnScene Solutions "Access" Series 8.00 inch (203.20 mm) lights with a polished mounting bezel shall be installed to illuminate the pump house dunnage area.

The lights shall activate with the pump panel lights.

PUMP HOUSE DUNNAGE LIGHTING LOCATION

The pump house dunnage lighting specified above shall be located as high as possible on the rearward wall in the dunnage area.

MIDSHIP PUMP

The pump shall have a capacity of 1750 gallons per minute measured in U.S. Gallons. The pump shall be a Waterous model CSUC20, single stage midship pump.

The pump shall be de-rated to 1500gpm at the time of pump test.

The pumps impellers shall be bronze with double suction inlets, accurately balanced (mechanically and hydraulically), of mixed flow design with reverse-flow, labyrinth-type, wear rings that resist water bypass and loss of efficiency due to wear. The impeller shall have flame plated hub to assure maximum pump life and efficiency despite the presence of abrasive particles, such as fine sand, in the water being pumped. The wear rings shall be bronze and easily replaceable to restore original pump efficiency and eliminate the need for replacing the entire pump casing due to wear.

Pump casing shall be close grained gray iron, bronze fitted and horizontally split in two sections for easy removal of entire impeller assembly, including wear rings, without disturbing setting of pump in chassis or pump piping. The pump, for ease and rapid servicing in the future, shall

have the separable impeller shaft which allows true separation of transmission or pump without disassembly or disturbing the other component. This shall be accomplished by using a two piece shaft. This feature will allow field service to accomplish in much less time since each component (pump or transmission) can be repaired independently. The impeller shaft shall be stainless steel, accurately ground to size and polished. Shaft shall be supported at each end by ball type oil grease lubricated bearings. Sleeve bearings or bushings will not be acceptable. The bearings shall be protected from water at each end of the impeller shaft.

The discharge manifold shall be cast as an integral part of the pump body assembly and shall provide at least three full 3 1/2" openings for ultimate flexibility in providing various discharge outlets for maximum efficiency, and shall be located as follows: one outlet on the right side of the pump body, one outlet on the left side of the pump body, and one outlet directly on top of the pump discharge manifold.

The entire pump shall be cast, manufactured and tested at the pump manufacturer's factory. The pump transmission housing shall be high strength aluminum, three pieces and horizontally split. Power transfer to the pump shall be through a Morse Hy-Vo drive chain. Chain shall be pressure lubricated through oil pump. Chain sprockets shall be cut from carbonized, hardened alloy steel. Spur gears will not be acceptable.

The drive shafts shall be 2.35" in diameter, made of hardened and ground alloy steel. All shafts shall be ball bearing supported. Case shall be designed to eliminate the need of water cooling.

The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI. A certificate documenting this test shall be provided with the completed apparatus. The pump shall be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the latest NFPA 1901. Pump shall be free from objectionable pulsation and vibration.

The pump shall be the Class "A" type and shall deliver the percentage of rated discharge at pressures indicated below.

100% of rated capacity at 150 PSI net pump pressure.
100% of rated capacity at 165 PSI net pump pressure.
70% or rated capacity at 200 PSI net pump pressure.
50% of rated capacity at 250 PSI net pump pressure.

MASTER DRAIN VALVE

A manifold type drain valve shall be installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled from the left side lower pump house sill. The control shall be a hand wheel knob marked “open” and “closed”.

The drain shall be located such that it shall not interfere with pumping operations or function such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper function, such as draining, or if no lower or vertical sill exists. In this event, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the

driver's side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

PUMP SEALS

The pump shall be equipped with self-adjusting, maintenance free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manner that they will remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

AIR PRIMER SYSTEM

The priming pump shall be a Trident Emergency Products compressed air powered high efficiency, multi-stage, venturi based Air Prime System.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump.

The system shall employ an 80 PSI (5.5 bar) pressure protection valve, located on the chassis auxiliary air tank, to prevent loss of the air brakes to the chassis.

Air primer to be mounted lower on the pump, on the rear side of the pump transmission, so it will not spray on everything. The strainer shall be made of stainless steel.

OVER HEAT PROTECTION MANAGER

A Waterous Overheat Protection Manager (OPM) valve shall be installed to protect the pump from overheating. The OPM shall consist of a valve that opens when the water in the pump reaches 140° F (60° C) and a warning light on the pump panel that is triggered by a thermal switch when the water in the pump reaches 180° F (82° C). It shall be mechanical and not require constant operator monitoring.

The warning light shall act as an additional protection device if the temperature inside the pump keeps rising although the valve is open.

The relief valve shall discharge out below the running board.

MAIN PUMP INLETS

A 6.00 inch (152mm) pump manifold inlet shall be provided on each side of the pump. The shorter style inlets shall protrude less than 2 inches (50mm) away from the side panels, allowing an external valve to be connected and not protrude past the apparatus body sides while maintaining a low connection height.

The main pump inlets shall have National Standard Threads and include removable screens designed to provide cathodic protection for reducing deterioration in the pump.

INTAKE WATERWAY VALVE(S)

Two (2) Akron brand 6" Electrically operated wafer valve(s) shall be mounted directly to the pump intake manifold and be located behind the pump panels.

The valve shall be mounted between the main pump body casting and the steamer inlet casting. A quarter turn air bleeder valve shall be plumbed to the water supply side of the intake valve (by a 3/4" NPT port) to help evacuate air from the system and avoid cavitation of the pump.

PRESSURE RELIEF VALVE

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with 90, 125, 150, 200, 250 and 300 PSI adjustment settings and an "OFF" position. Pressure adjustments shall be made utilizing a 1/4" hex key, 9/16" socket or 14mm socket.

Relief valves to be preset at 200 psi.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet NFPA 1901 requirements for pump inlet relief valves. The unit shall be covered by a five year warranty.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

VALVE CONTROLLER

The controller shall be an Akron Brass Style 9333 Navigator™ Valve Controller. The electric controls must be of current limiting design, requiring no clutches in the motor. The unit must have booted switches with momentary open and close as well as an optional one touch full open feature to operate the actuator. Bezel and case must be brass material.

The unit must be capable of connecting to an auxiliary controller for operation at another location up to 370 feet away from the master control. The controller must have individual light indicators of red, yellow and green long life LEDs with light pipes for maximum visibility and carry a five-year warranty.

ODIN AUTOMATIC WATER TANK REFILL SYSTEM

An automatic tank fill system shall monitor and maintain tank water level independently, without input by the engineer. The tank fill system shall not require a water level gauge, and shall be programmable to maintain water level in any set range. The system will be pre-set to initiate tank filling at 75% and cease tank filling 90% of capacity and maintain that range with the water supply available. The system shall be calibrated specifically for the water tank provided.

The controls shall include an activation switch for automatic mode and a switch to manually top off the tank. Each switch shall be lighted and indicate the fill status of the system. The manual top off switch will require constant user input so that when the switch is no longer pressed, the filling of the tank will cease, preventing excessive overflow. Refill operation shall not require apparatus be running or fire pump to be engaged.

The system is especially useful during CAFS operation to achieve required engine RPM for the rated capacity of the compressor. The system is also useful for maintaining tank level for around-the-pump foam systems as well as supplementing water supply while drafting from a static source.

AUTO TANK FILL WITH FILL THIEF LOCATION

The auto tank fill shall be plumbed to the inlet side of the left and right pump intake valves in a fill thief arrangement to improve flexibility of water supply. Two (2) full port check valves with elastomer hinges and a grooved end stainless steel bodies shall be utilized to prevent water pressure at the inlet side not being used.

The fill thief shall be specifically for use on a fire pump equipped with a compressed air foam system. When large diameter supply hose (LDH) is connected to the large diameter pump inlet and the inlet valve is in the closed position, the incoming water is directed to the automatic tank fill valve.

3.0"AUTOMATIC WATER TANK FILL SYSTEM

The automatic water tank refill system will utilize a 3.00 inch (77 mm) Akron Brass 8000 series swing-out valve with electric actuator. The plumbing shall consist of 3.00 inch (77 mm) piping.

PUMP COOLING LINE

There shall be a 3/8 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A quarter turn on/off valve shall be installed on the operator's panel.

PUMP ANODE(S)

Two (2) pump anode(s) shall be installed in plumping system of the apparatus, to prevent damage from galvanic corrosion within the pump system.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with schedule 10 stainless steel pipe; brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

4" MANIFOLD PLUMBING

The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.5" through 4". Sizes 3/4", 1" and 5" are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all

sizes and helix wire installed in sizes 1" through 5" for maximum performance in tight bend applications. The material has a temperature rating of -40° F to +210° F.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male 3/4" and 1" couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I. D. is utilized to assure maximum holding power when fastening couplings to hose.

PUMP HOUSE LINE PROTECTION

All drain lines for the discharges, suctions, ABS discharge gauge lines and any other appropriate connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied and rubber coated “P” clamped, to keep the items secured.

DRAIN VALVES

All manual drains shall be Class One with ¾” J-style lift handle kit.

WATEROUS 200-P CAFS (PLATINUM)

There shall be a Waterous 200-P compressed air foam system provided and installed with the apparatus. The Waterous CAFS system shall include the components in the following portions of the specification.

Air Compressor
GHH-Rand air end with tapered roller bearings and triple lip shaft seal, oil-flooded, rotary screw type, sized to supply 200 scfm (5.6 m³/min) of usable air.

Pneumatic Modulating Inlet Valve
The air compressor is controlled by the pneumatic modulation inlet valve mounted on the air end. The pneumatic modulation inlet valve controls air delivery while maintaining constant pressure.

Electric Auto Sync Balancing System
Automatically maintains the air pressure within +/- 5% of the water pump pressure throughout the pressure range. The Auto Sync Balancing System is located on the operator's panel and allows for the following modes:
Automatic - Air pressure matched to water pressure
Fixed - Air pressure defaults to manual setting on compressor mounted control valve.
Unload - Air pressure reduced to 40 psi for standby operations
Run - Air compressor in run operation. Air pressure determined by Auto or Fixed setting.

Air Compressor Oil System

A spin-on, full-flow oil filter unit and a thermostatic valve are all part of the system to control oil flow to the cooler. All lines are routed in braided hose conforming to SAE 100R1 standards for hydraulic hose.

Modular Air/Oil Separator
Replacement elements for the oil filter and separator are available.

Air Compressor Cooling System
The air compressor is cooled by the unit's water pump, utilizing a copper and brass shell and tube heat exchanger. When the fire pump is operating, water flows through the heat exchanger while an in-line removable strainer, on the water inlet side, prevents clogging. The system maintains recommended operating temperatures throughout the full operational range in ambient temperatures up to 115 degrees Fahrenheit (46.1 degrees Celsius).

Air Compressor System Protection
A warning system in the hydraulic oil system alerts the operator of high temperature. A warning light and audible alarm are provided for mounting on the pump operator's panel.

Controls and Instruments
The following controls and instruments are provided for mounting on the pump operator's panel:
Auto/Sync compressor controls w/engraved instruction plate
Air compressor temperature gauge w/250 degree warning switch
NFPA required warning and instruction plates

The flow meters shall show actual GPM flow when pumping CAFS

HOT SHIFT PTO

The PTO shall operate with a toggle switch on the pump panel to operate the CAFS compressor.

A ‘hot’ shift shall be added to the CAFS installation. The PTO shall not engage with the engine above 900 RPM.

A guarded switch located on pump operator's panel shall be used to engage and disengage the PTO and activate the CAFS system. The switch shall be labeled “CAFS PTO ENGAGED”.

Each control shall be supplied with an indicator light. This light will be energized when the PTO is engaged.

The CAFS compressor shall only activate with the truck is in pump gear and shall disengage when the truck is taken out of pump gear.

The foam system PTO shall be interlocked with pump gear. Therefore only activating when the pump is in gear. This should match the CAFS compressor.

The foam system shall supply a total quantity of six (6) discharge(s) as specified:

All three speedlays

MIDLAND FIRE DEPARTMENT

Front bumper discharge
Right rear discharge
Booster Reel

FOAMPRO 3012

The apparatus shall be equipped with an electronic, fully automatic, variable speed, direct injection, and discharge side foam proportioning system. The system shall be capable of handling current Class A and Class B foam concentrate. The foam proportioning operation shall be based on direct measurement of water flows, and remain consistent within the specified flows and pressures. System must be capable of delivering accuracy to within 5% of calibrated settings over the advertised operation range when installed according to factory standards. The system shall be equipped with a digital electronic control display suitable for installation on the pump panel. Incorporated within the control display shall be a microprocessor that receives input from the system flowmeter(s), while also monitoring foam concentrate pump output. This compares values to ensure that the operator's preset is proportional to the amount of foam concentrate injected into the discharge side of the fire pump. All wetted components are to be made of corrosion resistant materials.

A paddlewheel-type flowmeter shall be installed in the discharge system specified to be "foam capable. The flow meter shall be mounted in a manifold providing accurate water flow readings from 30-1150 gpm and operate up to 1380 gpm.

The digital computer control display shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:

Provide push-button control of foam proportioning rates from 0.1% to 10.0%, in 0.1% increments
Show current flow-per-minute of water
Show total volume of water discharged during and after foam operations are completed
Show total amount of foam concentrate consumed
Simulate flow rates for manual operation
Perform setup and diagnostic functions for the computer control microprocessor
Flash a "low concentrate" warning when the foam concentrate tank(s) runs low
Flash a "non concentrate" warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) empty

A hydraulic motor driven positive displacement foam concentrate pump, rated at 12 gpm (45.4 L/min) with maximum operating pressure of 400 psi (27.6 BAR), shall be installed in a suitable accessible location. Pump shall include three plungers to maintain an even consistent flow across the full performance range. Pump vacuum characteristics allow off-board pick-up of foam. An electronically-operated valve shall receive signals from the computer control display to control the flow of hydraulic oil to the hydraulic motor coupled to the concentrate pump. The concentrate pump turns at a variable speed to ensure that the correct proportion of concentrate selected by the pump operator is injected into the fire pump discharge stream.

When two types of foam concentrates are to be used, a dual tank switch over system will be installed to provide rapid changeover of foam concentrate reservoirs. The digital computer control display shall interface with the dual tank switch over system, provide dual foam calibration, and display separate totals for each foam concentrate used.

Full flow check valve shall be provided to prevent foam contamination of fire pump and water tank or water contamination of foam tank.

Components of the complete proportioning system shall include:

Operator control/microprocessor and display
Paddlewheel flowmeter
Triplex concentrate pump and motor driver
Hydraulic motor
Variable displacement hydraulic pump
Wiring harnesses
Low-level tank switch
Foam injection check valve
Main waterway check valve

The CAFS compressor oil sight gauge shall have a separate round viewing hole on the lower rear of the operators panel. Needs to line up with window and the warning light on the pumphouse should be moved rearward than what has been provided previously.

There shall be a cover on the foam system components in the dunnage area protecting them from damage. The cover shall be made from smooth aluminum with Line-X black coating.

FOAM SYSTEM TESTING

The apparatus foam system shall be tested and the Water Flow meter shall be certified by the manufacturer prior to delivery.

HOT SHIFT PTO

The PTO shall operate with a toggle switch on the pump panel to operate the FOAM compressor.

A ‘hot’ shift shall be added to the FOAM installation. The PTO shall not engage with the engine above 900 RPM.

A guarded switch located on pump operator's panel shall be used to engage and disengage the PTO and activate the FOAM system. The switch shall be labeled “FOAM PTO ENGAGED”.

Each control shall be supplied with an indicator light. This light will be energized when the PTO is engaged.

The foam system PTO shall be interlocked with pump gear. Therefore only activating when the pump is in gear. This should match the CAFS compressor.

FOAM SYSTEM SUPPLY

The system shall be supplied by either foam tank, with an electrically actuated selector valve with indicator lights provided to switch between them. As the valve is switched from one tank to the other, a clean water flush of the foam concentrate pump shall occur to prevent concentrate

mixing and possible jelling. The system shall default to pre-set percentages for each tank.

The clean out filter for foam selector must have better accessibility on the right side than the 217198 unit had and be labled "A" FOAM and "B" FOAM.

FOAM TANKS

Two (2) foam tanks, one 25 (Class A) gallon and one 50 (Class B) gallon with square hinged lids, equipped with a hold down devices shall be installed and plumbed with non-corrosive piping to the foam system. The fill towers shall be approximately 10" x 10".

A label shall be affixed to the foam tank fill indicating: “WARNING” Class A (or B) foam tank fill, do not mix brands or types of foam.

The 25 gallon foam tank tag color to be green and silver and the 50 gallon foam tank to be yellow and silver. Match 217198.

Each foam tank shall be integral with the booster water tank provided.

There shall be a 1" quarter turn drain valve installed on each tank to allow draining. The valves shall be installed in the pump house and the drain lines extended to the side running board.

The lines shall be labeled accordingly to match the foam tanks.

There shall also be a shut off valve installed at each foam tank. The valve diameter shall match the diameter of the bung provided by the tank manufacture.

TWO (2) FOAM TANK LEVEL GAUGES

There shall be two (2) Fire Research TANKVISION LED electronic foam level gauges located on the operator's control panel. Each level gauge utilizes ultra bright LEDs for sunlight readability, and two wide-viewing lens for 180 degrees of clear viewing. One gauge shall be used for monitoring the level of Class A foam, the other Class B foam.

Shall include color matching bezels to the gauges with labels above the gauges that read 25 GAL and 50 GAL.

The float switch's for the foam tanks shall be protected from accidental contact from the tank strainer when not put in properly.

FOAM PRO POWER FILL

The apparatus shall be equipped with two (2) FoamPro Power Fill foam systems. Each foam fill system shall be a FoamPro Power Fill with electronic, automatic, concentrate refill system, to increase safety of firefighter personnel. The systems shall operate independently of the foam proportioner allowing simultaneous use. Refill operations shall not require apparatus or fire pump to be running. The systems shall be capable of handling Class A or Class B foam concentrates, emulsifiers, gels and decontamination concentrates. The apparatus shall be plumbed from the externally accessed intake/flush ports to the concentrate cell. External fill and

flush connections shall be quick-connect cam-lock type. Internal piping shall incorporate check valves to prevent back flow. Concentrate tanks inlet shall be positioned to minimize agitation. The refills operation shall be based on direct measurement of concentrate level in tank. The systems must be capable of automatically stopping when cell is full and include a manual override feature. The systems shall be equipped with an electronic control suitable for installation on the pump panel. Incorporated within the control shall be a microprocessor that receives input from the system while controlling foam concentrate pump output. An all-bronze three-way valve shall be included to allow the operator to flush systems after use. Valve control, intake and flush ports shall be located within corresponding panel plate.

The systems shall enable the operator to perform the following control/operation functions and status indicators for the refill operation:

a) Provide push-button start/stop control of foam refill
b) Solid green light advises operator concentrate cell is full
c) Flashing green indicates system is running
d) Green light off, system off
e) Allow override of “full tank” condition
f) Provide a means to flush the pump and intake piping

The systems shall include a 12 or 24-volt electric motor driven, positive displacement concentrate pump. The pump(s) shall deliver minimum flow of 10 gpm (37.8 L/min) @ 20 psi with all concentrates currently utilized in fire apparatus. Pump body to be of all-bronze construction and other wetted components and piping to be constructed of non-corrosive materials. The systems will draw a maximum of 38 amps @ 12 VDC or 19 amps @ 24 VDC. A pump/motor solenoid (mounted to the base of the pump) shall receive signals from the computer control display and power the 1/2 hp (0.4 Kw) electric motor directly coupled to the concentrate pump. The systems shall receive readings when the concentrate tank is full and stop operation to prevent overfill.

Components of the complete refill systems shall include:

a) Operator control and display with Weather-Pac connectors
b) Refill/flush quick-connect cam-lock fittings and cap
c) Check valves
d) Pump/motor assembly and solenoid
e) Strainer
f) Tank level switch
g) Three-way fill/flush valve
h) Stainless steel pickup wand and 6 feet of reinforced suction hose, 1 inch in diameter to allow maximum flow
i) Panel placards

Each system shall be labled for either "CLASS A FOAM ONLY" or "CLASS B FOAM ONLY"

Both foam fills will be on the LH side of the apparatus on the lower sill ahead of the steamer. A foam will be forward-most.

HYDRAULIC FOAM SYSTEM RESERVOIR AND COOLER

A hydraulic oil supply shall be provided to supply a flow of up to 30 gpm. The hydraulic system must comply with all applicable SAE and DOT standards. The approximate size of the unit should be 29 inches tall, 29 inches wide, by 17 inches deep. The hydraulic system shall contain the following:

A hydraulic reservoir with a minimum capacity of 8 gallons is required. The reservoir must have a diffuser on the inlet to prevent entrapment of air into the system. A particle screen, of 100 mesh, on the oil inlet shall be installed help keep dirt out of the system. A vented, filtered breather of sufficient size to allow filling of oil is required. An oil drain in a serviceable location is required.

A replaceable-type oil filter is required with at least a 10 micron absolute rating.

A thermostat is required to be included for quick warm-up of the oil.

An oil cooler, capable of maintaining the temperature of the hydraulic oil at or below 180 degrees Fahrenheit, is required. An electric fan controlled by a temperature switch will be attached to the oil cooler to promote air circulation across the oil cooler. The required cooling will be approximately 900 BTU/min. at 7 GPM.

AIR CHUCK OUTLET

There shall be a quick disconnect air chuck outlet furnished and installed on the apparatus. The air chuck outlet shall be plumbed to the CAFS reservoir and have on/off valve and label on the left side lower pump compartment sill. The air pressure shall be proportional to the water pressure until the air system is switched to override the balance valve, where the maximum pressure will be 150 PSI as maintained by the regulator on the CAFS compressor.

DUPLEX PRESSURE GAUGE

The master gauge specified above shall be upgraded to duplex for compatibility with CAFS system.

RIGHT SIDE INLET

There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the right side of the apparatus with the following specified components.

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with stainless steel ball.

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping, and shall incorporate a manual drain

control installed below the pump area for ease of access.

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug, secured by a chain

INLET LOCATION

The inlet shall be located on the pump panel in the rearward position.

PUMP COMPARTMENT SPEEDLAYS

Two (2) speedlay(s) shall be provided for up to 200 feet (60m) of 1.75 inch (44.4mm) hose.

Chicksan swivels shall be installed above each speedlay hose bed accessible enough for hose couplings to be tightened on to chicksans and allow the speedlay hose beds to be removable, if required.

The speedlay hose beds shall have vertical and horizontal hand cut outs in each end to aid tray removal and replacement. Chicksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

DISCHARGE VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

The plumbing shall consist of 2” piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

The discharge termination shall include the following components:

One (1) 2" NPT x 1.5" NST brass chicksan swivel

FLOWMETER and PRESSURE INDICATOR

Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4.375" (111mm) high by 4.375" (111mm) wide by 3.50" (88mm) deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with

an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI. The flow meter shall be back lit.

All bezels shall be color coded to match the discharge.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

2.5" SPEEDLAY

One (1) speedlay(s) shall be provided for up to 200 feet (60m) of 2.5 inch (63.5mm) hose.

Chicksan swivels shall be installed above each speedlay hose bed accessible enough for hose couplings to be tightened on to chicksans and allow the speedlay hose beds to be removable, if required.

The speedlay hose beds shall have vertical and horizontal hand cut outs in each end to aid tray removal and replacement. Chicksan swivels shall swing from left to right to allow attached hose to be deployed from either side.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

The plumbing shall consist of 2 1/2” piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

The discharge termination shall include the following components:

One (1) 2.5" NPT x 2.5" NST brass chicksan swivel

FLOWMETER and PRESSURE INDICATOR

Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions

not to exceed 4.375" (111mm) high by 4.375" (111mm) wide by 3.50" (88mm) deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI. The flow meter shall be back lit.

All bezels shall be color coded to match the discharge.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

SPEEDLAY TRIM

Brushed stainless steel trim shall be installed at the openings on each side of the speedlay hose bed area. The trim shall extend 8" into the speedlay bay opening from the outer edge. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

The dealer shall provide a means of restraining the hose stored in the speedlays to prevent inadvertent deployment of hose during transit.

DISCHARGE OUTLET (Front Bumper)

One (1) front bumper discharge outlet(s) shall be provided and installed in the location specified.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

The plumbing shall consist of 2 1/2” piping, and shall incorporate a manual drain control installed below the pump area for ease of access. Auto-drain (s) shall be installed in the discharge piping at lowest point of the plumbed system.

The discharge plumbing shall be painted job color.

The discharge termination shall include the following components:

One (1) 2.5" NPT x 2.5" NST SST chicksan swivel

There shall be a rounded brushed stainless steel guard preventing the chicksan from swinging toward the cab.

The front bumper discharge shall be mounted on top of the gravel shield of the front bumper extension. The discharge shall be placed to the left of the hosewell. The discharge shall terminate with a chicksan swivel to accommodate deployment of hose in different directions. The discharge will be installed as far left of the Q2 and far forward as possible.

FLOWMETER and PRESSURE INDICATOR

Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4.375" (111mm) high by 4.375" (111mm) wide by 3.50" (88mm) deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI. The flow meter shall be back lit.

All bezels shall be color coded to match the discharge.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

RIGHT SIDE DISCHARGE

There shall be a gated discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

The plumbing shall consist of 2 1/2” piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

The discharge termination shall include the following components:

One (1) 2.5" Male NST adapter

One (1) 2.5" NST female by male swivel w/45 degree elbow

One (1) 2.5" female self-venting cap, secured by a chain

FLOWMETER and PRESSURE INDICATOR

Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4.375" (111mm) high by 4.375" (111mm) wide by 3.50" (88mm) deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI. The flow meter shall be back lit.

All bezels shall be color coded to match the discharge.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

LEFT SIDE DISCHARGE

There shall be a gated discharge installed on the left side of the apparatus. A total quantity of two (2) shall be provided with the following specified components:

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

The plumbing shall consist of 2 1/2” piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

The discharge termination shall include the following components:

One (1) 2.5" Male NST adapter

One (1) 2.5" NST female by male swivel w/45 degree elbow

One (1) 2.5" female self-venting cap, secured by a chain

FLOWMETER and PRESSURE INDICATOR

Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4.375" (111mm) high by 4.375" (111mm) wide by 3.50" (88mm) deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI. The flow meter shall be back lit.

All bezels shall be color coded to match the discharge.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

MASTER DISCHARGE

There shall be a master discharge installed on the right side of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series slo-cloz swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

The plumbing shall consist of 3” piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

The discharge termination shall include the following components:

One (1) 3" NST adapter

One (1) 3" NST female swivel by 5” Storz cast aluminum 30 degree elbow

One (1) 5" female Storz self-venting cap, secured by a chain

FLOWMETER and PRESSURE INDICATOR

Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4.375" (111mm) high by 4.375" (111mm) wide by 3.50" (88mm) deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI. The flow meter shall be back lit.

All bezels shall be color coded to match the discharge.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

RIGHT REAR DISCHARGE

There shall be a gated discharge installed on the right rear of the apparatus. A total quantity of one (1) shall be provided with the following specified components:

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

The plumbing shall consist of 2 1/2” piping, and shall incorporate a manual drain control installed below the pump area for ease of access.

The discharge termination shall include the following components:

One (1) 2.5" Male NST adapter

One (1) 2.5" NST female by male swivel w/45 degree elbow

One (1) 2.5" female self-venting cap, secured by a chain

MIDLAND FIRE DEPARTMENT

FLOWMETER and PRESSURE INDICATOR

Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4.375" (111mm) high by 4.375" (111mm) wide by 3.50" (88mm) deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI. The flow meter shall be back lit.

All bezels shall be color coded to match the discharge.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

DECK GUN MONITOR WATERWAY

There shall be one (1) deck gun monitor waterway(s) installed on the apparatus.

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series slo-cloz swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

The waterway shall be plumbed with 3" piping that terminates 3" above the top of the pump compartment unless otherwise specified or required by a specific deck gun selection as noted.

The plumbing shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

EXTEND-A-GUN-DEALER SUPPLIED

There will be a dealer supplied and Spartan installed Task Force Tips 12" Extenda-Gun and Hurricane deck gun with saddle bracket and sensor installed on the deluge pipe. The Extenda-Gun will be wired to the cab "Door Open" indicator light that will notify occupants when the gun

is not in the stowed position using the TFT saddle Sensor.

The deck gun shall be installed as low as possible so it is below the top of the cab when in the stowed position, match 217198.

FLOWMETER and PRESSURE INDICATOR

Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit shall be installed. The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4.375" (111mm) high by 4.375" (111mm) wide by 3.50" (88mm) deep. The module shall have a digital LED display for flow with super bright digits more than 3/8" high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI. The flow meter shall be back lit.

All bezels shall be color coded to match the discharge.
The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeters over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

The deluge pipe shall be located up through the pump compartment, center location in a recessed pan for the overall height restriction.

BOOSTER REEL

There shall be an electric rewind booster reel with automatic brake installed on the apparatus. The booster reel shall have a capacity to handle 1.00-inch diameter (25.4 mm) booster hose.

There shall be a manual rewind device provided. A manual crank shall be mounted adjacent to booster reel.

NIEDNER BOOSTER HOSE

The reel shall come equipped with 100 feet of 800 psi (55 BAR) Niedner booster hose.

The hose shall be provided in one (1) 100 foot (30 m) length with hardcoat aluminum couplings.

REEL FINISH

The hose reel specified shall be steel and painted the standard red utilized by Hannay.

MIDLAND FIRE DEPARTMENT

HOSE REEL VALVE

The reel shall be plumbed to the pump with a 1.00 inch (25.40 mm) quarter turn Akron brass 8000 series ball valve and 1.00 inch (25.40 mm) high pressure hose and couplings.

The valve shall be controlled from the operator's panel.

REWIND ACTIVATION

There shall be Two (2) electric rewind switch shall be located adjacent to the booster reel, one (1) each side of the pump compartment. The switch shall have a weather resistant rubber cover and a label indicating its function.

The switch shall be labeled "HOSE REEL".

Locations TBD at final inspection.

HOSE REEL LOCATION

The hose reel shall be mounted above the pump on the left side.

HOSE REEL ROLLERS

There will be two (2) sets of stainless steel bell roller guides installed, one (1) on each side upper pump house to allow hose payout either side of the apparatus.

Each set of rollers shall be mounted to the upper side panels, recessed into a notch in the pumphouse to keep the OAH down. Reference 218006.

The discharge shall be plumbed with an auto-drain located at the lowest point of the plumbed system.

FLOWMETER and PRESSURE INDICATOR WITH BACK LIGHT

The discharge shall be equipped with a Fire Research Insight model FPA402 combination digital flowmeter and pressure indicator kit installed on the operator's panel.

The kit shall include a flowmeter/pressure display module, paddlewheel flow sensor, flow sensor housing, pressure sensor, and interconnecting cables. The display module case shall be waterproof, manufactured of anodized machined aluminum, and have dimensions not to exceed 4.375 inches (111 mm) high by 4.375 inches (111 mm) wide by 3.50 inches (88 mm) deep.

The module shall be backlit and shall have a digital LED display for flow with super bright digits more than .375 inches (9.53 mm) high. Flow rate shall be displayed in GPM. The module shall have an analog display for pressure with an expanded scale in the normal operating range for more accurate readings. The pressure indicator input and movement shall be electronic. Pressure shall be displayed in PSI.

The flowmeter/pressure indicator program features shall be accessed from front of the module. The program shall support multiple calibration points for flow and pressure, set points for high

and low flow warnings, and flow totalizing functions. The pressure indicating needle shall be microprocessor controlled. The module shall be able to communicate with other FRC Insight flowmeter's over a datalink.

All flowmeters will be positioned in order to minimize ghost reading. Previous units have had to redo their position and were programmed to only display at GPM's over 50. The Flowmeters shall be installed per the OEM's recommended distances for valves and elbows

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in NFPA Pamphlet 1901, latest revision and shall be tested to those standards when the pump is being certified. One (1) non-collapsible flexible hose(s) and valve(s) shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 or Poly-Vinyl Chloride schedule 40 piping may be used to complete the connection from the tank to pump valve to the water tank. This PVC shall be painted red to match the pump.

TANK TO PUMP VALVE

A 3.50 inch (89 mm) Waterous valve shall be installed.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements to prevent water from back flowing at an excessive rate if the pump is being supplied from a pressurized source. The check valve shall be mounted as an integral part of the pump suction extension. A hole up to .25 inch (6.00 mm) is allowable in the check valve to release steam or other pressure buildup so that the void between the valve and check valve may drain of water that could be subject to freezing.

TANK FILL LINE

One (1) 2" tank fill/recirculating line shall be installed from the pump directly to the booster tank.

TANK FILL VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

TRI-MAX™ *Space Frame Body* - ALUMINUM

MIDLAND FIRE DEPARTMENT

The apparatus body shall be a Tri-Max™ **Space Frame** design, which serves as an incredibly durable, structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The space frame design provides maximum torsional resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The Tri-Max™ body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable.

Body Structure Members: The space frame body shall have triangular shaped structural members in certain areas of the body. This shape is required to prevent loss of useable compartment space. Other body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.5” in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from .125 to .250 throughout, dependent on the design requirement.

Body Material Type: All body structural members shall be Aluminum 6061-T6 alloy material. All .125 sheet material shall be Aluminum Alloy 5052-H32 and .250 sheet materials shall be Aluminum Alloy 3003. These alloys are required because it provides optimum all around performance for strength, manufacturing properties, and corrosion resistance.

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by a sufficient corrosion and electrolysis inhibitor.

Front Body Compartment Walls: The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

Rear Body Compartment Walls: The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

Compartment Top: The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

Compartment Floors: The body compartments shall be enclosed with aluminum sheet metal as specified above. The compartment floors shall have a 1” lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and

form a “sweep-out” compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

Compartment Load Capacity: Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment must be designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs per compartment
Half depth side compartment: 750 lbs per compartment
Rear center compartment: 1,500 lbs per compartment

NOTE: These values are for design purposes only for individual compartment construction and are not meant to be used as an actual overall weight rating for the specified apparatus.

Exterior Hose Bed Walls: The exterior hose bed walls shall be an integral portion of the body. The wall shall give a smooth exterior look and finish with no vertical supports tubing visible from the exterior of the truck.

Finite Element Analysis: The proposed body design must have completed a review and analysis by a legitimate 3rd party engineering firm. At a minimum, the 3rd party must have conducted a computer model finite element analysis of the proposed design. The analysis is to include real world working load scenarios. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and manufactured to provide longevity under normal conditions. The 3rd party must also validate the manufacturing processes are consistent with the design and analysis performed. Proof of having completed this testing must be submitted with the bid.

PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall be sprayed with a non-chromate sealing compound to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be PPG Industries Delta® brand, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infra-red, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanates in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cello solves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturer's recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state and local laws and regulations now in force or at any time during the courses of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Safety Data Sheet".

The following documents of the issue in effect on the date of the invitation to quote form a part of this document to the extent specified herein:

Federal Standards: Number 141A and 141B paint, varnish, lacquer and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body, will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects. The coating will meet the following test performance properties as a minimum standard. (SEE PDF).

BODY PAINT COLOR

The apparatus body shall be painted PPG 932071 red.

SPEEDLINER COMPARTMENT FINISH

The compartment interiors shall be coated with Speedliner. The color shall be medium gray.

Speedliner is an Industrial polymer coating with a low VOC content offering good resistance to U. V. and common chemical solvents including fuels and corrosive materials. Speedliner provides a tough 4600 psi tensile strength protective coating that is tear and abrasion resistant. Speedliner is approved in accordance with the Federal Motor Vehicle Safety Standard FMVSS 302 to provide an acceptable flammability and flame propagation rate for coatings applied to motor vehicles. It requires no special maintenance and is washable.

REAR TAILBOARD

MIDLAND FIRE DEPARTMENT

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body.
The tailboard shall be two (2) independent assemblies welded to the rear body structural framing to provide body protection and a solid rear stepping platform. The center section shall be framed for a slide out platform.

The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

The rear of the apparatus body shall be vertical in design - otherwise known as a 'flat-back'. On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded (Per NFPA 1901).

The rear tailboard shall be approximately thirteen and one-half (13.5) inches deep and shall incorporate a 3/16" smooth aluminum overlay that is coated with Black Line-X.

The stepping area shall span the width of the apparatus, overlapping the perimeter of the structural tailboard framework.

SLIDE OUT PLATFORM

One (1) slide out platform, utilizing an OnScene Solutions slide, approximately forty-one (41) inches in width shall be installed in the center of the rear tailboard, approximately 1" below the split outward tailboard sections.

The platform shall slide out approximately twenty (20) inches and lock in place when fully extended and when in the stowed positions. The Step shall be reinforced at the rearward portion for added strength.

The platform shall be made out of 3/16" Smooth Aluminum with Black Line-X coating.

GENERAL BODY DETAILS

All compartmentation shall be constructed in a sweep out design to be water and dust resistant, and manufactured to the maximum possible storage capacity.

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. The Manufacturer may be requested to supply evidence of fastener coating and results of salt spray testing when dissimilar metals are used. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

MIDLAND FIRE DEPARTMENT

All overlay and finishing fastners shall utilize the torx head screws with lock tight.

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework. Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

WHEEL WELL MODULES

The body wheel well area shall be fabricated of smooth aluminum and finish painted. There shall be “smart storage” compartmentation features incorporated on each side of the apparatus body wheel well modules to utilize and maximize storage space availability.

WHEEL WELL ROLL-OUT DRAWER

There shall be a roll-out drawer installed inside the L2 compartment on the left side of the body. The drawer shall be as wide and as deep as possible and have a 220 lb. capacity.

This drawer shall have an Austin Hardware front drawer release.

WHEEL WELL ROLL-OUT DRAWER

There shall be a roll-out drawer installed inside the R2 compartment on the right side of the body. The drawer shall be as wide and deep as possible and have a 220 lb. capacity.

This drawer shall have an Austin Hardware front drawer release.

FIRE EXTINGUISHER STORAGE COMPARTMENT

There shall be a compartment located in the wheel well for storage of one (1) 2.5 gallon water extinguisher and one (1) 20 lb. ABC fire extinguisher.

The depth of these compartments will be 25". There will need to be a cutout on the back side to extend the storage areas deeper toward the frame rail.

The compartment module shall be located in front of the axle on the left side.

SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" Diameter x 24" long SCBA bottles with 1" nylon safety loops installed.

The compartment module shall be located in front of the axle on the right side.

SCBA COMPARTMENT

There shall be a compartment located in the wheel well to hold three (3) 6.75" Diameter x 24" long SCBA bottles with 1" nylon safety loops installed.

The compartment module shall be located behind the axle on the right side.

INTEGRATED FLOOR DRY STORAGE MODULE

A floor dry storage module with pivoting re-fill access door shall be provided and installed in the apparatus wheel well area as specified.

The floor dry storage module shall be manufactured as large as possible to maximize the available space. The module shall be integrated into the wheel well area and be capable of storing approximately 50lbs. of all purpose floor dry absorbent compound material.

A manual drain shall be located at the bottom of the compartment for ease of dispensing the material. The storage module shall be labeled "Floor Dry".

The compartment module shall be located behind the axle on the left side.

All smart storage doors shall be painted and made of 3/16" aluminum and utilize thumb latches for closure devices.

DOOR OPEN INDICATOR

There shall be a switch installed for each smart storage compartment door.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “hazard light” in the cab to alert the crew.

VIBRA-TORQUE™ BODY MOUNTING SYSTEM

The entire body module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted

so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The Vibra-Torque™ body mounting system shall have a lifetime warranty.

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99" excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. The vents will be chrome louvered plate and installed appropriately on the compartment interior walls.

REAR COMPARTMENT PARTITIONS

The rear center compartment of the apparatus shall have permanent partitions installed to increase utilization of the rear center area and to block access to either of the side compartments. The partitions shall be constructed of the same materials as used in the body structure and shall be welded in place to form permanent compartmentation.

SIDE COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed in all apparatus body “SIDE” compartments, except those noted below, to accommodate the installation of shelves, trays, and or other miscellaneous equipment.

There will not be unistrut in the L2/R2 compartments or the upper rear walls of the L1/R1 compartments as there is no divider between the L1/L2 & R1/R2 compartments.

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1": There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 39" wide by 74" high with a lower depth of 25.5" and an upper depth of 12.5". The framed opening shall measure 36.5" wide by 70" high.

Compartment "L2": There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62" wide by 45.25" high with a depth of 12.5". The framed opening shall measure approximately 62" wide by 40.5" high.

MIDLAND FIRE DEPARTMENT

Compartment "L3": There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 43" wide by 74" high with an upper depth of 12.5” and the lower portion being transverse into the rear compartment, unless partitions are installed. The framed opening shall measure approximately 40.5" wide by 70" high.

The full depth area of this compartment shall extend approximately 47” up from the compartment floor.

Compartment "R1": There shall be one (1) full height compartment located ahead of the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 39" wide by 74" high with a lower depth of 25.5" and an upper depth of 12.5". The framed opening shall measure approximately 36.5" wide by 70" high.

Compartment "R2": There shall be one (1) compartment located directly over the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 62" wide by 45.25" high with a depth of 12.5". The framed opening shall measure approximately 62" wide by 40.5" high.

Compartment "R3": There shall be one (1) full height compartment located behind the rear wheels on the right side of the apparatus. The approximate interior dimensions of this compartment shall be a minimum of 43" wide by 74" high with an upper depth of 12.5” and the lower portion being transverse into the rear compartment, unless partitions are installed. The framed opening shall measure approximately 40.5" wide by 70" high.

FULL HEIGHT (NARROW OPENING) REAR CENTER COMPT W/ ROLL-UP DOOR

“B1” Compartment: There shall be one (1) compartment located at the rear of the apparatus, directly below the hose bed access area.

The approximate interior dimensions of this compartment shall be 43” wide and 47" high or as high as possible determined by the hose bed height with a depth of 25" dependent on suspension, with the sides of the compartment being open to the side compartments for maximum storage area.

The compartment shall have a roll-up door installed. The framed opening shall be approximately 34" wide and 41" high.

HOSEBED EXTENSION

A 5.00 inch deep hosebed extension shall be provided at the rear of the hosebed. The extension shall be constructed of 3/16" Smooth Aluminum and coated with Black Line-X and shall be as wide as the hosebed.

RECESSED INTERMEDIATE REAR STEP

There will be an 8.00 inch recessed intermediate step above the rear center compartment designed into the rear body wall. This step will shorten the length of the hose bed by 8.00 inches and lower the door opening of the rear center compartment.

MIDLAND FIRE DEPARTMENT

The rear step shall be fabricated of 3/16" smooth aluminum and coated with Black Line-X.

One (1) light(s) shall be installed to illuminate the stepping areas as provided. Each light shall be a On Scene Solutions "Access" 18” LED. Each light shall be directed towards and positioned above the stepping surfaces.

This light shall be mounted under the hose bed extension.

This light shall come on with the park brake.

R.O.M ROLL-UP DOORS

R.O.M Corporation GEN IV brand roll-up doors shall be provided and installed on the apparatus. The door slats shall be of a double wall box frame extrusion. Exterior surface shall be flat and the interior surface shall be concave to prevent loose equipment from jamming the door. The slats will be anodized to prevent oxidation and there shall be inner-locking end shoes on every slat, secured by a punch and dimple process. The slats shall have interlocking joints with a folding locking flange. There shall be a PVC/Vinyl inner seal between each slat to prevent metal to metal contact.

The track shall be of a one piece aluminum design with an attaching flange and finishing flange incorporated into its design to facilitate installation and provide a pleasing finished look without additional trim or caulking. The track shall have a replaceable side seal to resist water and dust intrusion into the compartment.

The drip rail shall be fabricated of aluminum and have a built in replaceable wiper seal. The Roll-up door shall have a 4" diameter counterbalance, to assist in lifting while eliminating the risk of accidental closing. The door shall be secured by a full width lift bar, operational by one hand with heavy gloves. The securing method will be of a positive latch device design.

REAR COMPARTMENT DOOR ALUMINUM SATIN FINISH

The rear center compartment door shall be satin aluminum finish.

ROLL-UP DOOR PROTECTORS

There shall be a protective cover installed under the rear compartment door roll to protect the door in the rolled up position.

The cover shall be fabricated of smooth aluminum and of natural finish.

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the bar is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “Door Open” indicator light in the cab to warn the crew.

MIDLAND FIRE DEPARTMENT

REAR COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed on the back wall of the rear center compartment to accommodate mounting of shelves, trays, tool boards and or other miscellaneous equipment.

DOOR CONSTRUCTION

All horizontal and vertical side compartment doors shall be roll-up style doors.

R.O.M ROLL-UP DOORS

R.O.M Corporation GEN IV brand roll-up doors shall be provided and installed on the apparatus. The door slats shall be of a double wall box frame extrusion. Exterior surface shall be flat and the interior surface shall be concave to prevent loose equipment from jamming the door. The slats will be anodized to prevent oxidation and there shall be inner-locking end shoes on every slat, secured by a punch and dimple process. The slats shall have interlocking joints with a folding locking flange. There shall be a PVC/Vinyl inner seal between each slat to prevent metal to metal contact.

The track shall be of a one piece aluminum design with an attaching flange and finishing flange incorporated into its design to facilitate installation and provide a pleasing finished look without additional trim or caulking. The track shall have a replaceable side seal to resist water and dust intrusion into the compartment.

The drip rail shall be fabricated of aluminum and have a built in replaceable wiper seal. The Roll-up door shall have a 4"diameter counterbalance, to assist in lifting while eliminating the risk of accidental closing. The door shall be secured by a full width lift bar, operational by one hand with heavy gloves. The securing method will be of a positive latch device design.

SIDE COMPARTMENT DOOR ALUMINUM SATIN FINISH

The side compartment roll up doors shall be satin aluminum finish.

ROLL-UP DOOR PROTECTORS

There shall be a protective cover installed under each body side compartment door roll to protect the door in the rolled up position.

Each cover shall be fabricated of smooth aluminum and of natural finish.

DOOR ASSIST STRAPS

There shall be nylon straps installed on both the left and right body side 'high side' compartment doors to assist in closing the door. The strap shall be attached to each door and permanently mounted to the rearward wall with footman loops using nutzerts, half way between the top and bottom of the compartment.

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the bar is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “Door Open” indicator light in the cab to warn the crew.

SILL PLATES

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

HOSE STORAGE

A hose bed shall be provided and installed with a minimum of thirty (30) cubic feet of storage space available. The hose bed shall have a slotted 1/4" aluminum flooring installed to allow drainage through the tank cavity to the ground below.

The aluminum flooring shall be manufactured in discrete sections to allow for ease of removal and stability. The area shall be free of sharp edges to protect the hose when loading and unloading.

The hose bed floor shall extend off the back of the hose bed 5". The extension shall be 3/16" smooth aluminum coated with Black Line-X.

HOSE BED AREA

The hose bed area of the apparatus shall be overlaid with brushed stainless steel material.

The walls of the hose bed shall be 88" (or as needed to meet 114" max OAH to the ROM latch) tall, measured from the bottom edge of the compartments to the top flange.

HORIZONTAL SHUTTER HOSE BED COVER

Horizontal hose bed cover shall be Robinson brand.

Every slat shall have a drive-pin fastener to prevent the slats from moving side to side and binding the door. The slats shall be separated by an elastomeric inner seal to prevent dirt and moisture from entering the compartment.

The slats shall be double wall 6061 T-6 aluminum extrusion 2" high by .489" thick. Exterior and interior finishes are flat to prevent equipment from jamming the door. Every slat has a non-corroding roller. The track shall be a one-piece 6061 T-6 aluminum.

The operator housing shall be assembled and pre-wired with pennant plates and curtain "take-up".

The rear of the ROM hosebed cover shall have a manual "keyless" latch (match what was added on prior unit 217198 at final).

MIDLAND FIRE DEPARTMENT

The ROM hose bed roll cover (at front bulkhead area) needs to be 3/16" smooth aluminum and coated with Black LIne-X.

The hose bed cover shall be controlled by a single black paddle switch located on the left rear corner of the body above the tail light cluster. The switch shall be labeled "HOSEBED COVER"

There shall be additional access to mechanical components for the ROM shutter to make repairs if needed. The plate that holds the sensors “MUST BE” supported on both ends This will prevent vibrating and a false “Door Open” signal. On previous trucks this is a “L” bracket and only supported on one side and allows for bouncing.

There needs to be a label next to the locking mechanism that states “KEEP IN THE LOCKED POSITION”.

The horizontal shutter shall have a satin aluminum finish.

The horizontal shutter shall be electrically operated.

DOOR OPEN INDICATOR

The horizontal shutter shall have an integral door open indicator switch.

If the shutter is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “Door Open” indicator light in the cab to warn the crew.

There shall be a 5 second delay programmed into the multi-plex system for the ROM roll up shutter switch to prevent the "door open" warning readings while the truck is in transit.

HOSE BED LIGHTING

The horizontal shutter track shall have LED lighting. Match 217198 Midland. The lighting shall not be integrated with the track.

HOSE BED AREA TRIMMED W/ BRUSHED SST

The vertical corners along the back of the hose bed shall be trimmed with brushed stainless steel. The trim shall extend from the hose floor level up to the top edge of the body side.

The top rail on the hose bed side walls shall have a trim cap fabricated of brushed stainless steel. The cap shall run the entire length of the hose bed side wall and shall provide a smooth surface with a highly finished appearance. It shall extend down at least 1” on each side of the hose bed side wall.

The hose bed shall accommodate the following hose loads from left to right:

Qty	Size
300' of	3" (Double Stacked)
1000' of	5" (Quadruple Stacked)
300' of	3" (Double Stacked)

MIDLAND FIRE DEPARTMENT

REINFORCED HOSE BED DIVIDER

There shall be a reinforced hose ed divider provided and installed in the hose bed area of the apparatus body.

The divider shall be fabricated of 1/4" thick aluminum plate with a double sided reinforcement and attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner. The top and rear edges shall be reinforced with 1” round aluminum tubing for extra rigidity. Hose payout shall be unobstructed by the divider.

There shall be a total quantity of two (2) dividers installed in the hose bed.

HOSE BED DUNNAGE AREA

A vertical bulkhead shall be provided and installed at the front of the hose bed area, just behind the water tank fill tower, forming a storage area that is separated from the hose bed.

The rear face of the bulkhead shall serve as a mounting surface for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

This area shall utilize brushed stainless steel.

REAR FENDERETTES

Two (2) polished stainless steel fenderettes shall be provided on the body rear wheel well openings, one (1) each side. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

TANK CAPACITY

The tank shall be 750 gallons in capacity.

TANK LEVEL GAUGE

A Fire Research TankVision model WLA300-A00 tank indicator kit shall be installed on the apparatus. The kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The indicator shall show the volume of water in the tank on nine (9) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.

The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm.

The indicator shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in

connectors.

The water gauge shall have a blue bezel that matches the gauge below with a label that reads 750 GAL.

The FRC tank level gauge shall be connected to the chassis FRC MaxxVision Gauges.

PRO POLY POLYPRENE TANK

The water tank shall be designed to utilize cavities that have commonly been wasted space. The water tank shall extend up and over the rear center compartment to just behind the rear body wall. The water tank shall fill the void between the main hose bed floor and the top of the rear center compartment. This tank design shall provide for a lower overall tank height, resulting in a lower overall main hose bed height. In addition, this design shall create a lower center of gravity of the vehicle, for improved vehicle handling.

Tank Construction
The booster tank shall be constructed of 1/2" thick polyprene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

Cover
The tank cover shall be constructed of 1/2" thick polyprene and shall be recessed. A minimum of two lifting dowels shall be drilled and tapped 1/2" x 2" to accommodate the lifting eyes.

Baffles
The swash partitions shall be manufactured from 1/2" polyprene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

Mounting
The tank shall have a reinforced ¾” floor for added strength and durability. The tank shall be isolated from the body substructure cross members with 1/2" x 2 1/2" rubber strips that are 60 durometer in hardness. The tank shall sit nested inside the center body substructure and shall be completely removable without disturbing the body side panels. Tank stops on all four sides will keep the tank from shifting front to back or side to side.

FILL TOWER

The fill tower opening shall be approximately 13" x 12". The tower will have a 1/4" thick removable polyprene screen and a polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable 1/4" thick polyprene screen to prevent debris from falling into the tank. The fill tower shall have a 4" overflow that will discharge underneath the tank, behind the rear wheels. The overflow shall terminate above the tank water level when filled to the rated capacity.

The label color to be blue. Add labels to match 217198 Midland.

MIDLAND FIRE DEPARTMENT

The fill tower shall be located in the left front hose bed.

SUMP

The sump will be constructed in an 8.0” wide x 16.0” long x 3.0” deep area. The construction material shall utilize 1/2" polyprene and be located in line with the tank suction valve. There shall be a 4" schedule 40 polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2" above the sump.

The sump shall have a 3" plug for use in draining and cleaning out the tank.

OUTLETS

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

LADDER STORAGE

The ladders shall be stored within a compartment located beside the booster tank.

All items shall be stored in their own independent section to allow one item to be removed without disturbing another. There shall be polypropylene slide angles installed in each section where applicable, to support the ladders and allow ease of removal. There shall be a stop in the front of each section to prevent the items from sliding forward.

There shall be a vertically hinged door, matching the rear overlay material, on the rear of the compartment with two push button type latches and a chrome handle centered between the push button latches.

If the door is not properly closed and the transmission is placed into drive or reverse mode with the parking brake released, it shall activate the “Door Open” indicator light in the cab to warn the crew.

The top rearward portion of the ladder compartment shall be trimmed with brushed SST and shall have SST angles installed for the gripping area. Match 217198

The compartment shall be located on the right side of the tank, with the ladders lying on their side.

The compartment shall be enclosed through the tank and open at the pumphouse end; where "stops" will be incorporated to prevent the ladders from sliding forward and damaging internal pumphouse components.

The stops need to be robust. On the previous built units they were floppy and did not hold up.

The compartment shall be large enough for one (1) 10' aluminum folding ladder, one (1) 14 foot aluminum roof ladder, one (1) 24 foot two section Duo-Safety aluminum extension ladder, and two (2) pike poles to be stowed in individual divided slots, so one item may be removed without

disturbing another.

The dealer provided pike poles include:

One (1) 8' round "D" handle New York Roof Hook
One (1) 8' round "D" handle trash hook

There shall be a stop in the front of each compartment to prevent the items from sliding forward.

OVER-WHEEL COMPARTMENT PARTITIONS

Compartment partitions, fabricated of the same material as the body, shall be welded in place in over-wheel compartments flush to the forward and rearward frame openings in the following locations:

Full height compartment partitions between L2/L3 and R2/R3 {between L1/L2 and R1/R2 there are the short 13.25" partitions with 8" slots installed for the shelf mounting}.

These partitions shall aid in keeping loose equipment from falling into the fore and aft compartments.

SHELVING

Each shelf shall be fabricated of 3/16" thick aluminum sheet material with the outside and inside edges flanged up to prevent equipment from sliding off. Each shelf shall be as wide as possible to allow proper attachment to uni-strut channels. Each shelf shall be adjustable up and down.

All shelves shall be DA'd on all four sides and all half depth shelves cut 1" short for the installation of pac track by the dealer.

The following shall be provided:

A {11.5”} deep shelf shall be supplied and installed in the compartment. Each shelf shall be as wide as possible and there shall be a total quantity of ten (10).

- One (1) located in the L-1 compartment.
- One (1) located in the L-2 compartment.
- Two (2) located in the R-1 compartment.
- One (1) located in the R-2 compartment.
- Two (2) located in the R-3 compartment.
- Two (2) located in the L-3 compartment.

FULL DEPTH SHELF IN B1 COMPARTMENT

The shelf needs to be installed only in the full-depth area (on the rear uni-strut only), all the way to the back of the compartment leaving the front area of the compartment full height.

ROLLOUT TRAY/ONSCENE

Each tray shall be fabricated of 3/16" thick 3003 grade or higher aluminum with four 3” side flanges; corner welded for maximum strength. Each tray shall be as wide and deep as the door allows and secured to an (OnScene) rollout slide system constructed of anodized aluminum extrusions and assembled using stainless steel fasteners (no welds).

The slide shall use a three extrusion rail design utilizing twelve to sixteen (12-16) urethane rollers. he roller shall contain two (2) precision roller bearings mounted in an aluminum hub with a molded on urethane cover. The slide shall have a cable operated, spring loaded latch complimented by a large hand opening and red pull handle (Pull to Release). The slide shall lock in the closed and full extension positions.

All trays shall be DA'd on all four sides.

The following shall be provided:

A {1000#} capacity tray with {100%} extension shall be supplied and installed to the compartment floor. There shall be a total quantity of three (3).

- One (1) located in the L-3 compartment.

- One (1) located in the R-3 compartment.

- One (1) located in the rear center compartment.

FOLDING STEPS

Innovative Controls Inc. model #3004234 steps, made of high strength die cast aluminum, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

The steps shall include a molded gasket and drain at the bottom to allow any water to escape the assembly, preventing water ingress and keeping the mount from damaging painted surfaces.

The steps shall have a minimum of 46 sq. inches of surface area capable of sustaining a 1200 lb. static load. The steps shall be mounted no more than 18" inches between each step.

The following components shall be provided on each step:

One (1) Logo label

One (1) White step light

One (1) White down light

One (1) Safety label

One (1) Flying leads termination

STEP LOCATION

Three (3) folding steps shall be installed on the right forward vertical wall of the front compartment.

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

STEP LOCATION

Three (3) folding steps shall be installed on the left forward vertical wall of the front compartment.

10" HANDRAILS

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed in a location above the forward step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

STEP LOCATION

Two (2) folding steps shall be installed on the left rear vertical face of the body.

10" HANDRAIL

One (1) 10.00 inch long by 1.25 inch diameter handrail constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip shall be installed in a location above the rearward step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

HANDRAILS KNURLED ALUMINUM ILLUMINATED

Handrails shall be 1.25 inches in diameter, constructed of extruded aluminum with a knurled grip, full length red reflective strip and full length illuminated LED light strip.

There shall be a 2.00 inch minimum clearance between the handrail and the body. The light shall illuminate an area adjacent to the handrail and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus, standard requirements.

The following handrails shall be installed at the approximate lengths noted:

LED HANDRAILS

One (1) 20" long LED handrail shall be installed horizontally in the intermediate step area below the rear directional Ion lights.

One (1) 18" long LED handrail shall be installed on the outward face of the pumphouse, below the bell rollers, one (1) each side.

Locate at final inspection (the will be located in the general area as above, so the wires can be run)

Each handrail LED light strip specified shall be white/clear in color.

ILLUMINATED HANDRAIL LIGHTING ACTIVATION

The illuminated handrail light shall be activated when the park brake is set.

SIDE RUB RAILS (ALUMINUM CHANNEL)

The lowest edge of the apparatus body side compartments shall be trimmed with brightly anodized aluminum channel rub rail material.

The rub rails shall be approximately 3.00" high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rails shall not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The rub rails shall be secured with stainless steel fasteners and spaced away from the apparatus body with ½" nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

REAR RUB RAIL (ALUMINUM CHANNEL)

The rearward edge of the rear step shall be trimmed with brightly anodized aluminum channel rub rail.

The rub rail shall be approximately 3.00" high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rail shall not be constructed as an integral part of the apparatus body structure, allowing the rub rail to be easily removed in the event of damage.

The rub rail shall be secured with stainless steel fasteners and spaced away from the edge of the rear step with ½" nylon spacers, to help absorb moderate rear impacts and prevent the collection of water and debris for easier cleaning.

RUB RAIL REFLECTIVE STRIPING

One inch reflective "Diamond Grade" striping shall be applied to the length of each rub rail section making the perimeter of the apparatus more readily visible.

The reflective striping shall be "Ruby Red" in color.

OVERLAYS

The entire front face of the apparatus body shall have brushed stainless plate overlays installed.

The entire rear face of the apparatus body shall have raw aluminum overlays installed for the installation of chevron striping.

All overlay materials shall be coated with 3M adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

The front of the apparatus body vertical wall overlays shall be installed with a 16 gauge brushed stainless steel 1.0" x 1.0" corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The rear face of the apparatus body, vertical wall overlays shall be installed with an 16 gauge brushed stainless steel 1.0” x 1.0” corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

CATWALKS

The catwalks shall be constructed of 3/16" smooth Aluminum and coated with Black Line-X.

TOW EYES

There shall be two rear tow eyes installed to the frame rails, one each side, accessible below the rear of the apparatus. They shall be manufactured of 1.00 inch plate steel and each plate shall be bolted to the chassis frame rail with a minimum quantity of (6) grade 8 bolts. The two plates shall be anchored together with 1.00 inch steel tubing to prevent swaying of the frame rails during a towing operation. All steel components shall be painted black.

LOW-VOLTAGE ELECTRICAL SYSTEM

The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the NFPA 1901 standard guidelines.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be provided in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer shall not be accepted**.

Vista layout Saved in truck file under engineering elect notes folder.

FD requests full amps draw report at build specs.

NODE

An electrical distribution node or relay shall be located as high as possible on the interior of the rearward most rear compartments on each side of the apparatus body.

Full depth body compartmentation designs shall have the node mounted to the rear frame wall that is perpendicular to the chassis frame rails.

Half depth compartmentation designs shall have the node mounted to the rear frame wall that is perpendicular to the chassis frame rails.

A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16 to 22” in length and shall match the compartments interior finish. Node covers will not include any type of shelve mounting structure and shall limit the height of uni-strut or shelf height within the compartments.

LED DOT LIGHTING

There shall be a total of eleven (11) red clearance lights and two (2) amber clearance lights installed on the apparatus. There shall be seven (7) red clearance lights located on the rear of the apparatus, two (2) lights shall be located in the lower rear rubrail and three (3) lights shall be located between the recessed step area and the B1 compartment.

On the sides of the apparatus there shall be four (4) red clearance lights, two (2) located on each side of the apparatus in the lower body at the front and rear portion of the rear compartments. Additionally, the sides of the apparatus shall have two (2) amber clearance lights installed, one (1) located on each side of the apparatus in the lower body at the rear portion of front compartments.

There shall be four (4) amber intermediate turn signals located on the sides of the apparatus. They shall be located two (2) on each side of the apparatus in the lower body portions, one (1) at the front of front compartments and one (1) at the front of the pump compartment.

There shall also be two (2) Britax rubber mounted marker lights mounted on the body one (1) each side as far to the rear as possible in the cast housing on the rear tailboard (rearward of the warning light). Reference placement at final on 217198

The lights shall be Weldon brand 9186-1500 series LED red and amber markers

INTERMEDIATE TURN SIGNALS

The intermediate turn signals will steady burn when not blinking.

LED REAR TAIL LIGHT WARNING CLUSTER

There shall be a Whelen M6-Series Super LED rear tail light cluster provided and installed in individual polished bezels on the rear of the apparatus. The lights shall consist of the following specified components

1 - Whelen #M6BTT LED red brake light
1 - Whelen #M6T LED series amber turn signal light
1 - Whelen #M6 BUW LED clear backup light

MIDLAND FIRE DEPARTMENT

1 - 4X6 spot for the warning lamp specified below

BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

PUMP COMPARTMENT WORK LIGHT

One (1) Onscene "Access" LED Tube light(s) shall be installed in the pump compartment module to illuminate the piping and plumbing components. The light(s) shall be activated by a weather resistant toggle switch located behind the right side upper pump panel.

The light shall extend from the left to the right side of the pump box.

LED COMPARTMENT LIGHTING

ONSCENE COMPARTMENT STRIP LIGHTING

OnScene "Access" LED strip lighting shall be installed in the compartments as specified. The lighting in each compartment shall be on a separate circuit, and only illuminate when the compartment doors are open.

ON SCENE COMPARTMENT STRIP LIGHTING

Two (2) "Access" LED strip lights shall be installed in two (2) over wheel compartment(s).

ON SCENE COMPARTMENT STRIP LIGHTING

Two (2) "Access" LED strip lights shall be installed in four (4) full height compartment(s).

ON SCENE COMPARTMENT STRIP LIGHTING

Two (2) "Access" LED strip lights shall be installed in the rear center compartment.

PERIMETER LIGHTS

There shall be Six (6) LED underbody perimeter lights provided and installed in addition to the cab chassis lights. One, (1) under each side of the front of the body, two (2) under the rear step and One (1) under each side of the walkway to illuminate the ground around the truck.

These lights shall come on with the park brake and vista.

They shall be manufactured by Trucklite and be model # 44308C.

UPPER LIGHTING PACKAGE

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

All warning lights shall come on in reverse.

MIDLAND FIRE DEPARTMENT

The lightbar(s) shall be supplied with the chassis.

ZONE C: There shall be two (2) Whelen model L31H5FN beacons with 360 degree LED lights, red with clear lense, provided and installed on the apparatus.

One (1) each side on the rear upper outboard corners of the apparatus.

The upper ZONE C specified lights shall be mounted directly to the horizontal body surface as far rearward as possible.

LOWER LED WARNING LIGHTING

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the lower areas of the vehicle.

All warning lights shall come on in reverse.

ZONES B&D: There shall be four (4) Whelen model M6*C 4"x6" flashing LED lights, (2) Red and (2) Blue, with clear lenses and chrome bezels, provided and installed with the apparatus.

Two (2) on each side of the apparatus, at the pump panel and rear tailboard. The light at the pumphouse shall be moved as far rearward on the lower sill as possible.

The lights at the pump panel shall be red with clear lenses and the lights at the rear tailboard shall be blue with clear lenses.

The flash pattern will be Double Flash 150 I/O.

ZONE C: There shall be two (2) Whelen model M6RC 4"x6" flashing red LED lights with clear lenses and chrome bezels, provided and installed on the rear of the body.

The flash pattern will be Double Flash 150 I/O.

LOWER ZONES B&D CAST ALUMINUM LIGHT HOUSING WITH PAINTED INSERT

A cast aluminum light housing with painted outward facing inserts, shall be installed for the rearmost warning light in zones B&D. The housing will ensure the light is mounted as far rearward as possible.

The inserts shall be painted to color match the body.

ADDITIONAL WARNING LIGHTS

In addition to the NFPA warning light package, there shall be four (4) Whelen WION red LED lights with clear lenses installed two (2) each side. One (1) shall be installed in front and one (1) behind the rear axle on the upper body sides. These four (4) lights shall be installed in the upper section of the side compartment header centered above the compartments.

MIDLAND FIRE DEPARTMENT

In addition to the NFPA warning light package, there shall be four (4) Whelen WION red LED lights with clear lenses installed two (2) each side.

One (1) shall be installed in front and one (1) behind the rear axle on the lower body sides. These four (4) lights shall be installed in the rear fender (wheel well) area of the body.

All warning lights shall be programmed to action scan.

REAR DIRECTIONAL LIGHT BAR

There shall be six (6) rear directional lights provided and installed on the rear of the apparatus body. The lights shall be installed above the B1 compartment.

The lights shall be Whelen model #WIONSMCA LED ION amber lights with clear lenses and chrome bezels. Each light shall be surface mounted and equally spaced, spanning horizontally across the rear of the apparatus.

The lights shall be controlled by a Whelen #TACTL5 control head, that is supplied and installed by chassis.

The rear directional light controller shall be installed by chassis, located above the driver.

The light bar shall come on in "Rapid Random" with the E-master.

There shall be no cover over the rear directional light bar.

REAR VIEW CAMERA SYSTEM

A chassis supplied camera shall be surface mounted on the center rear of the apparatus body attached under the 5" hose bed extension for maximum viewing capability.

12 VOLT SCENE LIGHTS

There shall be two (2) Fire Research Spectra LED model #SPA260-Q20 surface mounted scene light(s) installed.

The lamp head housing shall be powder coated black .

The scene lights shall be located on the side of the body, one (1) each side, centered on the body side wall.

The scene light(s) shall be activated through the multiplexing vista display and by a weather resistant rocker switch on the pump panel.

Labeled "Left Scene Lights" and "Right Scene Lights" and shall activate the chassis side scene lights

12 VOLT BROW MOUNTED SCENE LIGHTS

MIDLAND FIRE DEPARTMENT

The chassis provided brow scene light shall be activated by a weather resistant rocker switch on the operator's panel.

TELESCOPING LIGHTS

There shall be a two (2) Fire Research Spectra MAX LED model #SPA530-Q28 side mount, bottom raise telescoping scene light(s) shall be installed. The light pole(s) shall have a friction type lock to hold the pole in the extended position.

The lamphead shall have eighty four (84) ultra-bright white LEDs, 48 for flood lighting and 12 to provide a spot light beam pattern. It shall operate at 12/24 volts DC, and generate 28,000 lumens of light.

The light heads shall be powder coated black to match all other scene lights.

The scene light pole(s) shall have a "up" indicator switch to indicate that the light is in a raised position.

The scene light poles(s)shall have steady rest brackets installed to support the inside pole when it is in the retracted position.

Two (2) light(s) shall be mounted on the rear face of the apparatus body.

The scene light(s) shall have a switch on the vista displays, Reverse activation and a weather resistant rocker switch on the pump panel.

The switch(s) shall be labeled 'Rear Telescoping Lights'

REFLECTIVE STRIPING

The reflective striping shall be supplied and installed by the dealer.

REAR RETRO-REFLECTIVE CHEVRON STRIPING

A minimum of 50 percent of the rear-facing vertical surface, visible from the rear of the apparatus, shall be equipped with Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees. The stripe shall be 6” wide alternating in colors in compliance with the current edition of NFPA 1901.

The retro-reflective chevron striping shall be red and fluorescent yellow-green in color.

LICENSE PLATE MOUNTING

A Cast Products, model LP0004-1-B, cast aluminum fully enclosed license plate bracket shall be installed. The bracket shall incorporate a clear LED light (WL0501) to illuminate the license plate and meet DOT requirements.

MIDLAND FIRE DEPARTMENT

MISCELLANEOUS EQUIPMENT

GROUND LADDERS

One (1) Duo-Safety 24' two (2) section aluminum extension ladder(s), model 900A

One (1) Duo-Safety 14' aluminum roof ladder(s) with folding hooks, model 775A.

One (1) Duo-Safety 10' aluminum attic ladder(s), model 585A

There shall be a Little Giant Defender model 17 6005-T5 aluminum ladder with patented triple-locking hinges, and 300lb capacity provided with the apparatus. There shall be a total quantity of one (1)

DEALER SUPPLIED SERVICES/EQUIPMENT

KNOX BOX INSTALL

The customer supplied Knox Box will be installed in the apparatus.

ONSCENE TALON HELMET HOLDERS

There will be three (3) Obscene Talon helmet holders provided and installed on the apparatus.

DAVID CLARK INTERCOM

There shall be a David Clark intercom system provided and installed on the apparatus.

INSTALLATION OF FD SUPPLIED RADIOS

The Fire Department radios/antennas will be installed by the dealer.

INSTALLATION OF DEALER SUPPLIED EQUIPMENT

The equipment provided by the dealer will be installed by the dealer.

PAK TRAC

Performance Advantage tool boards will be supplied in the upper portion of three (3) compartments.

TOOL BOARDS W/PAK TRAC

There shall be two (2) tool boards with Pac Trac provided and installed in the L1 compartment.

CUSTOM RESCUE TOOL TRAY

There will be a custom designed rescue tool tray in the R3 compartment.

MIDLAND FIRE DEPARTMENT

CUSTOM POWER SAW TRAY

There will be a custom designed saw holder installed in the L3 compartment.

CUSTOM MAP CONSOLE

There will be a custom designed map book holder in the cab.

TFT HURRICANE DECK GUN

There shall be one (1) TFT Hurricane Deck Gun provided and installed on the apparatus.

HOSE BED RESTRAINTS

There shall be hose bed restraints provided and installed for the speedlays and hose bed.

SURVIVOR LED FLASH LIGHTS

There will be four (4) survivor and two (2) Vulcan LED flashlights provided and installed on the apparatus.

CUSTOM EMS GLOVE BOX HOLDER

There will be two (2) custom 3/16” aluminum glove box holder provided and installed on the apparatus. The holders will be covered in a bed liner material for durability

DEALER SUPPLIED EQUIPMENT

Item Number	Description	Ordered	U/M
ACE-815	HANDLE	2	EA
AUS-ADS 7650-22-LH	22" HEAVY DUTY SLIDE	2	EA
AUS-AH 7600-22	22" HEAVY DUTY SLIDE	3	EA
BEA-HLN9073	HANG UP CLIP FOR MIC	3	EA
BEC-AX240	2.5 GALLON WATER EXTINGUISHER	1	EA
BEC-AX411	20# ABC EXTINGUISHER	1	EA
BUL-QXTBUNDLE-BLU	BULLARD QXT IMAGER	1	EA
BUL-XT320	UPGRADE 320 X 240 RESOLUTION	1	EA
BUL-XTETT	THERMAL THROTTLE FOR	1	EA
BUL-XTRETRACT	XT RETRACTABLE STRAP	1	EA
BUL-XTZOOM	XT SERIES 2X/4X DIGITAL ZOOM	1	EA
CDC-36 RDR 72	CHAIN FOR RESCUE SAW ONLY	1	EA
CDC-MS-461-RES 20	20" RESCUE SAW FOR FIRE DEPTS	1	EA
CTL-120PP	51" PINCH POINT CROWBAR	1	EA
CTL-C60P	FIBERGLASS HANDLE PICKHEAD AXE	1	EA
CTL-PR800FG	FIBERGLASS HANDLE 8# SLEDGE	1	EA
CTL-PR80MFG	FIBERGLASS HANDLE 8# MAUL	1	EA
CUP-JUMBO HOLDER - 1	TWO TIERED DUAL JUMBO	4	EA

MIDLAND FIRE DEPARTMENT

DAI-CA-009562-090	CABLE ASSEMBLY, CAN 90'	1	EA
DC-C3821	RADIO INTERFACE CABLE	1	EA
DNS-NETTING	EMS NETTING, STRAPPING DESIGN	1	EA
FHU-A=TOOL	OFFICERS TOOL KIT	1	EA
FHU-EKS-12	ELEVATOR KEY SET	1	EA
FHU-K-TOOL	K-TOOL COMPLETE	1	EA
FHU-LS-8	LOCK SLOT 8 AXE	2	EA
FHU-PB-30	PRO BAR 30"	2	EA
FHU-RH-4	NEW YORK ROOF HOOK 4'	1	EA
FHU-RH-6	NEW YORK ROOF HOOK 6'	1	EA
FHU-RH-8	NEW YORK ROOF HOOK 8'	1	EA
FHU-TRH-6	TRASH HOOK 6' WITH D HANDLE	1	EA
FIRECOM-520-0676-00	HANGER HOOK HEADSET BULK	4	ea
FP-3430-0705	FOAM PICK UP TUBE - KIT	1	EA
GOS-CVS10-03X18	SALVAGE COVER 10 OZ. RED VINYL	2	EA
GOS-CVS10-12X12	SALVAGE COVER 10 OZ. RED VINYL	2	EA
GOS-CVS10-12X18	SALVAGE COVER 10 OZ. RED VINYL	2	EA
HAR-HHR-2	TWO MAN HOSE ROLLER	1	EA
HAR-HSSW-401	(4) STANDARD SPANNER	2	EA
JOT-425-6368	OS MBV FACEPLATE	2	EA
KEY-DN30-800-YEL-50-ARN	MAGNUM LITE HOSE 3"	12	EA
KEY-DP10-800-ECO-ORG-50-ARN	ECO-10 HOSE 1.00" X 50' ORG	4	EA
KEY-DP17-1000-RED-50-ARN	COMBAT READY HOSE 1.75"	14	EA
KEY-RC50-450Y-100-STRZ	PRO FLOW LDH 5.0" X 100'	10	EA
KOC-37R151-H52	F NH RL 1.5" X M NH 1"	1	EA
KOC-37R15G	1.5"FM x GARDEN HOSE	1	EA
MET-HYDRANT/SPANNER SET	ONE ADJUSTABLE HYDRANT WRENCH	2	EA
NUP-35002	D-HANDLE REPLACEMENT KIT	1	EA
NUP-39024	EPOXY GLUE	1	EA
NUP-SF2SG	DEAD BLOW HAMMER (10025)	1	EA
NUP-UCC-30	30" BOLT CUTTER (69703)	1	EA
NUP-YPDH-8-HD	8' YPDH PIKE POLE (36128)	1	EA
PAC-1007	UNIVERSAL MOUNT	1	EA
PAC-1009	TOOL MOUNT / HANGER	1	EA
PAC-1070	JUMBO LOK	1	EA
PAC-7002ALF	100 TRACLOC INSERTS PACKAGE	1	EA
RAM-XHMEG	FUSE HOLDER FOR AMG FUSES	1	EA
SEN-25PT-F	2.5" MOUNT POST	4	EA
SEN-25PT-M	2.5" MOUNT POST	4	EA
SEN-SH1	SINGLE STORZ MOUNT	1	EA
SEN-SH1	SINGLE STORZ MOUNT	1	EA
SL-22073	POWER SUPPLY FOR	1	EA
SL-22074	AC POWER PLUG FOR	1	EA

MIDLAND FIRE DEPARTMENT

SL-45670	PORTABLE SCENE LIGHT	1	EA
SMC-0231-BB1-001	WELL NUT - RUBBER	1	EA
SMC-PROGRAM CHANGE	VMUX COMPUTER PROGRAM CHANGE	1	EA
SMC-PROGRAM CHANGE	VMUX COMPUTER PROGRAM CHANGE	1	EA
SNT-NP25X50W25N	N-DURA 2.5" X 50' WHITE	8	EA
SPC-QL-48Z15C	1.5" QUIC-LOC MOUNTING PLATE	1	EA
SPC-QL-48Z25C	2.5" QUIC-LOC MOUNTING PLATE	6	EA
SPC-RMP4906AC	2.5" NST CHROME SCREW PLATE	2	EA
SVI-718GC	18" PPV 5 HP GC HONDA	1	EA
TFT-AA1HST-NR	ADAPTER 5" STORZ X 4.5" FNST	2	EA
TFT-AA1ST-NJ	ADAPTER 5.0STORZ X 2.5NHF	1	EA
TFT-AA2ST-NJ	ADAPTER 5.0STORZ X 2.5NHM	1	EA
TFT-AA5NJ-NF	ADAPTER 2.5"NHF X 1.5"NHM	2	EA
TFT-AA6NF-NF	ADAPTER 1.5"NHM X 1.5"NHM	2	EA
TFT-AA6NJ-NJ	ADAPTER 2.5"NHM X 2.5"NHM	2	EA
TFT-AA7NF-NF	ADAPTER 1.5NHF X 1.5NHF	2	EA
TFT-AA7NJ-NJ	ADAPTER 2.5"NHF X 2.5"NHF	2	EA
TFT-AJ1ST-NX	ELBOW 5.0S RIGID X 6.0NHF	2	EA
TFT-AY5NJ-NJ	2.5" GATED WYE	2	EA
TFT-AYSNJ-NF	GATED WYE, SHORT HANDLES	3	EA
TFT-FSNYSTACK	NEW YORK STACK TIP1.5NH INLET	1	EA
TFT-FSS10	STRAIGHT TIP 1-1/8 X 1.5NH	1	EA
TFT-HM-VPGIS	MID-MATIC W/GRIP 1.5	3	EA
TFT-HVITG24	VALVE INTEGRAL TIP NOZZLE	1	EA
TFT-MDJ17A	MID-MATIC W/ GRIP	1	EA
TFT-ME0-VPGI	METRO 0 W/GRIP 1.0NH	1	EA
TFT-SVFG-NJ	VORTEX WITH DETENT VALVE	1	EA
TFT-XX-B	STORAGE BRACKET - BLITZFIRE	1	EA
TFT-XXC-53	BLITZFIRE OSCILLATOR COMBO PK	1	EA
TNT-TN835	TNT TOOL 13LB. 8.5LB HEAD	1	EA
WEH-GMM-1	GLAS-MASTER COMPLETE	1	EA
WES-1011B	BLUESEA 12V POWER OUTLET	2	EA
WES-1016B	BLUESEA 12V USB POWER OUTLET	2	EA
WES-298040	40AMP MEGAFUSE	1	EA
ZIA-1010PM3	COLLISION RESTRAINT STRAP	1	EA
ZIA-CPFL000003	QUIC-STRAP 2" FOOTMAN LOOP	8	EA
ZIA-HS	SEAT HARDWARE FOR ULL	2	EA
ZIA-UH-6-30-3-SFPHS	SCBA WALKAWAY BRACKET	1	EA
ZIA-UMFS-0711	7" UTILITY STRAP	1	EA
ZIA-UMFS-0911	9" UTILITY STRAP	1	EA
ZIA-UMVS-1116-11	VARIABLE STRAP	3	EA
ZIA-UMVS-1625-11	VARIABLE STRAP	1	EA

MIDLAND FIRE DEPARTMENT

City Council Meeting

Item Number: 14

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: Motion authorizing the execution of an Interlocal Agreement with Region 20 Education Service Center for the purpose of providing the City of Midland with cooperative purchasing services through the Purchasing Association of Cooperative Entities (PACE) Purchasing Cooperative. (GENERAL SERVICES)

Purpose:

Approval of a motion authorizing the execution of an Interlocal Agreement with Region 20 Education Service Center for the purpose of providing the City of Midland with cooperative purchasing services through the Purchasing Association of Cooperative Entities (PACE) Purchasing Cooperative.

Recommended City Council Action:

Approve

Fiscal Impact:

Funding is not required.

Discussion:

Please consider approval of a motion authorizing the City of Midland to participate in the PACE Purchasing Cooperative, a cooperative purchasing program. Texas Local Government Code 271.102 provides that a local government may participate in a cooperative purchasing program with a local cooperative organization of the state of Texas or another state. PACE Purchasing Cooperative will facilitate compliance with state procurement requirements, identify qualified vendors of commodities, goods and services, and provide the City with various potential economies by increasing buying power.

Therefore, please consider approval of a motion authorizing the City of Midland's participation in the PACE Purchasing Cooperative.

City Manager's Office

PACE PURCHASING COOPERATIVE

INTERLOCAL AGREEMENT

Member Name: _City of Midland_____ County District Number: _____

Education Service Center, Region 20 (Coop) and the above named agency (member) enter into the following cooperative service arrangement.

This agreement is effective __December 16, 2020___ _____ (date) and shall automatically renew unless either party gives ninety (90) days prior notice of non-renewal. This agreement may be terminated with or without cause by either party upon thirty (30) days written notice.

The Coop will:

- Handle bidding procedures
- Abide by all procurement laws in the State of Texas
- Enter proposals for tabulation and evaluation
- Arrange for an Award Committee to test, evaluate and award proposals
- Develop award information forms for member use
- Send award information to vendors
- Develop system for gathering evaluation information from members on vendor performance and product quality
- Provide comparison information with previous awards to evaluate effectiveness of proposals

The Member will:

- Designate a member employee to serve as a liaison with Coop
- Identify delivery location within Member on purchase orders
- Prepare purchase orders for items awarded on proposals
- Ensure timely payments to vendors who receive proposal awards
- Provide Coop with evaluation forms regarding vendor and product concerns
- Ensure a Resolution is properly executed if required

Authorization:

Education Service Center, Region 20 and the PACE Purchasing Cooperative executed a contract to provide cooperative purchasing services to government entities.

PACE PURCHASING COOPERATIVE

INTERLOCAL AGREEMENT

Member Name: _City of Midland_____ County District Number: _____

Please send a signed Interlocal Agreement to (or fax to 210-370-5776 or e-mail to 300 n):

Education Service Center, Region 20
Attn: PACE Coop
1314 Hines Ave
San Antonio, TX 78208.

Public Entity	**Education Service Center, Region 20**
BY:	**BY:**
Authorized Signature	**Authorized Signature**
Purchasing Manager	**Purchasing Coordinator**
Title	**Title**
12/2/2020	
Date	**Date**
Erika Martinez	**Jim Metzger**
Contact Person	**Contact Person**
Purchasing Manager	**Purchasing Coordinator**
Title of Contact Person	**Title of Contact Person**
300 N Loraine	**210-370-5204**
Street Address	**Phone Number**
Midland, Texas 79701	**210-370-5776**
City, State, Zip	**Fax Number**
432-685-7980	**jim.metzger@esc20.net**
Phone/Fax Number	**E-mail Address**
emunoz@midlandtexas.gov	
E-mail Address	

City Council Meeting

Item Number: 15

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Erika Martinez, Manager, Purchasing

Subject: RESOLUTION AWARDING CONTRACTS TO THE PLAYWELL GROUP, INC., PLAYWORKS, INC., EXERPLAY INC, AND 4B RECREATION DBA PLAYGROUNDS ETC. FOR THE PLAYGROUND RENOVATION PROJECT AT A TOTAL COST OF $1,688,416.00; AND APPROPRIATING FUNDS FOR SAID PROJECT (GENERAL SERVICES)

Purpose:

Approval of a resolution approving the purchase of playground renovations and equipment including installation from four (4) different Buyboard vendors through Buyboard contract 597-19 for a total cost of $1,688,416.00 for the Community Services Department.

Recommended City Council Action:

Approve

Fiscal Impact:

$1,600,000 is available in the Playground Renovation project (900315). An additional $250,000 is appropriated in the General Fund and transferred to Fund 005 to project 900315 for this project.

Discussion:

Staff recommends the purchase of playground renovations and equipment including installation from four (4) different Buyboard vendors through Buyboard contract 597-19. We are members of this cooperative and Subchapter F, Section 271.102 of the Local Government Code provides that a local government may participate in a cooperative purchasing program and that purchasing goods or services under Subchapter F satisfies any state law requiring the local government to seek competitive bids for those purchases. Please see the attached memo from Tina Jauz, Community Services Director, for more information.

Therefore, please consider a resolution approving the purchase of playground renovations and equipment including installation from The PlayWell Group, Inc of Boerne, Texas, Playworks, Inc. of Boerne, Texas and Exerplay Inc of Cedar Crest, New Mexico and 4B Recreation dba Playgrounds Etc. of Midland, Texas through Buyboard contract 597-19 for a total cost of $1,688,416.00.

Morris Williams Jr.

City Manager's Office

CITY OF MIDLAND
Community Services Department
Interoffice Memorandum

Date: December 3, 2020
To: Robert Patrick, Interim City Manager
From: Tina Jauz, Community Services Director
Subject: Playground Renovations and Equipment – Award Contracts and Appropriate Funds

The recently completed Parks, Recreation and Open Space Master Plan included evaluations of playground conditions, and those evaluations were utilized in selecting the parks where playground replacements are most needed. The Parks Division of the Community Services Department worked with multiple playground vendors requesting BuyBoard quotes for eight playgrounds in city parks. The eight parks include Reyes-Mashburn- Nelms, Beal, Henderson, Essex, Elkins, Lancaster, Kiwanis, and Trinity Parks.

Multiple concepts for each park were submitted, and the Parks and Recreation Commission evaluated and ranked the submittals. All playgrounds were expected to exhibit playability for ages 5-12, show variety and creativity, exhibit minimal potential for vandalism, provide ADA accessibility, and include integrated shade. In larger parks, a separate shade pavilion will be constructed. After the evaluation, three companies were selected to provide the eight playground renovations. Those companies were contacted and given the opportunity to resubmit quotes based on providing multiple playgrounds. Due to this process, a savings was realized that will allow a ninth park renovation, located at Santa Rita Park.

The timeline for installation is Spring 2021. The Parks Division Construction crew will work with the schedules of each company to remove the existing playground structures and complete needed concrete construction. In addition, tables, benches, and trash containers will be purchased under a separate contract. The purchases of these materials and site amenities will be funded by the Playground Renovation Project (900315).

The Parks and Recreation Commission (in conjunction with staff) is seeking City Council authorization to contract with the following companies that submitted the qualified bids for the playground renovation projects:

Exerplay quote in the amount of $683,820.41.
The Exerplay quote includes equipment and installation of playground renovations at Reyes-Mashburn-Nelms Park, Kiwanis Park, Elkins Park, and Essex Park. Shade structures will be installed at Kiwanis, Elkins and Essex Parks. RMN has existing picnic shades in the location of the new playground.

4B Recreation Group LLC quote in the amount of $667,193.00.
The 4B Recreation Group quote includes equipment and installation of playground renovations and shade structures at Trinity, Henderson and Beal Parks. It also includes a shade structure at Lancaster Park.

The Playwell Group in the amount of $278,336.53.
The Playwell quote includes the materials and equipment for the playground renovations at Lancaster and Santa Rita Parks.

The Playworks Group in the amount of $59,066.06.
The Playwell quote includes the installation of the Playwell Group's materials and equipment to complete playground renovations at Lancaster and Santa Rita Parks.

The total for the three quotes is $1,688,416.00. $1,600,000 is currently available in the Playground Renovation Project (900315) in the Capital Projects Fund. A generous donation of $250,000 by the Javid Anwar Family was made for the purpose of renovating playgrounds. Those funds are currently in the General Fund, and it is requested that they be moved into the Playground Renovation Project in order to complete the work on these nine playgrounds.

$1,600,000 is available in the Playground Renovation project (900315). An additional $250,000 is appropriated in the General Fund and transferred to Fund 005 to project 900315 for this project.

RESOLUTION NO. _____

RESOLUTION AWARDING CONTRACTS TO THE PLAYWELL GROUP, INC., PLAYWORKS, INC., EXERPLAY INC, AND 4B RECREATION DBA PLAYGROUNDS ETC. FOR THE PLAYGROUND RENOVATION PROJECT AT A TOTAL COST OF $1,688,416.00; AND APPROPRIATING FUNDS FOR SAID PROJECT

WHEREAS, Buyboard is a cooperative purchasing agency with which the City participates with on purchases through a cooperative purchasing program in accordance with TEX. LOC. GOV'T CODE § 271.102; and

WHEREAS, the Playground Renovation Project consists of renovations and improvements to various City-owned parks, including Reyes Mashburn Nelms, Beal, Henderson, Essex, Elkins, Lancaster, Kiwanis, Trinity, and Santa Rita Parks; and

WHEREAS, The PlayWell Group, Inc., Playworks, Inc., Exerplay Inc, and 4B Recreation Group LLC dba Playgrounds Etc. have submitted proposed costs to the City of $278,336.53, $59,066.06, $683,820.41, and $667,193.00, respectively, for renovations and the purchase and installation of certain improvements for the Playground Renovation Project through Buyboard; and

WHEREAS, the Council finds the prices proposed by The PlayWell Group, Inc., Playworks, Inc., Exerplay Inc, and 4B Recreation Group LLC dba Playgrounds Etc. through Buyboard for renovations and the purchase and installation of certain improvements for the Playground Renovation Project to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to award contracts for renovations and the purchase and installation of certain improvements for the Playground Renovation Project through Buyboard;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland,

contracts with The PlayWell Group, Inc., Playworks, Inc., Exerplay Inc, and 4B Recreation Group LLC dba Playgrounds Etc. for renovations and the purchase and installation of certain improvements for the Playground Renovation Project through Buyboard at a total cost of $1,688,416.00. Said contracts shall be kept on file in the office of the City Secretary, referenced by the date and number of this Resolution.

SECTION TWO. That the amount of $250,000.00 is hereby appropriated in the General Fund and transferred to Fund 005 to Project 900315.

SECTION THREE. That the City Comptroller is hereby authorized and directed to pay The PlayWell Group, Inc., Playworks, Inc., Exerplay Inc, and 4B Recreation Group LLC dba Playgrounds Etc. in accordance with the terms of the contracts from funds available in Project 900315 upon receipt of proper invoices or statements approved by the Interim City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Regina Stephenson, General Services Director

APPROVED AS TO FORM ONLY:

_____
John Ohnemiller, City Attorney

THE CITY OF MIDLAND

CONTRACT

Contract No. 21001547-01

THIS CONTRACT, effective the 16 day of December, 2020, by and between the City of Midland, hereinafter referred to as "City", and The PlayWell Group Inc., hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 278,336.53 DOLLARS

2. **Scope of Work:** Company shall perform all work described for for the playground renovations installations at Lancaster Park and Santa Rita Park in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A & A-2 ..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Tina Jauz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than 150 calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise available in any fiscal period for the payments due under the contract, then this contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the risks, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §
§
COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, _____, an officer of The PlayWell Group Inc., known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

PlayWell

The PlayWell Group, Inc.

Athletic, Park, and Playground Equipment
Serving Colorado, Texas, New Mexico, Oklahoma, and Arkansas since 1988

www.playwellgroup.com
800-726-1816
505-296-8900 (fax)

QUOTATION

QUOTE # 16205

11/19/2020

BILL TO:

City of Midland
Accounts Payable
300 North Loraine Street
Midland, TX 79701

Phone: (432) 685-7234

SHIP TO:

City of Midland-Santa Rita Park
Mike's Professional Playground
3349 State Highway 22
Hillsboro, TX 76645

Phone: (254) 580-2046

CUST. PO #	TERMS	SALES REP	COUNTY	QUOTE EXPIRATION
	NET 30	DWR	MIDLAND	12/19/2020

ITEM	DESCRIPTION	QTY	LIST PRICE	DISC. PRICE	TOTAL
BUY #592-19	BUYBOARD CONTRACT #592-19 EXPIRES 09/30/2021	1	0.00	0.00	0.00
	PLAYCRAFT				
R50ED90DA	R5 CUSTOM PLAY SYSTEM	1	100884.00	95,839.80	95,839.80
PC-2181-2B	8' SINGLE POST SWING (2-BELTS)	1	1585.00	1,505.75	1,505.75
PC-2181-2B-AB	8' SINGLE POST SWING (2-BELTS) RIGHT-SIDE, ADD-A-BAY	2	1215.00	1,154.25	2,308.50
SHIP	SHIPPING AND HANDLING	1	7268.86	7,268.86	7,268.86
	FLEXITURF				
PIP	PIP-THICKNESS 4.25"-CFH 9' COLOR: 50% BLUE 50% BLACK	750	14.53	13.80	10,350.00
PIP	PIP-THICKNESS 4.25"-CFH 9' COLOR: 100% TERRA COTTA	650	15.34	14.57	9,470.50
	PIONEER-PLAYSOFT				
FIBER PLAYSOFT	PLAYSOFT ENGINEER WOOD FIBER DELIVERED TO SITE (IN CUBIC YARDS)-PRICE INCLUDES MATERIAL AND DELIVERY TO SITE	55	51.93	49.33	2,713.15
FIBER DELIVERY-...	FIBER DELIVERY PLAYSOFT-The area where the wood fiber is to be delivered must be accessible to trucks and trailers for unloading of safety surfacing. Please note that there may be signs of access afterwards. If the site is not accessible, please notify PlaySoft as soon as possible, as extra freight charges could be added. On split loads customers are responsible for determining the quantity needed at each site. Customers will be contacted with a delivery time the day before delivery. 30 minutes of driver wait time is included in freight charge. Longer wait times will result in a $50 per half hour additional freight charge.	1	0.00	0.00	0.00
BOND	PERFORMANCE & PAYMENT BOND	1	4739.18	4,739.18	4,739.18

QUOTE VALID FOR 30 DAYS. Product will be ordered upon receipt of written approvals and/or deposit. Please email or fax all pages.
PLEASE REMIT YOUR DEPOSIT TO:

THE PLAYWELL GROUP, INC.
203A STATE HIGHWAY 46 EAST
BOERNE, TX 78006

Date _____ Signature _____

SUBTOTAL	$134,195.74
SALES TAX (0.0%)	$0.00
TOTAL	$134,195.74

The PlayWell Group, Inc.

Toll Free: (800)726-1816 Fax: (505) 296-8900

TEXAS CORPORATE OFFICE, SALES OFFICE & PROCESSING CENTER

203A State Highway 46 East

Boerne, TX 78006

Colorado Sales Office	*Arkansas Sales Office*	*Oklahoma Sales Office*	*New Mexico Sales Office*
11757 W. Ken Caryl Ave. Suite #F-231	*6929 JFK Blvd., Suite 20-16*	*5030 North May, Suite 129*	*9430 San Mateo Blvd NE Unit G*
Littleton, CO 80127	*N. Little Rock, AR 76116*	*Oklahoma City, OK 73112*	*Albuquerque, NM 87113*

TERMS AND CONDITIONS

INVOICE TERMS

Tax funded and bonded projects only, Net 30 days. All other entities required 50% down and balance Net 30. All past due amounts will be subject to a finance charge in accordance with the Texas Prompt Payment Act, Chapter 2251, Texas Government Code.

Delay of Installation (if applicable): **If the Customer delays the installation, the stored product will be invoiced with a term of Net 30.**

OPEN ACCOUNT

Credit terms are available to municipalities, government agencies, school systems, bonded contractors, and businesses (with prior approved credit). To establish credit your organization must have a satisfactory rating with Dun & Bradstreet and provide three credit references. To establish credit, your initial order must total at least $10,000.00. 50% deposit is required on all orders from non-tax funded entities. Prepayment may be required for any order at The PlayWell Group, Inc. sole discretion.

METHODS OF PAYMENTS

MasterCard, Visa, American Express, money order, checks. Sorry no C.O.D. orders.

FEDERAL/STATE GOVERNMENT AND CO-OP'S CONTRACT

Available for Federal/State Government, Co-Op's and agency accounts on many items. Call your Sales Consultant for information.

SALES TAX

Will be added to the invoice, except when a tax-exempt/resale certificate is furnished, or your entity qualifies in your state as tax exempt.

FREIGHT CHARGES/DELIVERY TERMS

All shipments are F.O.B factory, except where specifically stated otherwise. Delivery of materials is up to eight weeks from the order date, plus a few days for transit, unless otherwise noted. Every effort is made to comply with scheduled shipping dates: however, The PlayWell Group, Inc. is not liable for any loss or damage arising out of delay in delivery of any of its products due to causes beyond the control of the Company.

DAMAGE/SHORTAGE CLAIMS

All claims for concealed loss or damage to product must be noted on the Bill of Lading or delivery ticket and reported immediately to our Customer Service Department. All claims for product damage and shortage via common carrier must be promptly made by consignee (customer) direct to The PlayWell Group's Customer Service Department. When reporting damage, be sure to hold all containers and packing materials for inspection (claims should be filed within 15 days of receipt of shipment).

RETURNS/CANCELLATIONS

No merchandise is to be returned without first obtaining written authorization from The PlayWell Group, Inc. Please provide invoice number, date and reason for your return. Any authorized merchandise must be carefully packed and in saleable condition to be accepted for return. A 25% (of list price) re-stocking charge plus freight to and from the manufacturer applies on all returned merchandise when error is not the fault of The PlayWell Group. All returned merchandise must be shipped insured and freight prepaid. Orders cancelled prior to shipment will be charged 10% of list price. Once the material has been installed, no refund will be granted.

FREIGHT CARRIER INFORMATION

All freight is shipped unassembled via common carrier. Made via common carrier to the end user, the customer is responsible for unloading all deliveries.

COLOR CHOICES

Be sure to specify color selections when ordering. Please sign attached Color Selection Form (if applicable).

INSTALLATION

Installation/Prices are not included on this Quotation. A separate installation quotation must be included with your order if installation is required.

PLAYGROUND SURFACING WARNING

All play equipment must be installed over impact absorbing surface. Go to www.cpsc.gov for more information.

PRODUCT WILL BE ORDERED IMMEDIATELY UPON RECEIPT OF WRITTEN APPROVALS. Please email or fax all pages.

Sales Quote #: 16205 **Purchase Order #:** _____

Signature: _____ **Date:** _____









PlayWell
The PlayWell Group, Inc.
Athletic, Park, and Playground Equipment

System Type R-5 | SANTA RITA PARK

For Kids Ages 5-12 | Project# PWG2051CA3A

This playground system design meets the requirements for access under the Accessibility Guidelines when properly installed over accessible surfacing.

WARNING: An impact absorbing safety surface is required under and around all playground equipment.

IMPORTANT: The colors shown are for illustration purposes only.
Actual colors may vary. Contact your Playcraft Rep for accurate color samples.









SANTA RITA PARK

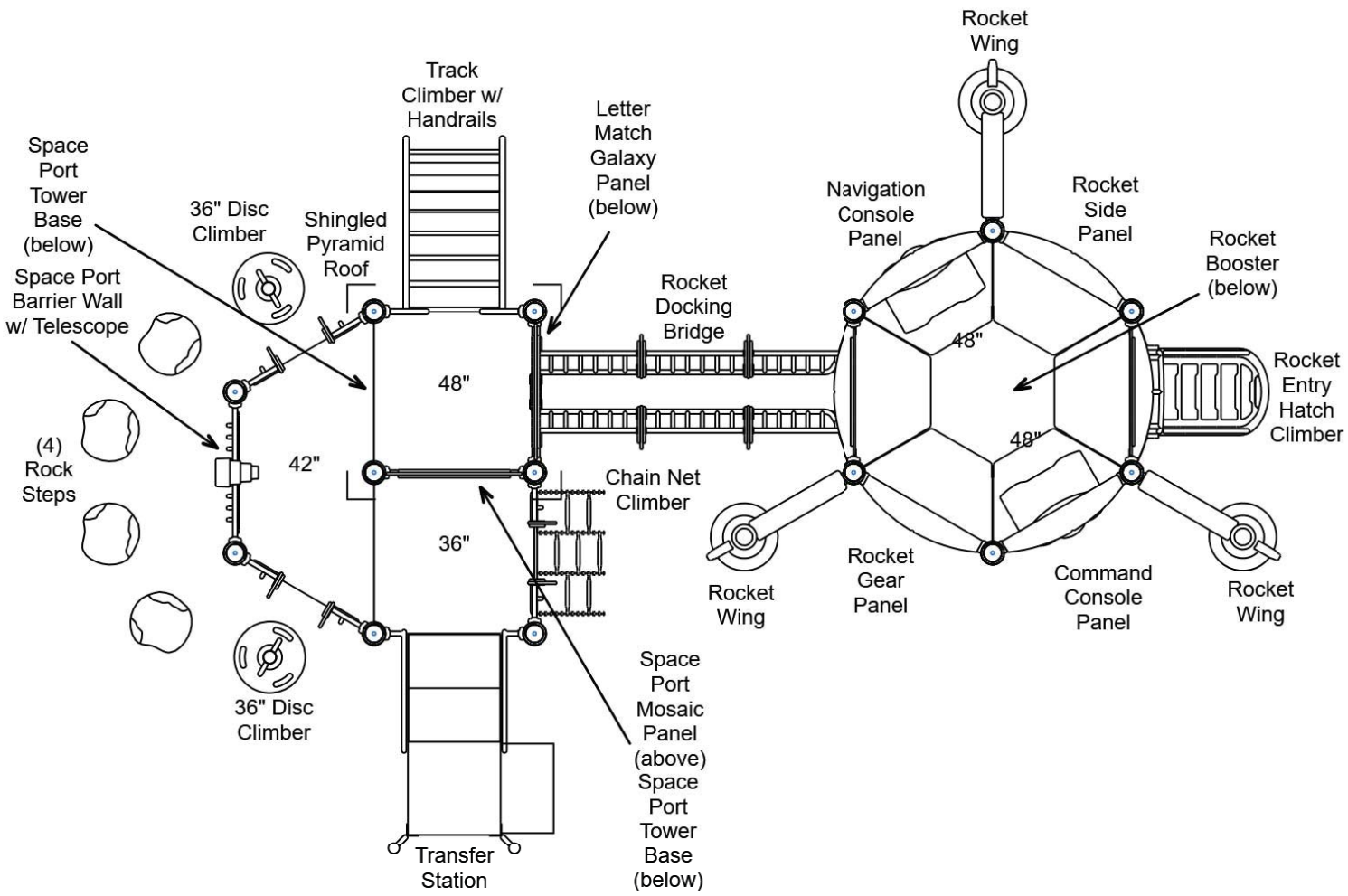
TOP VIEW

ADA ACCESSIBILITY GUIDELINE - ADAAG CONFORMANCE

ELEVATED	ACCESSIBLE	RAMP ACCESSIBLE	GROUND	TYPES
18	12/9	0	8/6	3/3

R5

FOR KIDS AGES 5-12



GENERAL NOTES:

This conceptual plan is based on information provided prior to construction. Detailed site information, including the following, should be obtained, evaluated, and utilized in the final project design. Exact site dimensions, topography, existing utilities, soil conditions and drainage solutions.

WARNING: Accessible safety surfacing material is required beneath and around this equipment that has a critical height value (Fall Height) appropriate for the highest accessible part of this equipment. Refer to the CPSC'S Handbook For Public Playground Safety, Section 4: Surfacing.

STRUCTURE#: R50ED90DA

PROJECT#: PWG2051CA3A

DATE: 4/7/2020 | DRAWN BY: Connor

MIN. USE ZONE: 44' x 31'

PLAYCRAFT REP:

The PlayWell Group, Inc.

PLAYCRAFT SYSTEMS

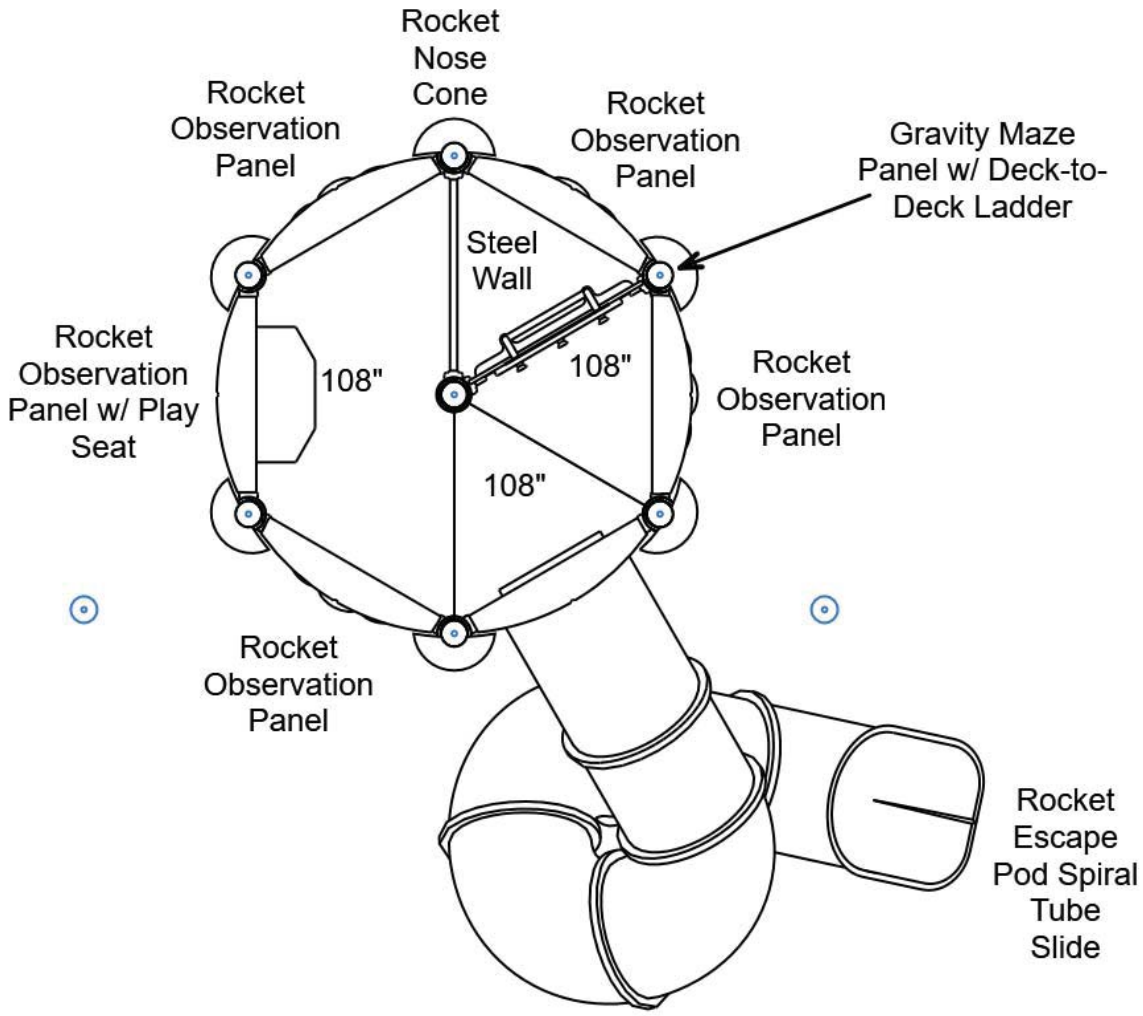
SANTA RITA PARK
TOP VIEW

ADA ACCESSIBILITY GUIDELINE - ADAAG CONFORMANCE

ELEVATED	ACCESSIBLE	RAMP ACCESSIBLE	GROUND	TYPES
18	12/9	0	8/6	3/3

R5

FOR KIDS AGES 5-12



GENERAL NOTES:

This conceptual plan is based on information provided prior to construction. Detailed site information, including the following, should be obtained, evaluated, and utilized in the final project design. Exact site dimensions, topography, existing utilities, soil conditions and drainage solutions.

WARNING: Accessible safety surfacing material is required beneath and around this equipment that has a critical height value (Fall Height) appropriate for the highest accessible part of this equipment. Refer to the CPSC'S Handbook For Public Playground Safety, Section 4: Surfacing.

STRUCTURE#: R50ED90DA
PROJECT#: PWG2051CA3A
DATE: 4/7/2020 | DRAWN BY: Connor

MIN. USE ZONE: 44' x 31'

PLAYCRAFT REP:
The PlayWell Group, Inc.

PLAYCRAFT SYSTEMS

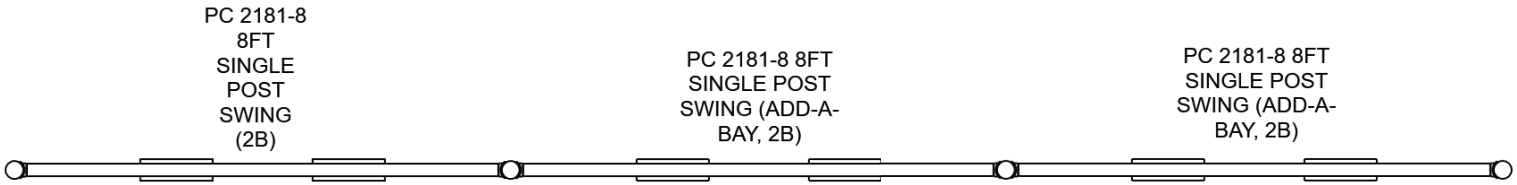
SANTA RITA PARK

TOP VIEW

ADA ACCESSIBILITY GUIDELINE - ADAAG CONFORMANCE

ELEVATED	ACCESSIBLE	RAMP ACCESSIBLE	GROUND	TYPES
0	0/0	0	6/0	1/0

FOR KIDS AGES 5-12



GENERAL NOTES:

This conceptual plan is based on information provided prior to construction. Detailed site information, including the following, should be obtained, evaluated, and utilized in the final project design. Exact site dimensions, topography, existing utilities, soil conditions and drainage solutions.

WARNING: Accessible safety surfacing material is required beneath and around this equipment that has a critical height value (Fall Height) appropriate for the highest accessible part of this equipment. Refer to the CPSC'S Handbook For Public Playground Safety, Section 4: Surfacing.

STRUCTURE#: FREPC2181+AB

PROJECT#: PWG2051CA3A

DATE: 4/7/2020 | DRAWN BY: Connor

MIN. USE ZONE: 48' x 31'

PLAYCRAFT REP:

The PlayWell Group, Inc.

PLAYCRAFT SYSTEMS

PACKET
15.2842
December 15, 2020

SANTA RITA PARK
SITE PLAN

ADA ACCESSIBILITY GUIDELINE - ADAAG CONFORMANCE

ELEVATED	ACCESSIBLE	RAMP ACCESSIBLE	GROUND	TYPES
18	12/9	0	14/6	4/3

R5

FOR KIDS AGES 5-12



GENERAL NOTES:

This Preliminary Site Plan is based on measurements that were provided in the initial planning phase. All dimensions must be verified prior to the submission of a purchase order. Playcraft Systems will not be held responsible for any discrepancies between actual dimensions and dimensions submitted in the planning phase.

The Minimum Use Zone for a play structure is based on the product design at the time of proposal. Components and structure designs may be subject to change which may affect dimensions. Therefore, before preparing the site, we strongly recommend obtaining final drawings from the factory (available after the order is placed and included in the Assembly Manual).

WARNING: Accessible safety surfacing material is required beneath and around this equipment that has a critical height value (Fall Height) appropriate for the highest accessible part of this equipment. Refer to the CPSC'S Handbook For Public Playground Safety, Section 4: Surfacing.

PROJECT#: PWG2051CA3A

DATE: 4/7/2020 | DRAWN BY: Connor

MIN. USE ZONE: 89' x 47'

PLAYCRAFT REP:

The PlayWell Group, Inc.

PLAYCRAFT SYSTEMS

PACKET
15.2843
December 15, 2020

SANTA RITA PARK
SW VIEW

R5

FOR KIDS
AGES
5-12



STRUCTURE#: R50ED90DA
PROJECT#: PWG2051CA3A
DATE: 4/7/2020 | DRAWN BY: Connor

PLAYCRAFT SYSTEMS

SANTA RITA PARK
NE VIEW

R5

FOR KIDS
AGES
5-12

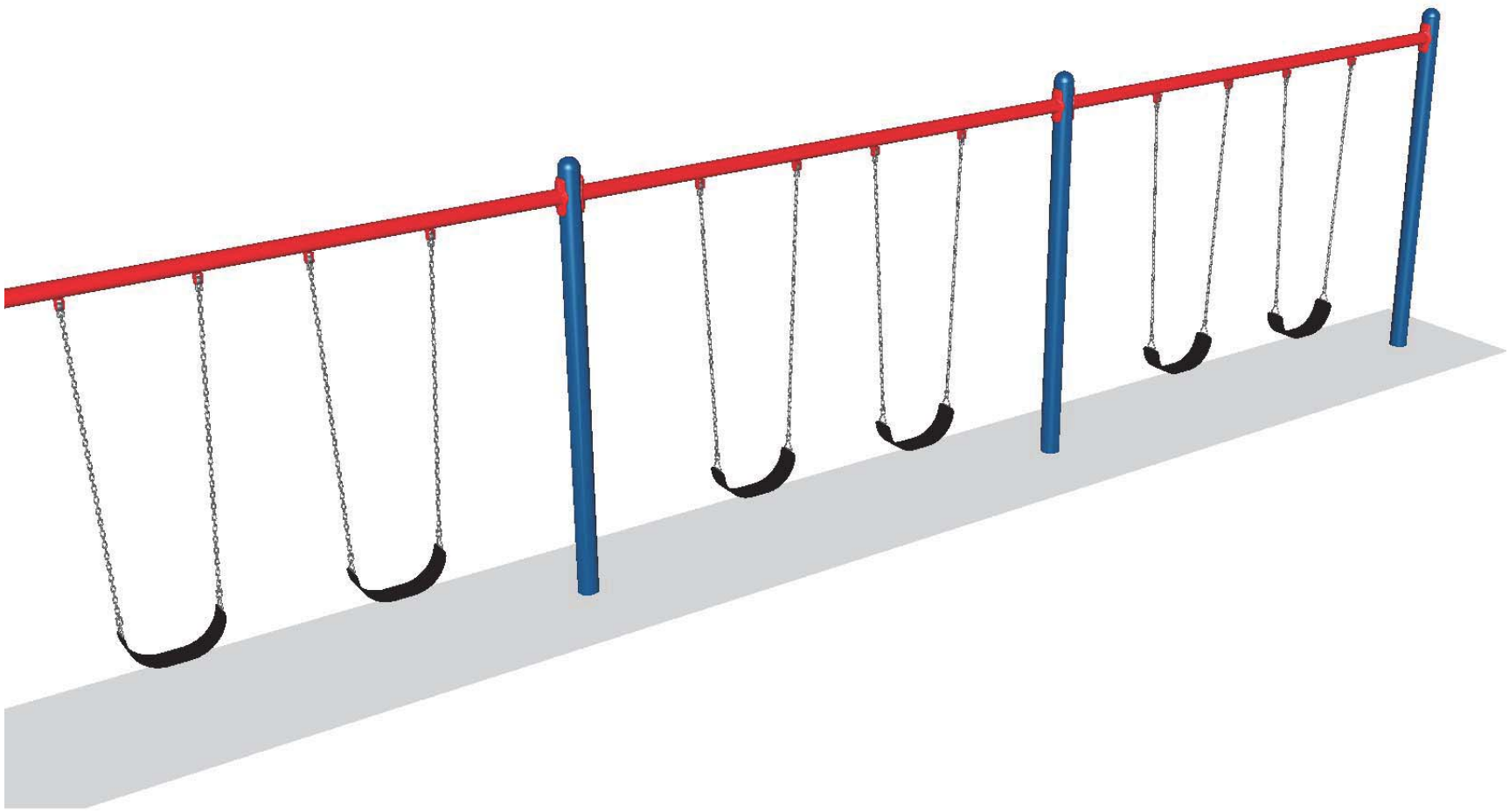


STRUCTURE#: R50ED90DA
PROJECT#: PWG2051CA3A
DATE: 4/7/2020 | DRAWN BY: Connor

PLAYCRAFT SYSTEMS

SANTA RITA PARK
SW VIEW

FOR KIDS
AGES
5-12



STRUCTURE#: FREPC2181+AB
PROJECT#: PWG2051CA3A
DATE: 4/7/2020 | DRAWN BY: Connor

PLAYCRAFT SYSTEMS

Bill of Materials

SANTA RITA PARK
SANTA RITA PARK

Project# PWG2051CA3A
4/7/2020

Item	Description	Quantity
R50ED90DA		
HS-1004-R	Collars	82
15-16-0001	Letter Match Galaxy Panel	1
GF-7002	Dome Cap, R5	8
S-1010-R5-10ft	Post, 10ft R5	4
S-1011-R5-11ft	Post, 11ft R5	3
S-1014-R5-14ft	Post, 14ft R5	4
S-1016-R5-16ft	Post, 16ft R5	1
S-1017-R5-17ft	Post, 17ft R5	6
S-1101-R5	Square Deck	2
S-1102-R5	Tri-Deck	2
S-1103-R5	Hex Deck, Half (5 Post)	4
S-1110-R	Filler, Universal (12in)	1
S-1209-24-R5	Transfer Station, 36in-R	1
S-1221-3	Climber, Chain Net 30-36in	1
S-1232-4-HR	Climber, Track 42-48in (w/ Hand Rails)	1
S-1233-3-MC	Climber, Disc 30-36in	2
S-12571-R	Rocket Entry Hatch Climber 42-48in	1
S-1301-R5	Wall, Steel 36in (Standard)	1
S-1309-2-R5	Half Walls (Pair) R5	1
S-1309-RSPC-R5	Space Port Half Walls (Pair)	3
S-13572-RSPC-T	Space Port Barrier Wall w/ Telescope	1
S-15527-R	Rocket Docking Bridge	1
S-16571-BST	Rocket Booster	1
S-16571-COM	Command Console Panel	1
S-16571-DD	Gravity Maze Panel w/ DTD Ladder	1

Bill of Materials (continued)

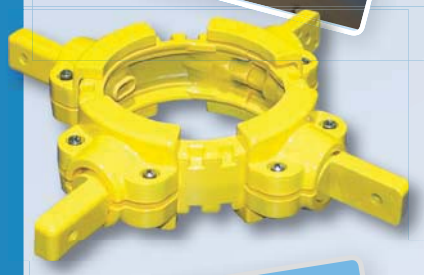
Item	Description	Quantity
S-16571-GEAR	Rocket Gear Panel	1
S-16571-NAV	Navigation Console Panel	1
S-16571-OB	Rocket Observation Panel	4
S-16571-SEAT	Rocket Observation Panel w/ Play Seat	1
S-16571-SIDE	Rocket Side Panel	1
S-16571-WING	Rocket Wing	3
S-16572-MOS	Space Port Mosaic Panel	1
S-16572-TB36	Space Port Tower Base (36in)	1
S-16572-TB42	Space Port Tower Base (42in)	1
S-1707-9SP-16571-ESC	Rocket Slide, Tube 108in (Spiral, RIght)	1
S-1807-R5	Roof, Square Pyramid (Shingled)	1
S-18461-R5	Rocket Nose Cone	1
S-1961-R	Rock Step	4
HS-1100-2	Deck to Deck Hardware	5
FREPC2181+AB		
A2-2181-2B	PC 2181-8 8ft Single Post Swing (2B)	1
A2-2181-2B-AB	PC 2181-8 8ft Single Post Swing (Right-Side, 2B)	2

PLAYCRAFT SYSTEMS

Leading the Industry in Quality!









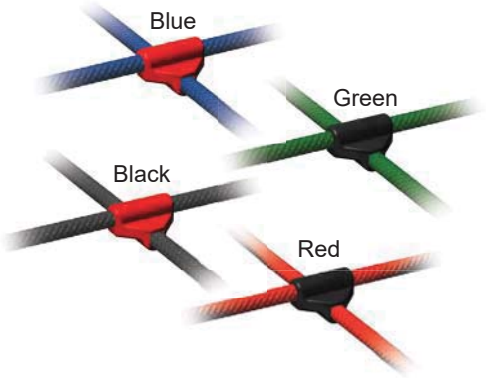
- Our powder coating averages 11 mils thick and is applied in a 2 coat process to heated parts. Parts are sand blasted and thoroughly cleaned prior to coating.
- Deck bracing which is 3” thick, exceeding the industry’s standard 2”. This bracing is spaced 15” on center for a strong, durable, and kid friendly deck.
  - Deck coatings which average 120 mils thick, providing long lasting durability.
  - Exclusive deck slot for flush/hidden component-to-deck attachment.
  - Heavier gauge steel and thicker diameter tubing than the industry standard.
- A factory which is almost completely self-contained! We manufacture components that many others outsource, including decks and plastic parts, ensuring the highest quality equipment available.
  - A clamping system which allows the attachment of multiple components on a single collar, greatly reducing “clamp stacking.”
- A comprehensive warranty which is not pro-rated - full replacement is provided for the entire length of the contract period.
  - Hot-Color Compounded Plastic Resins for superior color-fastness, U.V. stability and strength.
  - Self-sealing aluminum die-cast post caps secured with self-sealing rivets.



PACKET 15.2849 December 15, 2020

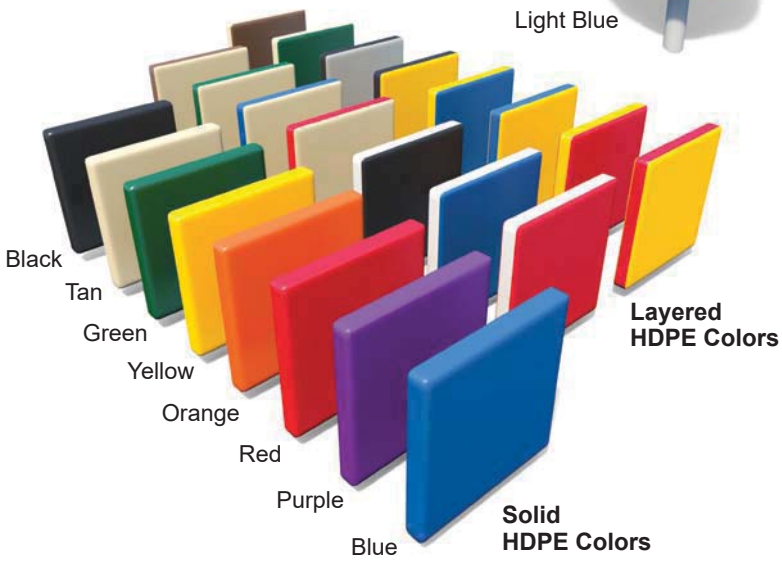
Colors

An integral part of any playground environment. Good use of color can inspire the imagination, encourage vigorous play, and set the tone for interaction and socialization. It is our manufacturing expertise blended with the highest quality colorants and materials that make our products the finest in the industry.









Play-Cord™ Cable Colors

Playcraft Play-Cord™ cables are made from tightly woven, nylon-wrapped, multi-strand galvanized steel cable. These high density, abrasion resistant cables are specifically made for playground use.

Play-Cord™ Cable Connector Colors

Available in Red and Black. Additional colors may be special ordered. Call to check for availability.

Powder Coatings

All Playcraft metal components go through an extensive multi-stage powder-coating process that yields a highly durable and lasting protective finish.

- Safe, lead-free coating
- Extremely durable, weather-proof finish
- Enhanced impact & corrosion resistance
- Rich, glossy finish
- Extra thick coatings (avg.11 mils thick)
- Custom colors available for an upcharge

Roto-Molded Plastics

Like a good jelly bean, our colors go all the way through! Playcraft slides, panels, roofs, and other plastic components are molded using hot-blended color compounded resins that stay bright and colorful even after years of wear.

- Hot-blended color compounded resins guarantee vibrant, uniform colors
- Made from specially formulated plastics designed to withstand harsh ultraviolet exposure for superior fade resistance
- Surfaces never too hot or too cold
- Custom colors available for an upcharge

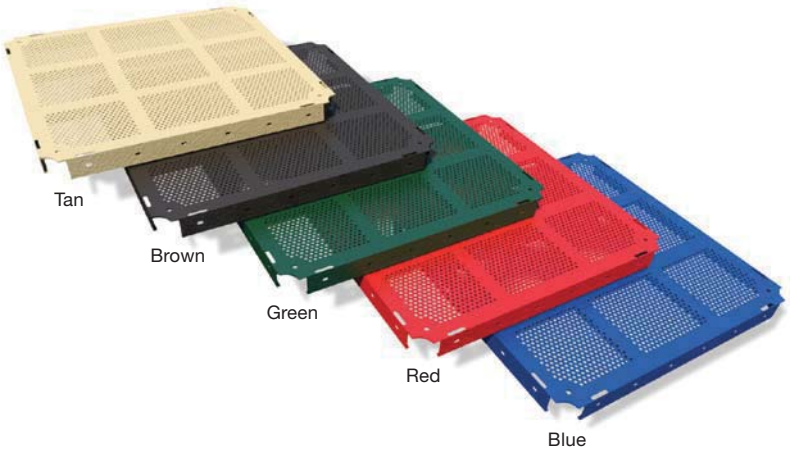
HDPE Sheet Plastics

Our hot-extruded high density polyethylene sheet plastic is available in solid and layered colors for one or two-color component design opportunities.

- Extremely durable and colorful
- Impact and vandal resistant
- Ideal for personalized or custom projects

Available layered colors:

Red-White-Red
Blue-White-Blue
Black-White-Black
Tan-Red-Tan
Tan-Blue-Tan
Tan-Green-Tan
Tan-Brown-Tan
Yellow-Red-Yellow
Red-Yellow-Red
Yellow-Blue-Yellow
Blue-Yellow-Blue
Yellow-Black-Yellow
Gray-Black-Gray
Green-Tan-Green
Brown-Tan-Brown



Play-Tuff™ Coatings

Krauss Craft uses an in-house state-of-the-art Play-Tuff™ (plastisol) coating process that offers unmatched protection for our perforated steel decks, steps, and select steel components. Play-Tuff™ standard colors are Blue, Red, Green, Brown and Tan.

- Specially formulated textured coating for superior resilience and slip-resistance
- Extra thick, durable coating (80-100 mils)
- Provides a protective cushion that protects small hands and feet

Activity Chains (Wall, Web Climber, etc.)

- Available in Brown only



Thermoplastic Coatings

Our Thermoplastic Polyethylene coating is a environmentally responsible alternative to PVC coatings. Thermoplastic standard colors are Blue, Green, Red and Brown. Thermoplastic Deck coating available in Brown only.



Swing Seat Colors

- Slash Proof Seats are constructed from durable elastomer and come in Black, Red, Blue, Green, Yellow

Roto-molded Plastic Tire

- Available in Red, Blue, Green and Yellow

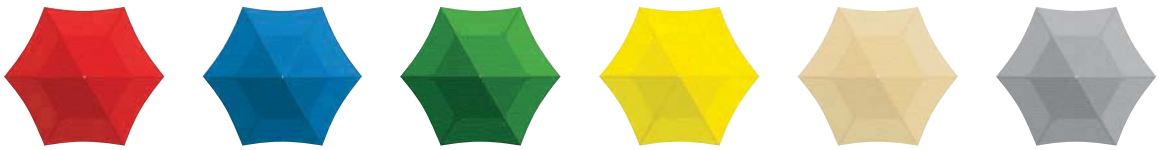
Roto-molded Inclusive Swing Seat

- Available in all roto-molded plastic colors (see page 191)

Shade Canopy Fabric Colors

Our ultra-tough fabrics come in a wide variety of colors and provide superior protection from harmful ultra-violet rays.

IMPORTANT:
The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.



	Red	Blue	Green	Yellow	Tan	Gray
Shade Cover	95%	96%	97%	95%	97%	97%
UVR Block	91%	99%	97%	93%	95%	97%

BRIGHT
Color Schemes



Primary



Autumn



Candy



Sunshine



Chic



SUBTLE
Color Schemes



Contemporary



Spring



Jester



Citrus



Sky



NATURAL
Color Schemes



Nature



Oceanside



Forest



Earth



Fresh



FANCIFUL
Color Schemes



Pop



Patriotic



Retro



Frozen



Farm



Color Schemes

Choosing the right colors for your play system is an important step and our highly trained Playcraft Representatives are always available to help you make the right choice. Choose from any of our popular color schemes shown here, create your own by choosing from our standard colors or contact your local Playcraft Representative for assistance.



Yellow Primary

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Red Primary

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Blue Primary

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Nature

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Earth

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Forest

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Contemporary

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Jester

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- MetalWalls/Rails
- Decks



Patriotic

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Sporty

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Festive

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Oceanside

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Autumn

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Sunshine

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Candy

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Chic

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Citrus

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Farm

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Fresh

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Pop

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- MetalWalls/Rails
- Decks



Frozen

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Retro

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Sky

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Spring

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks

NEW Powder-coat Colors



Sunshine Yellow
L: 86 a: 7 b: 73



Autumn Yellow
L: 72 a: 20 b: 57



Sweet Plum
L: 23 a: 32 b: -3



Crater Lake Blue
L: 18 a: -1 b: -23



Fern Green
L: 44 a: -21 b: 33



Acorn Brown
L: 45 a: 12 b: 26



Smoke Gray
L: 42 a: 0 b: -1

The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.

NEW Roto-molded Plastic Colors



Crater Lake Blue
L: 18 a: -1 b: -23



Fern Green
L: 51 a: -25 b: 40



Acorn Brown
L: 57 a: 14 b: 29



Timber Ash Gray
L: 42 a: 0 b: -1

PLAYCRAFT® SYSTEMS
A PLAYCORE Company

The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.

NEW HDPE Plastic Colors



Crater Lake Blue



Crater Lake Blue/Tan



Gull Gray



Spring Green



Spring Green / White

PLAYCRAFT® SYSTEMS
A PLAYCORE Company

The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.

NEW Play-Tuff Color



Gull Gray

NEW Thermoplastic Color



Gull Gray

The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.

PLAYCRAFT SYSTEMS WARRANTY

Playcraft Systems®, warrants its products to be free from defects in materials or workmanship, when properly used, serviced and installed in accordance with published specifications, for a period of one (1) year from the original date of invoice.

Playcraft Systems® further warrants as follows:

LIFETIME LIMITED WARRANTY
on all stainless steel hardware, metal posts, aluminum posts, aluminum caps and aluminum clamps against structural failure due to natural deterioration or corrosion, or defects in materials or workmanship.

TWENTY-FIVE (25) YEAR LIMITED WARRANTY
on all cast aluminum Spring Rider castings against structural failure due to defects in materials or workmanship.

FIFTEEN (15) YEAR LIMITED WARRANTY
on all metal rails, metal slides, handles, rungs, loops and walls, all Play-Tuff™ coated perforated steel decks, steps, and bridges, all rotationally molded and HDPE sheet plastic components, excluding recycled plastic components, against structural failure due to defects in materials or workmanship.

TEN (10) YEAR LIMITED WARRANTY
on all shade canopy fabric made of UV Stabilized HDPE monofilament yarn and tape against significant fading.

TEN (10) YEAR LIMITED WARRANTY
on all Play-Cord™ components against breakage.

FIVE (5) YEAR LIMITED WARRANTY
on all Play-Cord™ components against failure due to defects in materials or workmanship.

THREE (3) YEAR LIMITED WARRANTY
on all springs, moving swing parts, swing seats and other swing components, as well as all recycled plastic components against failure due to defects in materials or workmanship.

ONE (1) YEAR LIMITED WARRANTY
on any other product or part not specifically covered above against failure due to defects in materials or workmanship.

All warranties above commence on the date of the original invoice from Playcraft Systems® For the purpose of this warranty, the term LIFETIME encompasses no specific number of years, but rather that Playcraft Systems® warrants to its original customer, for as long as the original customer owns the Products and uses the Products for their intended purpose, that any Products and all components will be free from defects in materials or workmanship.

The warranty stated above is valid only if: (1) the products and structures are assembled and installed in conformity with the layout plan and installation instructions furnished by Playcraft Systems®; (2) the products have been maintained and inspected in accordance with Playcraft Systems® maintenance information and other normal and prudent practices; (3) the products have been subjected to normal use for the purpose for which the products were designed and intended; (4) the products have not been subjected to misuse, abuse, vandalism, accident or neglect; (5) the products have not been altered in any manner including, but not limited to, incorporating unauthorized or unapproved parts; and (6) the products have not been modified, altered, or repaired by persons other than Seller's designees in any respect which, in the judgment of Seller, affects the condition or operation of the equipment.

This warranty does not cover: (1) cosmetic damages or defects resulting from scratches, dents, marring, fading, discoloring or weathering; (2) damage due to extreme or prolonged exposure to "Environmental Factors", such as wind-blown sand, salt water, salt spray and airborne emissions from industrial sources (sulfur, acids or corrosive chemicals, other than normal photochemical smog); (3) damage caused by "Acts of God", such as hail, flooding, lightning, tornadoes, sandstorms, earthquakes, windstorms, and other extreme weather conditions; or 4) normal wear and tear. If any products covered by this warranty fail within the time period applicable to a defective product, Playcraft Systems® shall, upon being notified of the defect in writing, at its sole option, either repair the defective products or replace the defective products within 30 days of receipt of the written notification.

Repair or replacement as provided in this section shall be the purchaser's exclusive remedy and purchaser expressly agrees that Playcraft Systems® shall not be responsible for any other damages, losses, or costs, including consequential and incidental damages, claimed by purchaser. Playcraft Systems® shall deliver the repaired or replacement products to the purchaser free of charge, but shall not provide labor, reimbursements for labor or reimburse any other costs associated with the removal or disposal of the defective products and/or the installation of any replacement products. Notwithstanding the previous sentence, Playcraft Systems® shall not pay for any costs of shipping replacement parts outside of the continental United States. Any products replaced or repaired consistent with this paragraph shall be guaranteed for the balance of the original warranty period.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES PROVIDED HEREIN SHALL BE THE EXCLUSIVE AND SOLE REMEDIES OF THE ORIGINAL PURCHASER. PLAYCRAFT SYSTEMS® IS NOT LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY ARISE FROM THE PURCHASE, USE OR MISUSE OF ITS PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION MAY NOT APPLY. PLAYCRAFT SYSTEMS® NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME OR IMPLY ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OR USE OF THE EQUIPMENT SOLD.

To make a claim under the terms of this warranty, purchaser must submit a written statement detailing the nature of the warranty claim, including an itemization of each defective condition, along with a copy of the original invoice, maintenance records and supporting photographs to Playcraft Systems®, 123 North Valley Drive, Grants Pass, Oregon 97526.

Due to our on-going commitment to product development and Improvement, Playcraft Systems® reserves the right to change, modify or discontinue certain products without notice. (Rev. N)


PLAYCRAFT
SYSTEMS
A PLAYCORE Company
RAISING THE BAR
PACKET
15.2861
December 15, 2020
PLAYCRAFT
SYSTEMS
A PLAYCORE Company
PlaycraftSystems.com

PLAYCRAFT SYSTEMS
A PLAYCORE Company

PACKET 15.2862 December 15, 2020

RAISING THE BAR

The Playcraft Systems Standard: Doing it better when no one is looking.

Over 25 years ago we set out to make the best commercial playgrounds the world had ever seen. To do that, we knew we would have to raise the bar on excellence. So we created a new and better way of doing things... setting a higher industry standard. The Playcraft Systems Higher Standard means we don't settle for less than the best. From complete and consistent in-house manufacturing, to the finest materials, to the best and thickest finishes, Playcraft Systems sets the standard in quality.



King-Clamp™ System

We invent possibilities.

Before we invented the King Clamp, the playground industry struggled with mounting components to standard upright posts in a fast, clean and economical way. Today we lead the industry in clamping and fastening technology with our King Clamp. A clamp that allows multiple attachment points for improved installation times, simplified assembly and clean, value priced design flexibility.



Fit and Finish

Quality is the best business plan.

Our metal components are precision welded, hand-cleaned, sandblasted, phosphate washed and sealed thoroughly in a multi-stage bath, then powder-coated not once but TWICE, yielding an average coating thickness of over 11 mils. An industry first. That discernible Playcraft Systems shine and durability is just another way we raise the bar on quality.

Playcraft Systems Standard

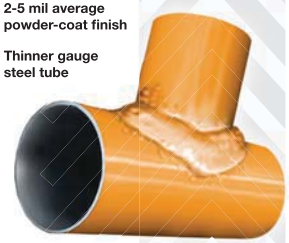
- ✓ 11+ mil thick average double powder-coat finish
- ✓ 11-12 gauge extra thick steel tube for strength and durability



- ✓ Superior Welds

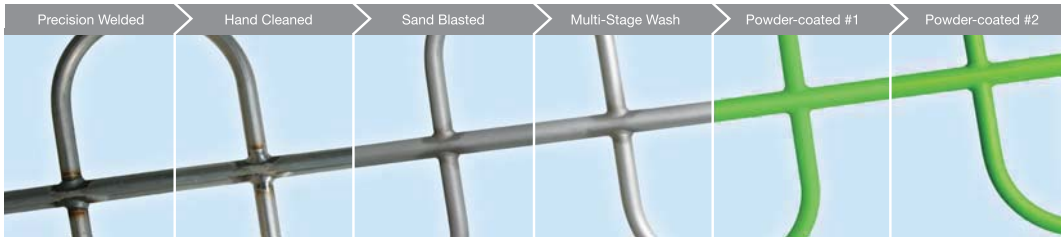
Industry Standard

- 2-5 mil average powder-coat finish
- Thinner gauge steel tube



- Inferior Welds

Our Metal Fabrication and Finishing Process



PACKET 15.2863 December 15, 2020



Die-Casting

Quality is not an act, it's a habit.

Playcraft Systems recently finished our state-of-the-art, Aluminum Die Casting facility, completing ambitious plans to manufacture everything in-house, for unmatched quality and value. From King Clamp collars and post sleeves, to our post caps and mounting brackets, use of aluminum in our products will continue to grow and remain essential to superior product design. Aluminum is fully recyclable, like most of the materials found in our products. At the end of the day, good product design reflects good stewardship of our environment.



Playcraft Systems Standard

- ✓ High Performance, Hot Color-Compounded Resins
- ✓ Components molded extra thick and designed with double walls for industry leading durability

Industry Standard

- Lower Performance, Dry-blend Resins
- Components molded thinner - compromising durability

Roto-Molding

Advanced Plastics are Our Standard.

At Playcraft Systems, our team of designers and engineers utilize advanced technology and materials to design and manufacture the modern plastic products that our customers deserve and expect. Roto-Molding each plastic component with extra thick walls, using advanced compounded resins with top performing U.V. stabilizers ensures our products outperform the industry with extra strong, colorfast plastics. Plastics that withstand tough use and harsh environments.









Decking

Built Tuff for Tough Play.

Playground decking takes a beating. From extreme weather to active play, decks need to be tough! And Playcraft decks are the toughest from top to bottom. Built with extra-thick sheet steel and reinforced with doubled-up gusseting, you won't find a higher quality deck in the industry. And for the finishing touch, we dip each deck in super-thick and durable Play-Tuff coating, the ultimate kid friendly protection against everyday wear and tear.

Playcraft Systems Standard

- ✓ Thick and durable Play-Tuff coatings
- ✓ Doubled-up gussets for strength
- ✓ Extra-thick sheet steel construction

Industry Standard

- Thinner, inferior coatings
- Single gusset construction
- Standard thickness sheet steel

PACKET



Before
Recreation Unlimited / Kokomo, IN

Shipping & Install

Quality is not for compromise.

Quality control is extremely important at Playcraft Systems. We check each piece for high quality consistency at every step of production. Then each piece is carefully bagged, wrapped and packed on custom made wood pallets for prompt, safe shipping. With every shipment come comprehensive instructions along with a Playground Equipment Manual specific to your project to ensure a smooth and stress-free installation. We also include a maintenance kit to keep your playground looking great.



5.2.8.a



After
Recreation Unlimited / Kokomo, IN

December 15, 2020

Playcraft Systems Warranty

Every product we manufacture is designed with quality, safety and value in mind. Every project we undertake is an opportunity to prove that Playcraft Systems is setting a new standard and raising the bar on quality and play expectations... one playground at a time.

QUALITY YOU CAN TRUST
LIFETIME WARRANTY*
PLAYCRAFT SYSTEMS

Playcraft Systems warrants its products to be free from defects in materials or workmanship, when properly used, serviced and installed in accordance with published specifications, for a period of one (1) year from the original date of invoice. Playcraft Systems further warrants as follows:

LIFETIME LIMITED WARRANTY
on all stainless steel hardware, metal posts, aluminum posts, aluminum caps and aluminum clamps against structural failure due to natural deterioration or corrosion, or defects in materials or workmanship.

TWENTY- FIVE (25) YEAR LIMITED WARRANTY
on all cast aluminum Spring Rider castings against structural failure due to defects in materials or workmanship.

FIFTEEN (15) YEAR LIMITED WARRANTY
on all metal rails, metal slides, handles, rungs, loops and walls, all Play-Tuff™ coated perforated steel decks, steps, and bridges, all rotationally molded and HDPE sheet plastic components, excluding recycled plastic components, against structural failure due to defects in materials or workmanship.

TEN (10) YEAR LIMITED WARRANTY
on all shade canopy fabric made of UV Stabilized HDPE monofilament yarn and tape against significant fading.

TEN (10) YEAR LIMITED WARRANTY
on all Play-Cord™ components against breakage.

FIVE (5) YEAR LIMITED WARRANTY
on all Play-Cord™ components against failure due to defects in materials or workmanship.

THREE (3) YEAR LIMITED WARRANTY
on all springs, moving swing parts, swing seats and other swing components, as well as all recycled plastic components against failure due to defects in materials or workmanship.

ONE (1) YEAR LIMITED WARRANTY
on any other product or part not specifically covered above against failure due to defects in materials or workmanship.

All warranties above commence on the date of the original invoice from Playcraft Systems. For the purpose of this warranty, the term LIFETIME encompasses no specific number of years, but rather that Playcraft Systems warrants to its original customer, for as long as the original customer owns the Products and uses the Products for their intended purpose, that any Products and all components will be free from defects in materials or workmanship.
The warranty stated above is valid only if: (1) the products and structures are assembled and installed in conformity with the layout plan and installation instructions furnished by Playcraft Systems; (2) the products have been maintained and inspected in accordance with Playcraft Systems maintenance information and other normal and prudent practices; (3) the products have been subjected to normal use for the purpose for which the products were designed and intended; (4) the products have not been subjected to misuse, abuse, vandalism, accident or neglect; (5) the products have not been altered in any manner including, but not limited to, incorporating unauthorized or unapproved parts; and (6) the products have not been modified, altered, or repaired by persons other than Seller's designees in any respect which, in the judgment of Seller, affects the condition or operation of the equipment.
This warranty does not cover: (1) cosmetic damages or defects resulting from scratches, dents, marring, fading, discoloring or weathering; (2) damage due to extreme or prolonged exposure to "Environmental Factors", such as wind-blown sand, salt water, salt spray and airborne emissions from industrial sources (sulfur, acids or corrosive chemicals, other than normal photochemical smog); (3) damage caused by "Acts of God", such as hail, flooding, lightning, tornadoes, sandstorms, earthquakes, windstorms, and other extreme weather conditions; or 4) normal wear and tear. If any products covered by this warranty fail within the time period applicable to a defective product, Playcraft Systems shall, upon being notified of the defect in writing, at its sole option, either repair the defective products or replace the defective products within 30 days of receipt of the written notification.

Repair or replacement as provided in this section shall be the purchaser's exclusive remedy and purchaser expressly agrees that Playcraft Systems shall not be responsible for any other damages, losses, or costs, including consequential and incidental damages, claimed by purchaser. Playcraft Systems shall deliver the repaired or replacement products to the purchaser free of charge, but shall not provide labor, reimbursements for labor or reimburse any other costs associated with the removal or disposal of the defective products and/or the installation of any replacement products. Notwithstanding the previous sentence, Playcraft Systems shall not pay for any costs of shipping replacement parts outside of the continental United States. Any products replaced or repaired consistent with this paragraph shall be guaranteed for the balance of the original warranty period. THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES PROVIDED HEREIN SHALL BE THE EXCLUSIVE AND SOLE REMEDIES OF THE ORIGINAL PURCHASER. PLAYCRAFT SYSTEMS IS NOT LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY ARISE FROM THE PURCHASE, USE OR MISUSE OF ITS PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION MAY NOT APPLY. PLAYCRAFT SYSTEMS NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME OR IMPLY ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OR USE OF THE EQUIPMENT SOLD.
To make a claim under the terms of this warranty, purchaser must submit a written statement detailing the nature of the warranty claim, including an itemization of each defective condition, along with a copy of the original invoice, maintenance records and supporting photographs to Playcraft Systems, 123 North Valley Drive, Grants Pass, Oregon 97526.
Due to our on-going commitment to product development and Improvement, Playcraft Systems reserves the right to change, modify or discontinue certain products without notice. (Rev. M)

PlayWell

The PlayWell Group, Inc.

Athletic, Park, and Playground Equipment
Serving Colorado, Texas, New Mexico, Oklahoma, and Arkansas since 1988

www.playwellgroup.com
800-726-1816
505-296-8900 (fax)

QUOTATION

QUOTE # 16207

11/19/2020

BILL TO:

City of Midland
Accounts Payable
300 North Loraine Street
Midland, TX 79701

Phone: (432) 685-7100

SHIP TO:

City of Midland-Lancaster Park
Mike's Professional Playground-Mike Inmon
3349 State Highway 22
Hillsboro, TX 76645

Phone: (254) 580-2046

CUST. PO #	TERMS	SALES REP	COUNTY	QUOTE EXPIRATION
	NET 30	DWR	MIDLAND	12/19/2020

ITEM	DESCRIPTION	QTY	LIST PRICE	DISC. PRICE	TOTAL
BUY #592-19	BUYBOARD CONTRACT #592-19 EXPIRES 09/30/2021	1	0.00	0.00	0.00
	PLAYCRAFT				
R50BE103A	R5 CUSTOM PLAY SYSTEM	1	100561.00	95,532.95	95,532.95
PC-2120-2B	ARCH SWING (2-BELTS)	1	3081.50	2,927.43	2,927.43
PC-2120-2B-AB	ARCH SWING ADD A BAY (2 BELTS) RIGHT	2	2001.25	1,901.19	3,802.38
SHIP	SHIPPING AND HANDLING	1	7130.97	7,130.97	7,130.97
	FLEXITURF				
PIP	PIP-THICKNESS 4.25"-CFH 9'-AROMATIC COLOR: 50% GREEN 50% BLACK	1,000	14.53	13.80	13,800.00
PIP	PIP-THICKNESS 4.25"-CFH 9'-AROMATIC COLOR: 100% BLUE	800	15.34	14.57	11,656.00
PIP	PIP-THICKNESS 4.25"-CFH 9'-AROMATIC COLOR: 100% BROWN	70	15.34	14.57	1,019.90
	PLAY SOFT				
FIBER PLAYSOFT	PLAYSOFT ENGINEER WOOD FIBER FOR SWING AREA DELIVERED TO SITE (IN CUBIC YARDS). PRICE INCLUDES MATERIAL AND DELIVERY TO SITE.	68	49.27	46.81	3,183.08
BOND	PERFORMANCE & PAYMENT BOND	1	5088.08	5,088.08	5,088.08

QUOTE VALID FOR 30 DAYS. Product will be ordered upon receipt of written approvals and/or deposit. Please email or fax all pages.
PLEASE REMIT YOUR DEPOSIT TO:

THE PLAYWELL GROUP, INC.
203A STATE HIGHWAY 46 EAST
BOERNE, TX 78006

Date _____ Signature _____

SUBTOTAL	$144,140.79
SALES TAX (0.0%)	$0.00
TOTAL	$144,140.79

The PlayWell Group, Inc.

Toll Free: (800)726-1816 Fax: (505) 296-8900

TEXAS CORPORATE OFFICE, SALES OFFICE & PROCESSING CENTER

203A State Highway 46 East

Boerne, TX 78006

Colorado Sales Office	*Arkansas Sales Office*	*Oklahoma Sales Office*	*New Mexico Sales Office*
11757 W. Ken Caryl Ave. Suite #F-231	*6929 JFK Blvd., Suite 20-16*	*5030 North May, Suite 129*	*9430 San Mateo Blvd NE Unit G*
Littleton, CO 80127	*N. Little Rock, AR 76116*	*Oklahoma City, OK 73112*	*Albuquerque, NM 87113*

TERMS AND CONDITIONS

INVOICE TERMS

Tax funded and bonded projects only, Net 30 days. All other entities required 50% down and balance Net 30. All past due amounts will be subject to a finance charge in accordance with the Texas Prompt Payment Act, Chapter 2251, Texas Government Code.

Delay of Installation (if applicable): **If the Customer delays the installation, the stored product will be invoiced with a term of Net 30.**

OPEN ACCOUNT

Credit terms are available to municipalities, government agencies, school systems, bonded contractors, and businesses (with prior approved credit). To establish credit your organization must have a satisfactory rating with Dun & Bradstreet and provide three credit references. To establish credit, your initial order must total at least $10,000.00. 50% deposit is required on all orders from non-tax funded entities. Prepayment may be required for any order at The PlayWell Group, Inc. sole discretion.

METHODS OF PAYMENTS

MasterCard, Visa, American Express, money order, checks. Sorry no C.O.D. orders.

FEDERAL/STATE GOVERNMENT AND CO-OP'S CONTRACT

Available for Federal/State Government, Co-Op's and agency accounts on many items. Call your Sales Consultant for information.

SALES TAX

Will be added to the invoice, except when a tax-exempt/resale certificate is furnished, or your entity qualifies in your state as tax exempt.

FREIGHT CHARGES/DELIVERY TERMS

All shipments are F.O.B factory, except where specifically stated otherwise. Delivery of materials is up to eight weeks from the order date, plus a few days for transit, unless otherwise noted. Every effort is made to comply with scheduled shipping dates: however, The PlayWell Group, Inc. is not liable for any loss or damage arising out of delay in delivery of any of its products due to causes beyond the control of the Company.

DAMAGE/SHORTAGE CLAIMS

All claims for concealed loss or damage to product must be noted on the Bill of Lading or delivery ticket and reported immediately to our Customer Service Department. All claims for product damage and shortage via common carrier must be promptly made by consignee (customer) direct to The PlayWell Group's Customer Service Department. When reporting damage, be sure to hold all containers and packing materials for inspection (claims should be filed within 15 days of receipt of shipment).

RETURNS/CANCELLATIONS

No merchandise is to be returned without first obtaining written authorization from The PlayWell Group, Inc. Please provide invoice number, date and reason for your return. Any authorized merchandise must be carefully packed and in saleable condition to be accepted for return. A 25% (of list price) re-stocking charge plus freight to and from the manufacturer applies on all returned merchandise when error is not the fault of The PlayWell Group. All returned merchandise must be shipped insured and freight prepaid. Orders cancelled prior to shipment will be charged 10% of list price. Once the material has been installed, no refund will be granted.

FREIGHT CARRIER INFORMATION

All freight is shipped unassembled via common carrier. Made via common carrier to the end user, the customer is responsible for unloading all deliveries.

COLOR CHOICES

Be sure to specify color selections when ordering. Please sign attached Color Selection Form (if applicable).

INSTALLATION

Installation/Prices are not included on this Quotation. A separate installation quotation must be included with your order if installation is required.

PLAYGROUND SURFACING WARNING

All play equipment must be installed over impact absorbing surface. Go to www.cpsc.gov for more information.

PRODUCT WILL BE ORDERED IMMEDIATELY UPON RECEIPT OF WRITTEN APPROVALS. Please email or fax all pages.

Sales Quote #: 16207 **Purchase Order #:** _____

Signature: _____ **Date:** _____

PACKET

15.2867

December 15, 2020









PlayWell
The PlayWell Group, Inc.
Athletic, Park, and Playground Equipment

System Type R-5

For Kids Ages 5-12

LANCASTER PARK

Project# PWG201F3A5A

This playground system design meets the requirements for access under the Accessibility Guidelines when properly installed over accessible surfacing.

WARNING: An impact absorbing safety surface is required under and around all playground equipment.

IMPORTANT: The colors shown are for illustration purposes only.
Actual colors may vary. Contact your Playcraft Rep for accurate color samples.

PLAYCRAFT® SYSTEMS
A PLAYCORE Company

LANCASTER PARK
TOP VIEW

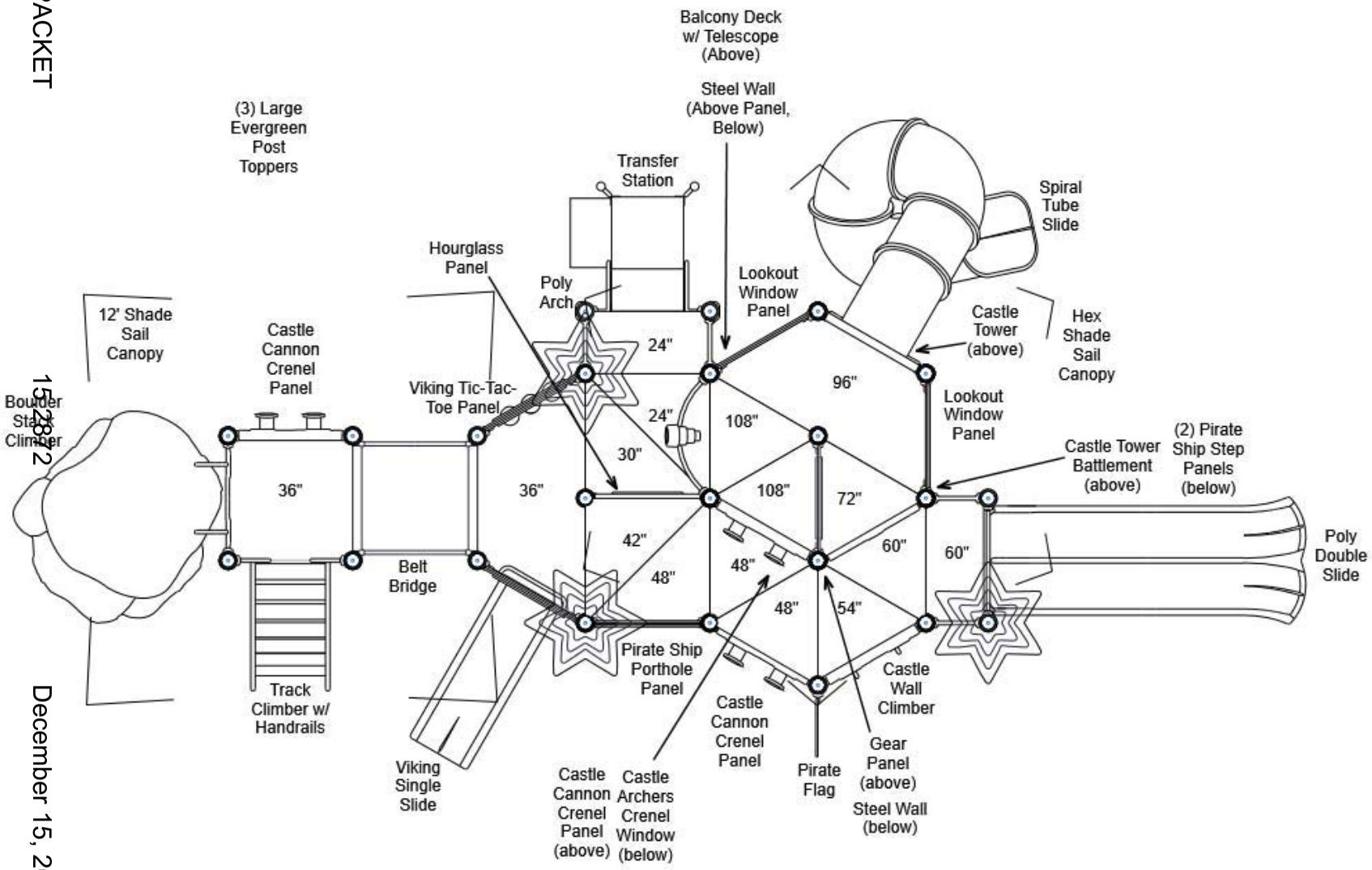
ADA ACCESSIBILITY GUIDELINE - ADAAG CONFORMANCE

ELEVATED	ACCESSIBLE	RAMP ACCESSIBLE	GROUND	TYPES
14	10/7	0	6/5	3/3

R5

FOR KIDS AGES 5-12

PACKET 152822 December 15, 2020



GENERAL NOTES:

This conceptual plan is based on information provided prior to construction. Detailed site information, including the following, should be obtained, evaluated, and utilized in the final project design. Exact site dimensions, topography, existing utilities, soil conditions and drainage solutions.

WARNING: Accessible safety surfacing material is required beneath and around this equipment that has a critical height value (Fall Height) appropriate for the highest accessible part of this equipment. Refer to the CPSC'S Handbook For Public Playground Safety, Section 4: Surfacing.

STRUCTURE#: R50BE103A
PROJECT#: PWG201F3A5A
DATE: 3/12/2020 | DRAWN BY: Alyssa

MIN. USE ZONE: 51' x 36'

PLAYCRAFT REP:
The PlayWell Group, Inc.

PLAYCRAFT SYSTEMS

LANCASTER PARK

TOP VIEW

ADA ACCESSIBILITY GUIDELINE - ADAAG CONFORMANCE

ELEVATED	ACCESSIBLE	RAMP ACCESSIBLE	GROUND	TYPES
14	10/7	0	6/5	3/3

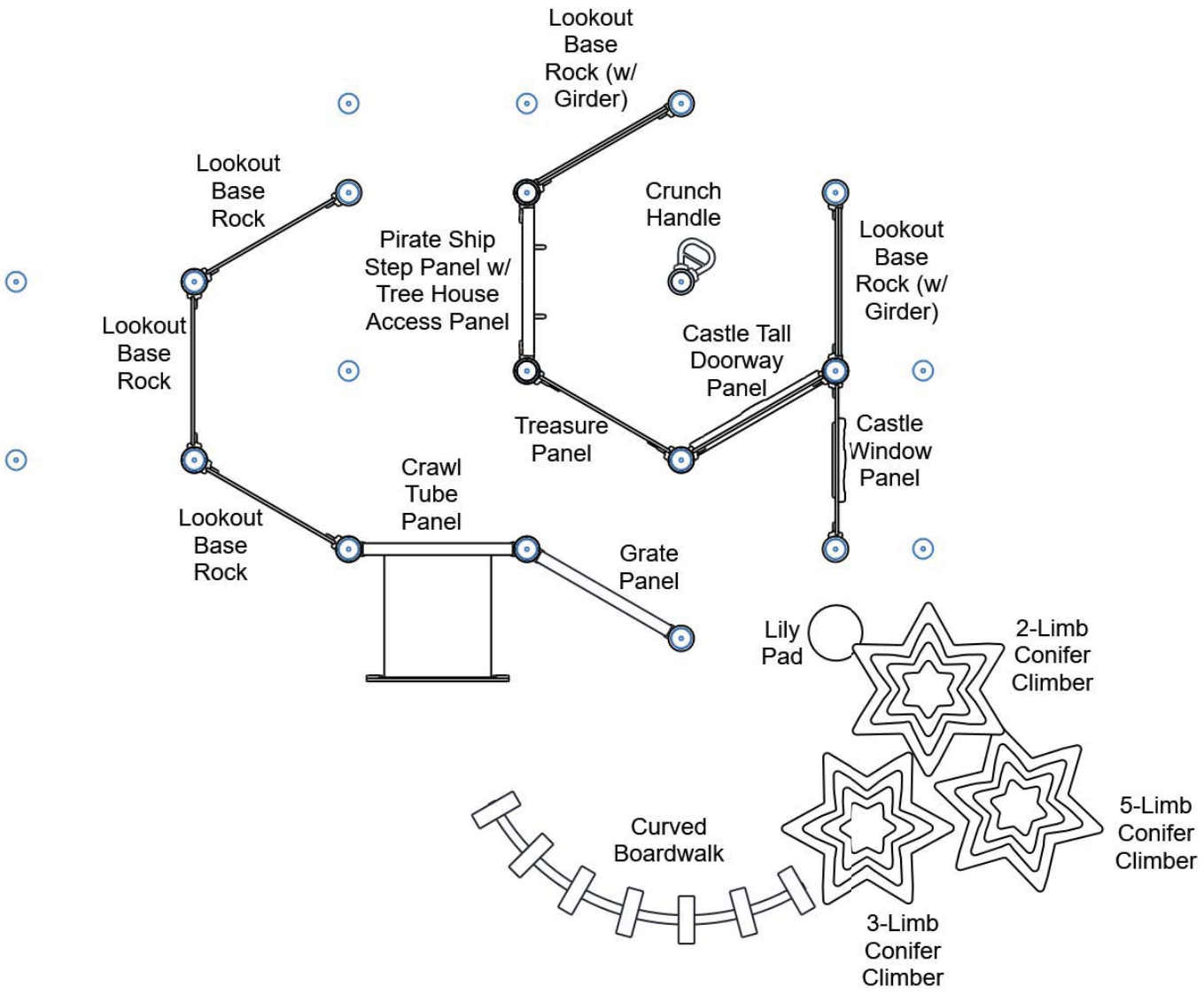
R5

FOR KIDS AGES 5-12

PACKET

15.2873

December 15, 2020



GENERAL NOTES:

This conceptual plan is based on information provided prior to construction. Detailed site information, including the following, should be obtained, evaluated, and utilized in the final project design. Exact site dimensions, topography, existing utilities, soil conditions and drainage solutions.

WARNING: Accessible safety surfacing material is required beneath and around this equipment that has a critical height value (Fall Height) appropriate for the highest accessible part of this equipment. Refer to the CPSC'S Handbook For Public Playground Safety, Section 4: Surfacing.

STRUCTURE#: R50BE103A

PROJECT#: PWG201F3A5A

DATE: 3/12/2020 | DRAWN BY: Alyssa

MIN. USE ZONE: 51' x 36'

PLAYCRAFT REP:

The PlayWell Group, Inc.

PLAYCRAFT SYSTEMS

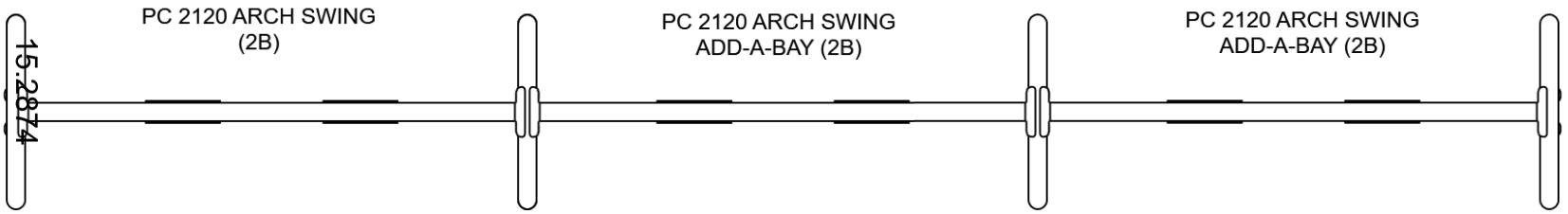
LANCASTER PARK
TOP VIEW

ADA ACCESSIBILITY GUIDELINE - ADAAG CONFORMANCE

ELEVATED	ACCESSIBLE	RAMP ACCESSIBLE	GROUND	TYPES
0	0/0	0	6/0	1/0

FOR KIDS
AGES
5-12

PACKET



December 15, 2020

GENERAL NOTES:

This conceptual plan is based on information provided prior to construction. Detailed site information, including the following, should be obtained, evaluated, and utilized in the final project design. Exact site dimensions, topography, existing utilities, soil conditions and drainage solutions.

WARNING: Accessible safety surfacing material is required beneath and around this equipment that has a critical height value (Fall Height) appropriate for the highest accessible part of this equipment. Refer to the CPSC'S Handbook For Public Playground Safety, Section 4: Surfacing.

STRUCTURE#: FREPC2120+AB
PROJECT#: PWG201F3A5A
DATE: 3/12/2020 | DRAWN BY: Alyssa

MIN. USE ZONE: 48' x 30'

PLAYCRAFT REP:
The PlayWell Group, Inc.

PLAYCRAFT SYSTEMS

LANCASTER PARK
SITE PLAN

ADA ACCESSIBILITY GUIDELINE - ADAAG CONFORMANCE

ELEVATED	ACCESSIBLE	RAMP ACCESSIBLE	GROUND	TYPES
14	10/7	0	12/5	4/3

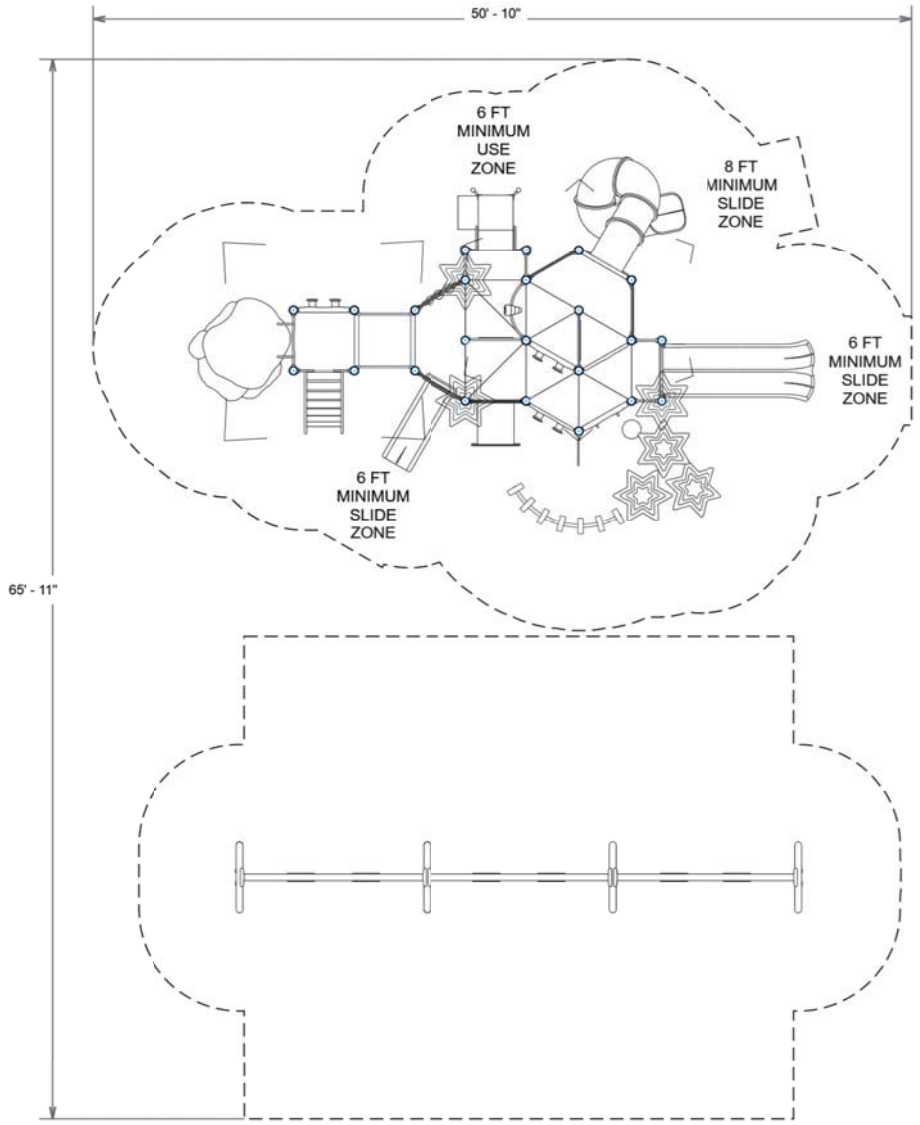
R5

FOR KIDS AGES 5-12

PACKET

15.2875

December 15, 2020



GENERAL NOTES:

This Preliminary Site Plan is based on measurements that were provided in the initial planning phase. All dimensions must be verified prior to the submission of a purchase order. Playcraft Systems will not be held responsible for any discrepancies between actual dimensions and dimensions submitted in the planning phase.

The Minimum Use Zone for a play structure is based on the product design at the time of proposal. Components and structure designs may be subject to change which may affect dimensions. Therefore, before preparing the site, we strongly recommend obtaining final drawings from the factory (available after the order is placed and included in the Assembly Manual).

WARNING: Accessible safety surfacing material is required beneath and around this equipment that has a critical height value (Fall Height) appropriate for the highest accessible part of this equipment. Refer to the CPSC'S Handbook For Public Playground Safety, Section 4: Surfacing.

PROJECT#: PWG201F3A5A

DATE: 3/12/2020 | DRAWN BY: Alyssa

MIN. USE ZONE: 51' x 66'

PLAYCRAFT REP:

The PlayWell Group, Inc.

PLAYCRAFT SYSTEMS

Bill of Materials

LANCASTER PARK
LANCASTER PARK

Project# PWG201F3A5A
3/12/2020

Item	Description	Quantity
R50BE103A		
HS-1004-R	Collars	164
A2-2430	Boardwalk, Curved (90 Degree)	1
A2-2918-34-F	Conifer Climber (Fir, 2-Limb)	1
A2-2918-46-F	Conifer Climber (Fir, 3-Limb)	1
A2-2918-70-F	Conifer Climber (Fir, 5-Limb)	1
GF-7002	Dome Cap, R5	8
S-1010-R5-10ft	Post, 10ft R5	4
S-1011-R5-11ft	Post, 11ft R5	1
S-1012-R5-12ft	Post, 12ft R5	3
S-1014-R5-14ft	Post, 14ft R5	4
S-1016-R5-16ft	Post, 16ft R5	2
S-1017-R5-17ft	Post, 17ft R5	2
S-1018-R5-18ft	Post, 18ft R5	1
S-1020-R5-20ft	Post, 20ft R5	6
S-11011-13011-R5	Half Square Deck w Walls R5	2
S-1101-R5	Square Deck	1
S-1102-R5	Tri-Deck	7
S-1103-R5	Hex Deck, Half (5 Post)	2
S-1105-R5	Half Deck	4
S-1109-R5-T	Balcony Deck w/ Telescope	1
S-1110-R	Filler, Universal (12in)	1
S-1209-12-R5	Transfer Station, 24in-R	1
S-1232-3-HR	Climber, Track 30-36in (w/ Hand Rails)	1
S-12371-CST54	Castle Wall Climber 54in	1
S-1290-D1-R5	Climber, Boulder Stack 36in (Base Rock)	1

Item	Description	Quantity
S-1301-36875R5	Steel Wall (Above Panel)	1
S-1301-36R5	Wall, Steel (36in)	1
S-1305-R5	Double Slide SitDown Wall	1
S-1309-2-R5	Half Walls (Pair) R5	3
S-1414-6	Lily Pad Step 06in	1
S-1504-R5	Bridge, Belt (45in)	1
S-16211-60ARCC	Castle Archers Crenel Window	1
S-16211-60CANC	Castle Cannon Crenel (Tall)	2
S-16211-60DOR	Castle Doorway Panel (Tall)	1
S-16211-60WIN	Castle Window Panel	1
S-16211-CANC	Castle Cannon Crenel	1
S-16211-TWR	Castle Tower	1
S-16211-TWRB	Castle Tower Battlement	1
S-1626-R5G	Grate Panel	1
S-1630-R5	Hourglass Panel	1
S-1644-R5	Gear Panel	1
S-16461-PH	Porthole Panel (Right)	1
S-16461-STEP	Step Panel (12in)	1
S-16461-STEP-24	Step Panel (24in)	2
S-1646-R5TCG	Treasure Panel	1
S-1672-36B	Base Rock	3
S-1672-36B-GRD	Base Rock (w/ Girder)	2
S-1672-WIN	Window Panel	2
S-1676-R5-TTT	Viking Tic-Tac-Toe Panel	1
S-1677-ACC-R5	Tree House Access Panel	1
S-16801-R5G	Crawl Tube Panel	1
S-1701-3-1676-36R5	Viking Slide, Straight 36in	1
S-1702-5R5	Slide, Double 60in	1
S-1707-8SPR5	Slide, Tube 96in (Spiral, Left, MC)	1
S-18027-R512	Shade Sail Canopy, 12ft	1

Bill of Materials (continued)

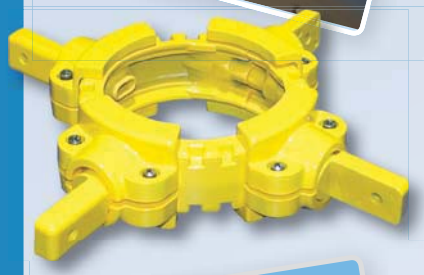
Item	Description	Quantity
S-18028-R514	Shade Sail, Hex 14ft	1
S-1804-R5	Poly Arch	1
S-1820-R5-RPRT	Pirate Flag	1
S-1847-LR5	Evergreen Topper (Large)	3
S-1937-R5	Crunch Handle	1
HS-1100-2	Deck to Deck Hardware	5
FREPC2120+AB		
A2-2120-2B	PC 2120 Arch Swing (2B)	1
A2-2120-2B-AB	PC 2120 Arch Swing (Right, 2B)	2

PLAYCRAFT SYSTEMS

Leading the Industry in Quality!









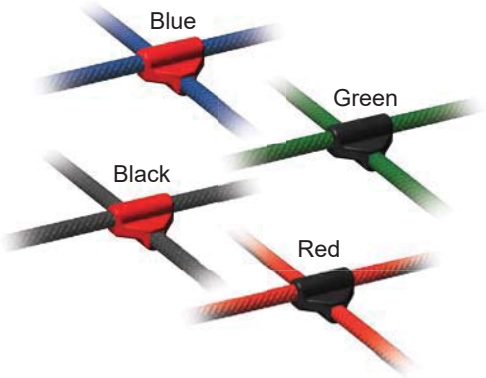
- Our powder coating averages 11 mils thick and is applied in a 2 coat process to heated parts. Parts are sand blasted and thoroughly cleaned prior to coating.
- Deck bracing which is 3” thick, exceeding the industry’s standard 2”. This bracing is spaced 15” on center for a strong, durable, and kid friendly deck.
  - Deck coatings which average 120 mils thick, providing long lasting durability.
  - Exclusive deck slot for flush/hidden component-to-deck attachment.
  - Heavier gauge steel and thicker diameter tubing than the industry standard.
- A factory which is almost completely self-contained! We manufacture components that many others outsource, including decks and plastic parts, ensuring the highest quality equipment available.
  - A clamping system which allows the attachment of multiple components on a single collar, greatly reducing “clamp stacking.”
- A comprehensive warranty which is not pro-rated - full replacement is provided for the entire length of the contract period.
  - Hot-Color Compounded Plastic Resins for superior color-fastness, U.V. stability and strength.
  - Self-sealing aluminum die-cast post caps secured with self-sealing rivets.



PACKET 15.2879 December 15, 2020

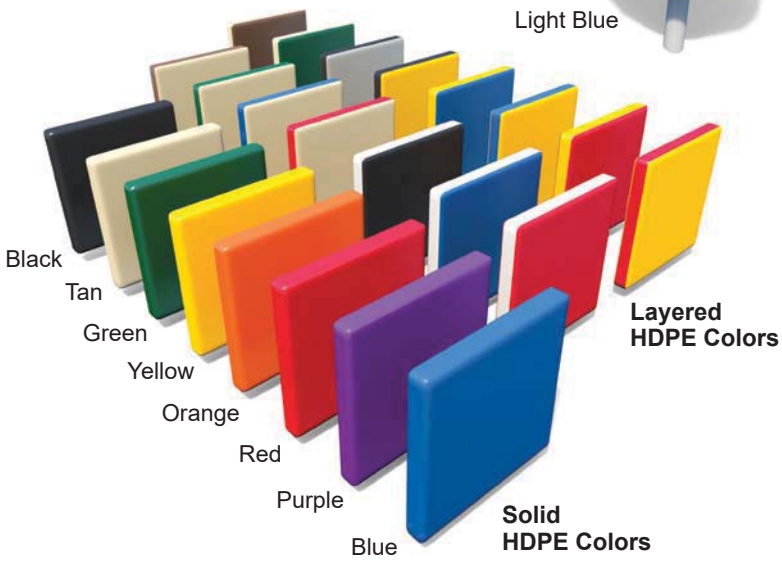
Colors

An integral part of any playground environment. Good use of color can inspire the imagination, encourage vigorous play, and set the tone for interaction and socialization. It is our manufacturing expertise blended with the highest quality colorants and materials that make our products the finest in the industry.









Play-Cord™ Cable Colors

Playcraft Play-Cord™ cables are made from tightly woven, nylon-wrapped, multi-strand galvanized steel cable. These high density, abrasion resistant cables are specifically made for playground use.

Play-Cord™ Cable Connector Colors

Available in Red and Black. Additional colors may be special ordered. Call to check for availability.

Powder Coatings

All Playcraft metal components go through an extensive multi-stage powder-coating process that yields a highly durable and lasting protective finish.

- Safe, lead-free coating
- Extremely durable, weather-proof finish
- Enhanced impact & corrosion resistance
- Rich, glossy finish
- Extra thick coatings (avg.11 mils thick)
- Custom colors available for an upcharge

Roto-Molded Plastics

Like a good jelly bean, our colors go all the way through! Playcraft slides, panels, roofs, and other plastic components are molded using hot-blended color compounded resins that stay bright and colorful even after years of wear.

- Hot-blended color compounded resins guarantee vibrant, uniform colors
- Made from specially formulated plastics designed to withstand harsh ultraviolet exposure for superior fade resistance
- Surfaces never too hot or too cold
- Custom colors available for an upcharge

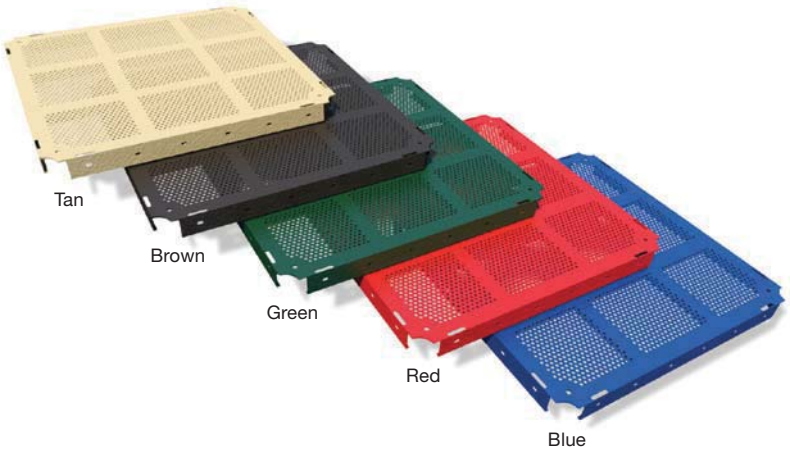
HDPE Sheet Plastics

Our hot-extruded high density polyethylene sheet plastic is available in solid and layered colors for one or two-color component design opportunities.

- Extremely durable and colorful
- Impact and vandal resistant
- Ideal for personalized or custom projects

Available layered colors:

Red-White-Red
Blue-White-Blue
Black-White-Black
Tan-Red-Tan
Tan-Blue-Tan
Tan-Green-Tan
Tan-Brown-Tan
Yellow-Red-Yellow
Red-Yellow-Red
Yellow-Blue-Yellow
Blue-Yellow-Blue
Yellow-Black-Yellow
Gray-Black-Gray
Green-Tan-Green
Brown-Tan-Brown



Play-Tuff™ Coatings

Krauss Craft uses an in-house state-of-the-art Play-Tuff™ (plastisol) coating process that offers unmatched protection for our perforated steel decks, steps, and select steel components. Play-Tuff™ standard colors are Blue, Red, Green, Brown and Tan.

- Specially formulated textured coating for superior resilience and slip-resistance
- Extra thick, durable coating (80-100 mils)
- Provides a protective cushion that protects small hands and feet

Activity Chains (Wall, Web Climber, etc.)

- Available in Brown only



Thermoplastic Coatings

Our Thermoplastic Polyethylene coating is a environmentally responsible alternative to PVC coatings. Thermoplastic standard colors are Blue, Green, Red and Brown. Thermoplastic Deck coating available in Brown only.



Swing Seat Colors

- Slash Proof Seats are constructed from durable elastomer and come in Black, Red, Blue, Green, Yellow

Roto-molded Plastic Tire

- Available in Red, Blue, Green and Yellow

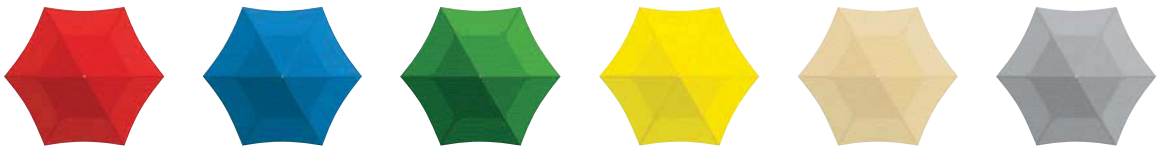
Roto-molded Inclusive Swing Seat

- Available in all roto-molded plastic colors (see page 191)

Shade Canopy Fabric Colors

Our ultra-tough fabrics come in a wide variety of colors and provide superior protection from harmful ultra-violet rays.

IMPORTANT:
The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.



	Red	Blue	Green	Yellow	Tan	Gray
Shade Cover	95%	96%	97%	95%	97%	97%
UVR Block	91%	99%	97%	93%	95%	97%

BRIGHT
Color Schemes



Primary



Autumn



Candy



Sunshine



Chic



SUBTLE
Color Schemes



Contemporary



Spring



Jester



Citrus



Sky



NATURAL
Color Schemes



Nature



Oceanside



Forest



Earth



Fresh



FANCIFUL
Color Schemes



Pop



Patriotic



Retro



Frozen



Farm



Color Schemes

Choosing the right colors for your play system is an important step and our highly trained Playcraft Representatives are always available to help you make the right choice. Choose from any of our popular color schemes shown here, create your own by choosing from our standard colors or contact your local Playcraft Representative for assistance.



Yellow Primary

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Red Primary

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Blue Primary

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Nature

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Earth

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Forest

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Contemporary

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Jester

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- MetalWalls/Rails
- Decks



Patriotic

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Sporty

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Festive

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Oceanside

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Autumn

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Sunshine

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Candy

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Chic

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Citrus

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Farm

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Fresh

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Pop

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- MetalWalls/Rails
- Decks



Frozen

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Retro

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Sky

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks



Spring

- Roto-Molded Plastic
- HDPE - Panel Face
- HDPE - Core/Accent
- HDPE Walls
- Posts
- Collars/Clamps
- Metal Walls/Rails
- Decks

NEW Powder-coat Colors



Sunshine Yellow
L: 86 a: 7 b: 73



Autumn Yellow
L: 72 a: 20 b: 57



Sweet Plum
L: 23 a: 32 b: -3



Crater Lake Blue
L: 18 a: -1 b: -23



Fern Green
L: 44 a: -21 b: 33



Acorn Brown
L: 45 a: 12 b: 26



Smoke Gray
L: 42 a: 0 b: -1

The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.

NEW Roto-molded Plastic Colors



Crater Lake Blue
L: 18 a: -1 b: -23



Fern Green
L: 51 a: -25 b: 40



Acorn Brown
L: 57 a: 14 b: 29



Timber Ash Gray
L: 42 a: 0 b: -1

PLAYCRAFT® SYSTEMS
A PLAYCORE Company

The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.

NEW HDPE Plastic Colors



Crater Lake Blue



Crater Lake Blue/Tan



Gull Gray



Spring Green



Spring Green / White

PLAYCRAFT® SYSTEMS
A PLAYCORE Company

The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.

NEW Play-Tuff Color



Gull Gray

NEW Thermoplastic Color



Gull Gray

The colors shown are for illustration purposes only. Actual colors may vary. Contact your Playcraft Distributor for accurate color samples.

PLAYCRAFT SYSTEMS WARRANTY

Playcraft Systems®, warrants its products to be free from defects in materials or workmanship, when properly used, serviced and installed in accordance with published specifications, for a period of one (1) year from the original date of invoice.

Playcraft Systems® further warrants as follows:

LIFETIME LIMITED WARRANTY
on all stainless steel hardware, metal posts, aluminum posts, aluminum caps and aluminum clamps against structural failure due to natural deterioration or corrosion, or defects in materials or workmanship.

TWENTY-FIVE (25) YEAR LIMITED WARRANTY
on all cast aluminum Spring Rider castings against structural failure due to defects in materials or workmanship.

FIFTEEN (15) YEAR LIMITED WARRANTY
on all metal rails, metal slides, handles, rungs, loops and walls, all Play-Tuff™ coated perforated steel decks, steps, and bridges, all rotationally molded and HDPE sheet plastic components, excluding recycled plastic components, against structural failure due to defects in materials or workmanship.

TEN (10) YEAR LIMITED WARRANTY
on all shade canopy fabric made of UV Stabilized HDPE monofilament yarn and tape against significant fading.

TEN (10) YEAR LIMITED WARRANTY
on all Play-Cord™ components against breakage.

FIVE (5) YEAR LIMITED WARRANTY
on all Play-Cord™ components against failure due to defects in materials or workmanship.

THREE (3) YEAR LIMITED WARRANTY
on all springs, moving swing parts, swing seats and other swing components, as well as all recycled plastic components against failure due to defects in materials or workmanship.

ONE (1) YEAR LIMITED WARRANTY
on any other product or part not specifically covered above against failure due to defects in materials or workmanship.

All warranties above commence on the date of the original invoice from Playcraft Systems® For the purpose of this warranty, the term LIFETIME encompasses no specific number of years, but rather that Playcraft Systems® warrants to its original customer, for as long as the original customer owns the Products and uses the Products for their intended purpose, that any Products and all components will be free from defects in materials or workmanship.

The warranty stated above is valid only if: (1) the products and structures are assembled and installed in conformity with the layout plan and installation instructions furnished by Playcraft Systems®; (2) the products have been maintained and inspected in accordance with Playcraft Systems® maintenance information and other normal and prudent practices; (3) the products have been subjected to normal use for the purpose for which the products were designed and intended; (4) the products have not been subjected to misuse, abuse, vandalism, accident or neglect; (5) the products have not been altered in any manner including, but not limited to, incorporating unauthorized or unapproved parts; and (6) the products have not been modified, altered, or repaired by persons other than Seller's designees in any respect which, in the judgment of Seller, affects the condition or operation of the equipment.

This warranty does not cover: (1) cosmetic damages or defects resulting from scratches, dents, marring, fading, discoloring or weathering; (2) damage due to extreme or prolonged exposure to "Environmental Factors", such as wind-blown sand, salt water, salt spray and airborne emissions from industrial sources (sulfur, acids or corrosive chemicals, other than normal photochemical smog); (3) damage caused by "Acts of God", such as hail, flooding, lightning, tornadoes, sandstorms, earthquakes, windstorms, and other extreme weather conditions; or 4) normal wear and tear. If any products covered by this warranty fail within the time period applicable to a defective product, Playcraft Systems® shall, upon being notified of the defect in writing, at its sole option, either repair the defective products or replace the defective products within 30 days of receipt of the written notification.

Repair or replacement as provided in this section shall be the purchaser's exclusive remedy and purchaser expressly agrees that Playcraft Systems® shall not be responsible for any other damages, losses, or costs, including consequential and incidental damages, claimed by purchaser. Playcraft Systems® shall deliver the repaired or replacement products to the purchaser free of charge, but shall not provide labor, reimbursements for labor or reimburse any other costs associated with the removal or disposal of the defective products and/or the installation of any replacement products. Notwithstanding the previous sentence, Playcraft Systems® shall not pay for any costs of shipping replacement parts outside of the continental United States. Any products replaced or repaired consistent with this paragraph shall be guaranteed for the balance of the original warranty period.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES PROVIDED HEREIN SHALL BE THE EXCLUSIVE AND SOLE REMEDIES OF THE ORIGINAL PURCHASER. PLAYCRAFT SYSTEMS® IS NOT LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY ARISE FROM THE PURCHASE, USE OR MISUSE OF ITS PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION MAY NOT APPLY. PLAYCRAFT SYSTEMS® NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME OR IMPLY ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OR USE OF THE EQUIPMENT SOLD.

To make a claim under the terms of this warranty, purchaser must submit a written statement detailing the nature of the warranty claim, including an itemization of each defective condition, along with a copy of the original invoice, maintenance records and supporting photographs to Playcraft Systems®, 123 North Valley Drive, Grants Pass, Oregon 97526.

Due to our on-going commitment to product development and Improvement, Playcraft Systems® reserves the right to change, modify or discontinue certain products without notice. (Rev. N)


PLAYCRAFT
SYSTEMS
A PLAYCORE Company
RAISING THE BAR
PACKET
15.2891
December 15, 2020
PLAYCRAFT
SYSTEMS
A PLAYCORE Company
PlaycraftSystems.com

PLAYCRAFT SYSTEMS
A PLAYCORE Company

PACKET 15.2892 December 15, 2020

RAISING THE BAR

The Playcraft Systems Standard: Doing it better when no one is looking.

Over 25 years ago we set out to make the best commercial playgrounds the world had ever seen. To do that, we knew we would have to raise the bar on excellence. So we created a new and better way of doing things... setting a higher industry standard. The Playcraft Systems Higher Standard means we don't settle for less than the best. From complete and consistent in-house manufacturing, to the finest materials, to the best and thickest finishes, Playcraft Systems sets the standard in quality.



King-Clamp™ System

We invent possibilities.

Before we invented the King Clamp, the playground industry struggled with mounting components to standard upright posts in a fast, clean and economical way. Today we lead the industry in clamping and fastening technology with our King Clamp. A clamp that allows multiple attachment points for improved installation times, simplified assembly and clean, value priced design flexibility.



Fit and Finish

Quality is the best business plan.

Our metal components are precision welded, hand-cleaned, sandblasted, phosphate washed and sealed thoroughly in a multi-stage bath, then powder-coated not once but TWICE, yielding an average coating thickness of over 11 mils. An industry first. That discernible Playcraft Systems shine and durability is just another way we raise the bar on quality.

Playcraft Systems Standard

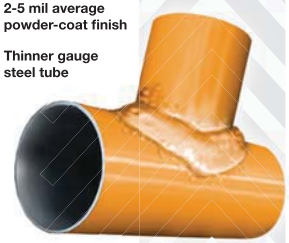
- ✓ 11+ mil thick average double powder-coat finish
- ✓ 11-12 gauge extra thick steel tube for strength and durability



- ✓ Superior Welds

Industry Standard

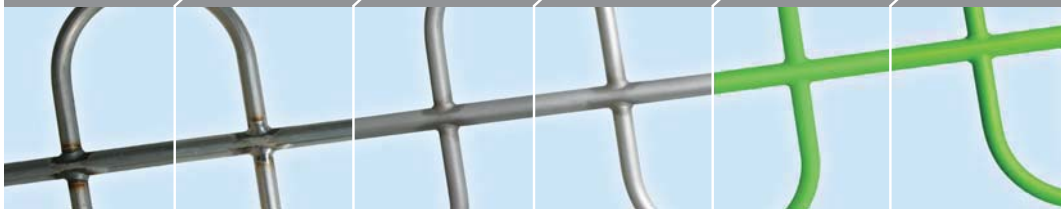
- 2-5 mil average powder-coat finish
- Thinner gauge steel tube



- Inferior Welds

Our Metal Fabrication and Finishing Process

Precision Welded › Hand Cleaned › Sand Blasted › Multi-Stage Wash › Powder-coated #1 › Powder-coated #2



PACKET 15.2893 December 15, 2020



Die-Casting

Quality is not an act, it's a habit.

Playcraft Systems recently finished our state-of-the-art, Aluminum Die Casting facility, completing ambitious plans to manufacture everything in-house, for unmatched quality and value. From King Clamp collars and post sleeves, to our post caps and mounting brackets, use of aluminum in our products will continue to grow and remain essential to superior product design. Aluminum is fully recyclable, like most of the materials found in our products. At the end of the day, good product design reflects good stewardship of our environment.



Playcraft Systems Standard

- ✓ High Performance, Hot Color-Compounded Resins
- ✓ Components molded extra thick and designed with double walls for industry leading durability

Industry Standard

- Lower Performance, Dry-blend Resins
- Components molded thinner - compromising durability

Roto-Molding

Advanced Plastics are Our Standard.

At Playcraft Systems, our team of designers and engineers utilize advanced technology and materials to design and manufacture the modern plastic products that our customers deserve and expect. Roto-Molding each plastic component with extra thick walls, using advanced compounded resins with top performing U.V. stabilizers ensures our products outperform the industry with extra strong, colorfast plastics. Plastics that withstand tough use and harsh environments.









Decking

Built Tuff for Tough Play.

Playground decking takes a beating. From extreme weather to active play, decks need to be tough! And Playcraft decks are the toughest from top to bottom. Built with extra-thick sheet steel and reinforced with doubled-up gusseting, you won't find a higher quality deck in the industry. And for the finishing touch, we dip each deck in super-thick and durable Play-Tuff coating, the ultimate kid friendly protection against everyday wear and tear.

Playcraft Systems Standard

- ✓ Thick and durable Play-Tuff coatings
- ✓ Doubled-up gussets for strength
- ✓ Extra-thick sheet steel construction

Industry Standard

- Thinner, inferior coatings
- Single gusset construction
- Standard thickness sheet steel

PACKET
December 15, 2020



Before
Recreation Unlimited / Kokomo, IN

Shipping & Install

Quality is not for compromise.

Quality control is extremely important at Playcraft Systems. We check each piece for high quality consistency at every step of production. Then each piece is carefully bagged, wrapped and packed on custom made wood pallets for prompt, safe shipping. With every shipment come comprehensive instructions along with a Playground Equipment Manual specific to your project to ensure a smooth and stress-free installation. We also include a maintenance kit to keep your playground looking great.





After
Recreation Unlimited / Kokomo, IN

Playcraft Systems Warranty

Every product we manufacture is designed with quality, safety and value in mind. Every project we undertake is an opportunity to prove that Playcraft Systems is setting a new standard and raising the bar on quality and play expectations... one playground at a time.

QUALITY YOU CAN TRUST
LIFETIME WARRANTY*
PLAYCRAFT SYSTEMS

Playcraft Systems warrants its products to be free from defects in materials or workmanship, when properly used, serviced and installed in accordance with published specifications, for a period of one (1) year from the original date of invoice. Playcraft Systems further warrants as follows:

LIFETIME LIMITED WARRANTY
on all stainless steel hardware, metal posts, aluminum posts, aluminum caps and aluminum clamps against structural failure due to natural deterioration or corrosion, or defects in materials or workmanship.

TWENTY- FIVE (25) YEAR LIMITED WARRANTY
on all cast aluminum Spring Rider castings against structural failure due to defects in materials or workmanship.

FIFTEEN (15) YEAR LIMITED WARRANTY
on all metal rails, metal slides, handles, rungs, loops and walls, all Play-Tuff™ coated perforated steel decks, steps, and bridges, all rotationally molded and HDPE sheet plastic components, excluding recycled plastic components, against structural failure due to defects in materials or workmanship.

TEN (10) YEAR LIMITED WARRANTY
on all shade canopy fabric made of UV Stabilized HDPE monofilament yarn and tape against significant fading.

TEN (10) YEAR LIMITED WARRANTY
on all Play-Cord™ components against breakage.

FIVE (5) YEAR LIMITED WARRANTY
on all Play-Cord™ components against failure due to defects in materials or workmanship.

THREE (3) YEAR LIMITED WARRANTY
on all springs, moving swing parts, swing seats and other swing components, as well as all recycled plastic components against failure due to defects in materials or workmanship.

ONE (1) YEAR LIMITED WARRANTY
on any other product or part not specifically covered above against failure due to defects in materials or workmanship.

All warranties above commence on the date of the original invoice from Playcraft Systems. For the purpose of this warranty, the term LIFETIME encompasses no specific number of years, but rather that Playcraft Systems warrants to its original customer, for as long as the original customer owns the Products and uses the Products for their intended purpose, that any Products and all components will be free from defects in materials or workmanship.
The warranty stated above is valid only if: (1) the products and structures are assembled and installed in conformity with the layout plan and installation instructions furnished by Playcraft Systems; (2) the products have been maintained and inspected in accordance with Playcraft Systems maintenance information and other normal and prudent practices; (3) the products have been subjected to normal use for the purpose for which the products were designed and intended; (4) the products have not been subjected to misuse, abuse, vandalism, accident or neglect; (5) the products have not been altered in any manner including, but not limited to, incorporating unauthorized or unapproved parts; and (6) the products have not been modified, altered, or repaired by persons other than Seller's designees in any respect which, in the judgment of Seller, affects the condition or operation of the equipment.
This warranty does not cover: (1) cosmetic damages or defects resulting from scratches, dents, marring, fading, discoloring or weathering; (2) damage due to extreme or prolonged exposure to "Environmental Factors", such as wind-blown sand, salt water, salt spray and airborne emissions from industrial sources (sulfur, acids or corrosive chemicals, other than normal photochemical smog); (3) damage caused by "Acts of God", such as hail, flooding, lightning, tornadoes, sandstorms, earthquakes, windstorms, and other extreme weather conditions; or 4) normal wear and tear. If any products covered by this warranty fail within the time period applicable to a defective product, Playcraft Systems shall, upon being notified of the defect in writing, at its sole option, either repair the defective products or replace the defective products within 30 days of receipt of the written notification.

Repair or replacement as provided in this section shall be the purchaser's exclusive remedy and purchaser expressly agrees that Playcraft Systems shall not be responsible for any other damages, losses, or costs, including consequential and incidental damages, claimed by purchaser. Playcraft Systems shall deliver the repaired or replacement products to the purchaser free of charge, but shall not provide labor, reimbursements for labor or reimburse any other costs associated with the removal or disposal of the defective products and/or the installation of any replacement products. Notwithstanding the previous sentence, Playcraft Systems shall not pay for any costs of shipping replacement parts outside of the continental United States. Any products replaced or repaired consistent with this paragraph shall be guaranteed for the balance of the original warranty period.
THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES PROVIDED HEREIN SHALL BE THE EXCLUSIVE AND SOLE REMEDIES OF THE ORIGINAL PURCHASER. PLAYCRAFT SYSTEMS IS NOT LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY ARISE FROM THE PURCHASE, USE OR MISUSE OF ITS PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION MAY NOT APPLY. PLAYCRAFT SYSTEMS NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME OR IMPLY ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OR USE OF THE EQUIPMENT SOLD.
To make a claim under the terms of this warranty, purchaser must submit a written statement detailing the nature of the warranty claim, including an itemization of each defective condition, along with a copy of the original invoice, maintenance records and supporting photographs to Playcraft Systems, 123 North Valley Drive, Grants Pass, Oregon 97526.
Due to our on-going commitment to product development and Improvement, Playcraft Systems reserves the right to change, modify or discontinue certain products without notice. (Rev. M)

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for _____, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

Form Revised August 2012

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of _____ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

EXHIBIT D – BUILDING WAGE RATES rev 09-14-18

General Decision Number: TX180311 09/14/2018 TX311

Superseded General Decision Number: TX20170311

State: Texas

Construction Type: Building

County: Midland County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	09/14/2018

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

ENGI0178-005 06/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane	$ 29.00	10.60
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above	$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under	$ 27.50	10.60

* IRON0084-011 06/01/2018

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 23.77	7.12

PLUM0404-001 07/01/2016

	Rates	Fringes
PLUMBER	$ 25.91	9.40

SUTX2014-037 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER	$ 13.82	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.76	0.00
ELECTRICIAN	$ 23.18	6.31
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 19.77	7.13
IRONWORKER, REINFORCING	$ 12.27	0.00
IRONWORKER, STRUCTURAL	$ 22.16	5.26
LABORER: Common or General	$ 11.80	0.00
LABORER: Mason Tender - Brick	$ 11.38	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.58	0.00
LABORER: Pipelayer	$ 12.49	2.13
LABORER: Roof Tearoff	$ 11.28	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.25	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 18.29	1.31
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 14.83	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00

OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00
OPERATOR: Roller	$ 12.70	0.00
PAINTER (Brush, Roller, and Spray)	$ 15.00	0.73
PIPEFITTER	$ 25.80	8.55
ROOFER	$ 14.75	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 22.73	7.52
SHEET METAL WORKER, Excludes HVAC Duct Installation	$ 19.50	0.00
TILE FINISHER	$ 11.22	0.00
TILE SETTER	$ 14.74	0.00
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO

is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

Vendor Contract Information Summary

Vendor Name	The Playwell Group, Inc.
Contact	Maria Powell
Phone Number	8007261816
Email	maria@playwellgroup.com
Website	www.playwellgroup.com
Federal ID	75-2658108
Accepts RFQs	Yes
Address Line 1	4743 Iberia Avenue, Ste C
Vendor City	Dallas
Vendor Zip	75207
Vendor State	TX
Vendor Country	USA
Delivery Days	75
Freight Terms	FOB Destination
Payment Terms	Net 30 Days
Shipping Terms	Pre-paid and added to invoice
Ship Via	Common Carrier
Is Designated Dealer	No
EDGAR Forms Received	Yes
Service-Disabled Veteran Owned	No
Minority Owned	No
Women Owned	Yes
Certificate Number	1752658108100
Certifying Agency	State of Texas / Texas Comptroller of Public Accounts
Is National	Yes
No Excluded Foreign Terrorist Orgs	Yes
No Israel Boycott Certificate	Yes
Is MWBE	Yes
Regions Served	All Texas Regions
States Served	Arkansas, Colorado, New Mexico, Oklahoma, Texas
Contract Name	Parks and Recreation Equipment and Field Lighting Products
Contract #	592-19
Effective Date	10/01/2019
Expiration Date	09/30/2022
Quote Reference Number	592-19
Return Policy	30 days if not installed, may be subject to restocking fee

Vendor Contract Information Summary

12/4/2020 9:27:34 AM

THE CITY OF MIDLAND

CONTRACT

Contract No. 21001547-02

THIS CONTRACT, effective the 16 day of December, 2020, by and between the City of Midland, hereinafter referred to as "City", and Exerplay Inc, hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 683,820.41 DOLLARS

2. **Scope of Work:** Company shall perform all work described for for the playground renovations at Reyes-Mashburn-Nelms Park, Kiwanis Park, Elkins Park, and Essex Park in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Tina Jauz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than 130 calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise available in any fiscal period for payments due under the contract, then this contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the risks, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §
§
COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, _____, an officer of Exerplay Inc, known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

EXHIBIT "A"

PO Box 1160
Cedar Crest, NM 87008-1160
Fax 505.281.0155
Toll Free 800.457-5444
www.exerplay.com

DATE	NUMBER
12/7/2020	OR120720-3

QUOTATION

Quote Prepared for:	Purchase Order to be Issued To:
City of Midland	Exerplay, Inc PO Box 1160 Cedar Crest, NM 87008 Fax copy of PO to 505-281-0155

SHIPPED VIA	TERMS	REP	FOB	EST. SHIP DATE
Common Carrier	Net 30	JT	Midland, TX	4-6 Weeks ARO

ITEM	DESCRIPTION	QTY	COST	TOTAL
Project	ELKINS, ESSEX, KIWANIS, AND REYES-MASHBURN-NELMS PARKS - PLAYGROUND EQUIPMENT, SHADE STRUCTURES, SAFETY SURFACING, AND INSTALLATION			
	ELKINS PARK			
	LANDSCAPE STRUCTURES, INC.			
LSI	PlayBooster® (5-12 years), per Design 173704B	1	34,815.00	34,815.00
BuyBoard	Contract #592-19		-5.00%	-1,740.75
Courtesy Disc...	Courtesy discount		-10.00%	-3,481.50
	SKYWAYS BY LANDSCAPE STRUCTURES, INC.			
215187C	SkyWays® Hip (40'x40') Shade 12' Entrance Height 1	1	12,530.00	12,530.00
BuyBoard	Contract #592-19		-5.00%	-626.50
Courtesy Disc...	Courtesy discount		-10.00%	-1,253.00
LSI	CP001097 - SkyWays® Template Steel Anchor Bolt/Base Plate Template	4	150.00	600.00
	SAFETY SURFACING			
ForeverLawn	FL05-PB - Playground Grass Extreme	1,800	7.70	13,860.00
ForeverLawn	SFP20 - SafetyFoam Pro 2" - 2'x4' panel	277	26.47	7,332.19
BuyBoard	Contract #592-19		-1,059.61	-1,059.61
Courtesy Disc...	Courtesy discount		-609.19	-609.19
ForeverLawn	Playground Grass Freight & Installation - standard installation includes: 3 in of Drainage stone and compaction, material and installation of perimeter board and staples to secure edges, application of infill when applicable, and site clean-up *Does not include removal of old surfacing if applicable (224)	1	9,504.00	9,504.00
	INSTALLATION			
Install	Installation of play equipment option B for Elkins Park. Price includes installation of playground only. (242)	1	11,875.00	11,875.00
Install	Installation of 40'x40' shade. Pricing for shade installation is only good if shade is installed in conjunction with playground. (242)	1	14,375.00	14,375.00

- CONTINUED ON PAGE 2 -

PACKET 15.2919

Quote prepared by Olivia Ramirez
olivia@exerplay.com

TOTAL December 15, 2020

PO Box 1160
Cedar Crest, NM 87008-1160
Fax 505.281.0155
Toll Free 800.457-5444
www.exerplay.com

DATE	NUMBER
12/7/2020	OR120720-3

QUOTATION

Quote Prepared for:	Purchase Order to be Issued To:
City of Midland	Exerplay, Inc PO Box 1160 Cedar Crest, NM 87008 Fax copy of PO to 505-281-0155

SHIPPED VIA	TERMS	REP	FOB	EST. SHIP DATE
Common Carrier	Net 30	JT	Midland, TX	4-6 Weeks ARO

ITEM	DESCRIPTION	QTY	COST	TOTAL
	ESSEX PARK			
	LANDSCAPE STRUCTURES, INC.			
LSI	PlayBooster® (5-12 years), per Design 173663C	1	68,825.00	68,825.00
BuyBoard	Contract #592-19		-5.00%	-3,441.25
Courtesy Disc...	Courtesy discount		-10.00%	-6,882.50
	SKYWAYS BY LANDSCAPE STRUCTURES, INC.			
216038B	SkyWays® Hexagon, Double Layer (35') Shade 10' Entrance Height 1	1	15,180.00	15,180.00
BuyBoard	Contract #592-19		-5.00%	-759.00
Courtesy Disc...	Courtesy discount		-10.00%	-1,518.00
LSI	CP001097 - SkyWays® Template Steel Anchor Bolt/Base Plate Template	5	150.00	750.00
	SAFETY SURFACING			
ForeverLawn	FL05-PB - Playground Grass Extreme	1,920	7.70	14,784.00
ForeverLawn	SFP20 - SafetyFoam Pro 2" - 2'x4' panel	231	26.47	6,114.57
BuyBoard	Contract #592-19		-1,044.93	-1,044.93
Courtesy Disc...	Courtesy discount		-642.57	-642.57
ForeverLawn	Playground Grass Freight & Installation - standard installation includes: 3 in of Drainage stone and compaction, material and installation of perimeter board and staples to secure edges, application of infill when applicable, and site clean-up *Does not include removal of old surfacing if applicable (186)	1	9,466.00	9,466.00
	SAFETY SURFACING			
EWF	Engineered Wood Fiber, priced per cu/yd	225	31.25	7,031.25
BuyBoard	Contract #592-19		-5.00%	-351.56
Freight	Freight/shipping charges (031920)	1	2,171.00	2,171.00
	INSTALLATION			
Install	Installation of Playground Equipment per Design 173663C and 225 cu/yds of EWF. (239)	1	27,500.00	27,500.00
Install	Installation of Hexagonal shade for Essex Park. Pricing for shade installation is only good if shade is installed in conjunction with playground. (239)	1	20,000.00	20,000.00

- CONTINUED ON PAGE 3 -

Quote prepared by Olivia Ramirez
olivia@exerplay.com

TOTAL

PO Box 1160
Cedar Crest, NM 87008-1160
Fax 505.281.0155
Toll Free 800.457-5444
www.exerplay.com

QUOTATION

DATE	NUMBER
12/7/2020	OR120720-3

Quote Prepared for:	Purchase Order to be Issued To:
City of Midland	Exerplay, Inc PO Box 1160 Cedar Crest, NM 87008 Fax copy of PO to 505-281-0155

SHIPPED VIA	TERMS	REP	FOB	EST. SHIP DATE
Common Carrier	Net 30	JT	Midland, TX	4-6 Weeks ARO

ITEM	DESCRIPTION	QTY	COST	TOTAL
	KIWANIS PARK			
	LANDSCAPE STRUCTURES, INC.			
LSI	LSI PlayBooster® (5-12 years), per Design 173664D	1	96,425.00	96,425.00
BuyBoard	Contract #592-19		-5.00%	-4,821.25
Courtesy Disc...	Courtesy discount		-10.00%	-9,642.50
	SKYWAYS BY LANDSCAPE STRUCTURES, INC.			
LSI	CP010706 - Skyways Hip 4 Columns + 1 HDPE Top – 25' x 40' w/ 10' Entry / EST. Foundation: Approx. 36" Dia x 8' Deep Pier, with CP001127 - SkyWays® Multi-Panels for Hip Style – 4 HDPE Tops	1	12,420.00	12,420.00
BuyBoard	Contract #592-19		-5.00%	-621.00
Courtesy Disc...	Courtesy discount		-10.00%	-1,242.00
	SAFETY SURFACING			
ForeverLawn	FL05-PB - Playground Grass Extreme	2,400	7.70	18,480.00
ForeverLawn	SFP20 - SafetyFoam Pro 2" - 2'x4' panel	318	26.47	8,417.46
BuyBoard	Contract #592-19		-1,344.87	-1,344.87
ForeverLawn	Playground Grass Freight & Installation - standard installation includes: 3 in of Drainage stone and compaction, material and installation of perimeter board and staples to secure edges, application of infill when applicable, and site clean-up *Does not include removal of old surfacing if applicable (196)	1	13,110.00	13,110.00
	SAFETY SURFACING			
EWF	Engineered Wood Fiber, priced per cu/yd	200	31.25	6,250.00
BuyBoard	Contract #592-19		-5.00%	-312.50
Freight	Freight/shipping charges (031920)	1	2,127.00	2,127.00
	INSTALLATION			
Install	Installation of Playground Equipment per Design 173664D and 200 cu/yds of EWF. (239)	1	38,625.00	38,625.00
Install	Installation of 4 post hip shade for Kiwanis Park in Midland, TX. Pricing for shade installation is only good if shade is installed in conjunction with playground. (241)	1	18,688.00	18,688.00

- CONTINUED ON PAGE 4 -

Quote prepared by Olivia Ramirez
olivia@exerplay.com

TOTAL

PO Box 1160
Cedar Crest, NM 87008-1160
Fax 505.281.0155
Toll Free 800.457-5444
www.exerplay.com

DATE 12/7/2020

NUMBER OR120720-3

QUOTATION

Quote Prepared for:	Purchase Order to be Issued To:
City of Midland	Exerplay, Inc PO Box 1160 Cedar Crest, NM 87008 Fax copy of PO to 505-281-0155

SHIPPED VIA	TERMS	REP	FOB	EST. SHIP DATE
Common Carrier	Net 30	JT	Midland, TX	4-6 Weeks ARO

ITEM	DESCRIPTION	QTY	COST	TOTAL
	REYES-MASHBURN-NELMS PARK			
	LANDSCAPE STRUCTURES, INC.			
LSI	PlayBooster® (5-12 years), per Design 173655C	1	98,255.00	98,255.00
BuyBoard	Contract #592-19		-5.00%	-4,912.75
Courtesy Disc...	Courtesy discount		-10.00%	-9,825.50
	SAFETY SURFACING			
ForeverLawn	FL05-PB - Playground Grass Extreme	3,720	7.70	28,644.00
ForeverLawn	SFP30 - SafetyFoam Pro 3" - 2'x4' panel	480	35.25	16,920.00
BuyBoard	Contract #592-19		-2,278.20	-2,278.20
Courtesy Disc...	Courtesy discount		-53.00	-53.00
ForeverLawn	Playground Grass Freight & Installation - standard installation includes: 3 in of Drainage stone and compaction, material and installation of perimeter board and staples to secure edges, application of infill when applicable, and site clean-up *Does not include removal of old surfacing if applicable (196)	1	20,735.00	20,735.00
	SAFETY SURFACING			
EWF	Engineered Wood Fiber, priced per cu/yd	90	31.25	2,812.50
BuyBoard	Contract #592-19		-5.00%	-140.63
Freight	Freight/shipping charges (031920)	1	1,078.00	1,078.00
	INSTALLATION			
Install	Installation of Playground Equipment per Design 173664B and 200 cu/yds of EWF. (229)	1	36,875.00	36,875.00
Freight	Freight/shipping charges for all playgrounds and shades (150-20-1085 150-20-1079 JT)	1	22,725.00	22,725.00
Bond	Performance/Payment Bond	1	23,125.00	23,125.00

- CONTINUED ON PAGE 5 -

Quote prepared by Olivia Ramirez
olivia@exerplay.com

TOTAL

PO Box 1160
Cedar Crest, NM 87008-1160
Fax 505.281.0155
Toll Free 800.457-5444
www.exerplay.com

DATE	NUMBER
12/7/2020	OR120720-3

QUOTATION

Quote Prepared for:	**Purchase Order to be Issued To:**
City of Midland	Exerplay, Inc PO Box 1160 Cedar Crest, NM 87008 Fax copy of PO to 505-281-0155

SHIPPED VIA	TERMS	REP	FOB	EST. SHIP DATE
Common Carrier	Net 30	JT	Midland, TX	4-6 Weeks ARO

ITEM	DESCRIPTION	QTY	COST	TOTAL
Notes I	Pricing is for the above listed equipment and installation only and does not include off loading of equipment at time of delivery, storage, security, security fencing, or any applicable taxes or permits. Pricing is for material and installation as specified above, and does not include removal or disposal of existing equipment or site preparation. Pricing for installation is for normal digging conditions. If adverse digging conditions exist, an additional charge may be incurred. There will be a 3.5% fee added to your invoice if you choose to pay by credit card			
JT	For more information please contact Jeff Talley at (806) 670-4006, or jeff@exerplay.com - PRICING IS GOOD FOR 30 DAYS. -			

Quote prepared by Olivia Ramirez
olivia@exerplay.com

TOTAL $683,820.41

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for _____, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

Form Revised August 2012

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of _____ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

EXHIBIT D – BUILDING WAGE RATES rev 09-14-18

General Decision Number: TX180311 09/14/2018 TX311

Superseded General Decision Number: TX20170311

State: Texas

Construction Type: Building

County: Midland County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	09/14/2018

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

ENGI0178-005 06/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane	$ 29.00	10.60
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above	$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under	$ 27.50	10.60

* IRON0084-011 06/01/2018

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 23.77	7.12

PLUM0404-001 07/01/2016

	Rates	Fringes
PLUMBER	$ 25.91	9.40

SUTX2014-037 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER	$ 13.82	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.76	0.00
ELECTRICIAN	$ 23.18	6.31
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 19.77	7.13
IRONWORKER, REINFORCING	$ 12.27	0.00
IRONWORKER, STRUCTURAL	$ 22.16	5.26
LABORER: Common or General	$ 11.80	0.00
LABORER: Mason Tender - Brick	$ 11.38	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.58	0.00
LABORER: Pipelayer	$ 12.49	2.13
LABORER: Roof Tearoff	$ 11.28	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.25	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 18.29	1.31
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 14.83	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00

OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00
OPERATOR: Roller	$ 12.70	0.00
PAINTER (Brush, Roller, and Spray)	$ 15.00	0.73
PIPEFITTER	$ 25.80	8.55
ROOFER	$ 14.75	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 22.73	7.52
SHEET METAL WORKER, Excludes HVAC Duct Installation	$ 19.50	0.00
TILE FINISHER	$ 11.22	0.00
TILE SETTER	$ 14.74	0.00
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO

is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

Vendor Contract Information Summary

Vendor Name	ExerPlay, Inc.
Contact	Michelle McKean
Phone Number	8004575444
Email	michelle@exerplay.com
Website	www.exerplay.com
Federal ID	85-0390320
Accepts RFQs	Yes
Address Line 1	12220 N Hwy 14 Suite I
Vendor City	Cedar Crest
Vendor Zip	87008
Vendor State	NM
Vendor Country	USA
Delivery Days	60
Freight Terms	FOB Destination
Payment Terms	Net 30 Days
Shipping Terms	Pre-paid and added to invoice
Ship Via	Common Carrier
Is Designated Dealer	No
EDGAR Forms Received	Yes
Service-Disabled Veteran Owned	No
Minority Owned	No
Women Owned	No
Is National	Yes
No Excluded Foreign Terrorist Orgs	Yes
No Israel Boycott Certificate	Yes
Is MWBE	No
Regions Served	1, 2, 3, 14, 15, 16, 17, 18, 19, 20
States Served	Alaska, Arizona, Hawaii, Nevada, New Mexico
Contract Name	Parks and Recreation Equipment and Field Lighting Products
Contract #	592-19
Effective Date	10/01/2019
Expiration Date	09/30/2022
Quote Reference Number	592-19
Return Policy	15% restocking fee plus freight.

THE CITY OF MIDLAND

CONTRACT

Contract No. 21001547-03

THIS CONTRACT, effective the 16 day of December, 2020, by and between the City of Midland, hereinafter referred to as "City", and 4B Recreation Group LLC dba Playgrounds Etc., hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 667,193.00 DOLLARS

2. **Scope of Work:** Company shall perform all work described for for the playground renovations at Trinity, Henderson and Beal Parks in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Tina Jauz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than 190 calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise available in any fiscal period for the payments due under the contract, then this contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the risks, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §

§

COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, _____, an officer of 4B Recreation Group LLC dba Playgrounds Etc., known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

Playgrounds Etc.
1410 W Texas Ave.
Midland, TX 79701
432-687-6388

Bid

Date	Bid #
12/2/2020	15531

Name / Address	Ship To
City of Midland 300 N. Loraine Ave. Midland, TX 79701	

Rep	P.O. No.	Project Location	Project
AS		Trinity, Henderson, Beal Park	Combined Playground R4

Item	Description	Qt	Rate	Total
	HENDERSON PARK			
SRPFX	Special Effects- Safari Themed Play Structure #SRPFX-50302	1	108,023.00	108,023.00T
TFR0541XX	Safari Off-Road Vehicle	1	7,189.00	7,189.00T
52019	T-Swing without Shade	1	1,622.00	1,622.00T
TFR0623XX	Single Post Swing Frame 2-Bay.	1	2,437.00	2,437.00T
90015108XX	Belt Seats and Galvanized Chains for 8' Height Swing Frame - Pair	2	178.00	356.00T
90015130XX	Full Bucket Seats with 8' Galvanized Chain Sets - Pair	1	365.00	365.00T
SD202010IG	20' X 20' X 10' Entry Height Square Hip Shade. Inground Mount With Glide Elbows.	1	5,218.00	5,218.00T
EWF - L	Engineered Wood Fibers for safety surfacing. Includes approximately 78 cubic yards, landscape cloth and freight to your location.	1	4,265.00	4,265.00T
AF-UT-CS	Approximately 2,341 square feet of Artificial Turf. Includes all materials, freight and labor necessary to install turf over compacted stone base	1	39,295.00	39,295.00T
	BEAL PARK			
SRPFX	Special Effects - Oregon Themed Play Structure #SRPFX-50305	1	118,800.00	118,800.00T
DRM00057XX	Train Station	1	4,797.00	4,797.00T
TFS0026XX	Horse Spring Rider	2	1,499.00	2,998.00T
TFR0624XX	Single Post Swing Frame 3-Bay.	1	3,678.00	3,678.00T
90015108XX	Belt Seats and Galvanized Chains for 8' Height Swing Frame - Pair	2	178.00	356.00T
90015130XX	Full Bucket Seats with 8' Galvanized Chain Sets - Pair	1	365.00	365.00T
SRP - Shade	20' X 20' X 10' Hyperbolic Sail Shade, Inground mount with glide elbows.	1	8,566.00	8,566.00T
EWF - L	Engineered Wood Fibers for safety surfacing. Includes approximately 98 cubic yards, landscape cloth and freight to your location.	1	4,950.00	4,950.00T
AF-UT-CS	Approximately 3,360 square feet of Artificial Turf. Includes all materials, freight and labor necessary to install turf over compacted stone base	1	50,160.00	50,160.00T
	Lancaster Park			

This bid is good for 30 days

Subtotal	
Sales Tax (0.0%)	
Total	

Playgrounds Etc.
1410 W Texas Ave.
Midland, TX 79701
432-687-6388

Bid

Date	Bid #
12/2/2020	15531

Name / Address	Ship To
City of Midland 300 N. Loraine Ave. Midland, TX 79701	

Rep	P.O. No.	Project Location	Project
AS		Trinity, Henderson, Beal Park	Combined Playground R4

Item	Description	Qt	Rate	Total
SD202010IG	20' X 20' X 10' Entry Height Square Hip Shade. Inground Mount With Glide Elbows.	1	5,218.00	5,218.00T
	Trinity Park			
SRPFX	Special Effects - Native American Themed Play Structure #SRPFX-50309	1	80,665.00	80,665.00T
TD-IG-N	Normal Tuned Drums In Ground Mount	1	3,326.00	3,326.00T
SRPFX	Dream Catcher Climber	1	7,695.00	7,695.00T
SRPFX	Custom Tee Pee	1	16,298.00	16,298.00T
TFS0026XX	Horse Spring Rider	2	1,499.00	2,998.00T
SRPFX	Custom Arrow Topper 3-Bay Swing Frame	1	6,195.00	6,195.00T
90015108XX	Belt Seats and Galvanized Chains for 8' Height Swing Frame - Pair	2	178.00	356.00T
90015130XX	Full Bucket Seats with 8' Galvanized Chain Sets - Pair	1	365.00	365.00T
SD202010IG	20' X 20' X 10' Entry Height Square Hip Shade. Inground Mount With Glide Elbows.	1	5,218.00	5,218.00T
EWF - L	Engineered Wood Fibers for safety surfacing. Includes approximately 65 cubic yards, landscape cloth and freight to your location.	1	3,746.00	3,746.00T
AF-UT-CS	Approximately 4,589 square feet of Artificial Turf. Includes all materials, freight and labor necessary to install turf over compacted stone base	1	65,229.00	65,229.00T
Freight	Freight of all equipment to your location.	1	23,994.00	23,994.00T
Installation	Installation of equipment and safety surfacing of Engineered Wood Fibers(Only) listed above at your location.	1	175,050.00	175,050.00T
BuyBoard Discount	Buy Board Discount Vendor #592-19		-100,000.00	-100,000.00
Bonds	Performance Bond	1	7,400.00	7,400.00T

This bid is good for 30 days

Subtotal	$667,193.00
Sales Tax (0.0%)	$0.00
Total	$667,193.00

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for _____, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of _____ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

EXHIBIT D – BUILDING WAGE RATES rev 09-14-18

General Decision Number: TX180311 09/14/2018 TX311

Superseded General Decision Number: TX20170311

State: Texas

Construction Type: Building

County: Midland County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	09/14/2018

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

ENGI0178-005 06/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane	$ 29.00	10.60
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above	$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under	$ 27.50	10.60

* IRON0084-011 06/01/2018

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 23.77	7.12

PLUM0404-001 07/01/2016

	Rates	Fringes
PLUMBER	$ 25.91	9.40

SUTX2014-037 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER	$ 13.82	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.76	0.00
ELECTRICIAN	$ 23.18	6.31
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 19.77	7.13
IRONWORKER, REINFORCING	$ 12.27	0.00
IRONWORKER, STRUCTURAL	$ 22.16	5.26
LABORER: Common or General	$ 11.80	0.00
LABORER: Mason Tender - Brick	$ 11.38	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.58	0.00
LABORER: Pipelayer	$ 12.49	2.13
LABORER: Roof Tearoff	$ 11.28	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.25	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 18.29	1.31
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 14.83	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00

OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00
OPERATOR: Roller	$ 12.70	0.00
PAINTER (Brush, Roller, and Spray)	$ 15.00	0.73
PIPEFITTER	$ 25.80	8.55
ROOFER	$ 14.75	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 22.73	7.52
SHEET METAL WORKER, Excludes HVAC Duct Installation	$ 19.50	0.00
TILE FINISHER	$ 11.22	0.00
TILE SETTER	$ 14.74	0.00
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO

is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

Vendor Contract Information Summary

Vendor Name	Playgrounds Etc, LLC
Contact	David Kitch
Phone Number	4326876388
Email	david@playgroundsetc.com
Website	www.playgroundsetc.com
Federal ID	46-4229052
Accepts RFQs	Yes
Address Line 1	1410 W Texas Ave
Vendor City	Midland
Vendor Zip	79701
Vendor State	TX
Vendor Country	USA
Delivery Days	40
Freight Terms	FOB Destination
Payment Terms	Other
Shipping Terms	Pre-paid and added to invoice
Ship Via	Common Carrier
Is Designated Dealer	No
EDGAR Forms Received	Yes
Service-Disabled Veteran Owned	No
Minority Owned	No
Women Owned	Yes
Certificate Number	1464229052300
Certifying Agency	State of Texas / Texas Comptroller of Public Accounts
Is National	No
No Excluded Foreign Terrorist Orgs	Yes
No Israel Boycott Certificate	Yes
Is MWBE	Yes
Regions Served	All Texas Regions
States Served	Texas
Contract Name	Parks and Recreation Equipment and Field Lighting Products
Contract #	592-19
Effective Date	10/01/2019
Expiration Date	09/30/2022
Quote Reference Number	592-19
Return Policy	50% restocking fee plus freight

Vendor Contract Information Summary

THE CITY OF MIDLAND

CONTRACT

Contract No. 21001547-04

THIS CONTRACT, effective the 16 day of December, 2020, by and between the City of Midland, hereinafter referred to as "City", and Playworks, Inc., hereinafter referred to as "Company", is made for the following considerations:

1. **Cost:** Total Proposal: $ 59,066.06 DOLLARS

2. **Scope of Work:** Company shall perform all work described for the playground renovations installation at Lancaster Park and Santa Rita Park in the following documents, attached hereto and incorporated herein by reference for all legal purposes.

EXHIBIT A & A-2 ..... Specifications, Proposal or Cost Summary
EXHIBIT B.....Intentionally Omitted
EXHIBIT C..... Bonding instructions for Public Works Contract of $50,000 and more
EXHIBIT D..... Wage Scale

3. **City:** The words "City's Representative" or "representative" shall mean Tina Jauz or the designee under whose supervision these contract documents, including the plans and specifications, were prepared, or who may inspect work performed under this Contract; or such other representative, supervisor, or inspector as may be authorized by City to act in any particular capacity under this Contract.

4. **City's Representative:** City's Representative may make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. City's representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, nor will such representative be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. City's representative will not be responsible for Company's failure to perform the work in accordance with the contract.

5. **Company:** Unless otherwise stipulated, Company shall provide and pay for all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and all water, light, power, fuel,

transportation and all other facilities necessary for the execution and completion of the work covered by the contract documents. Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of a good quality. Company shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

5.1. Company shall, at its expense, obtain all permits and licenses necessary for the performance of this contract and pay all fees and taxes required by law, and comply with all laws, ordinances, rules and regulations governing Company's performance of the contract, including all environmental laws and regulations, whether state or federal.

5.2. All work shall be done and all materials furnished in strict conformity with the contract and specifications.

6. **Minor Work Not Mentioned:** All minor detail of the work not specifically mentioned in the Specifications but obviously necessary for the proper completion of the work, such as the proper connection of new work to old, shall be considered as incidental to and a part of the work for which the prices are named in the contract. Company will not be entitled to any additional compensation therefor unless specifically stated otherwise. Otherwise the term "extra work" as used in this contract shall mean and include all work that may be required by City to be done by Company to accomplish any alteration or addition to the work as shown on the Specifications.

6.1. Company shall perform all extra work under the direction of City's Representative when presented with a written work order signed by City's Representative, subject, however, to the right of the Company to require written confirmation of such extra work order by City. Payment for extra work shall be as agreed in the work order.

7. **Safety:** Company shall at all times exercise reasonable precaution for the safety of employees and others on or near the work and shall comply with all applicable provisions of federal, state and municipal laws. All machinery and equipment and other physical hazards shall be guarded in accordance with federal, state or municipal laws or regulations.

8. **INDEMNITY: COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF COMPANY, THEIR AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8.1. **COMPANY SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSES OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH COMPANY OR COMPANY'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS CONTRACT, AND COMPANY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.**

8.2. **COMPANY AGREES THAT IT WILL INDEMNIFY AND SAVE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND FURNISHERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS AND ALL SUPPLIES, INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS CONTRACT. WHEN CITY SO DESIRES, COMPANY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREINABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED. COMPANY, ITS SURETIES AND INSURANCE CARRIERS SHALL DEFEND, INDEMNIFY AND SAVE HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, OR CLAIMS OF ANY CHARACTER WHATSOEVER, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR**

PROPERTY, ARISING FROM ANY ACT OF COMPANY OR ANY SUBCONTRACTOR, THEIR AGENTS OR EMPLOYEES, IN THE EXECUTION AND SUPERVISION OF THIS CONTRACT, AND WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS, OR EMPLOYEES INCLUDING ATTORNEY'S FEES.

9. **Start of Work:** Company shall commence work no later than ten (10) days after receipt of the execution of this document or other written release to proceed and shall complete such work no later than 150 calendar days after release to proceed.

10. **Clean Up:** Company shall promptly remove from City's premises all materials condemned by City's Representative on account of failure to conform to the contract, whether actually incorporated in the work or not, and Company shall at its own expense promptly replace such condemned materials with other materials conforming to the requirements of the contract. Company shall also bear the expense of restoring all work of other contractors damaged by any such removal or replacement. If Company does not remove and replace any such condemned materials within a reasonable time after a written notice by City, City may remove and replace such at Company's expense.

11. **Warranty:** Neither the final payment nor any provision in this contract shall relieve Company of responsibility for faulty materials or workmanship, and he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of substantial completion. City shall give notice of observed defects with reasonable promptness.

12. **Remedy:** City may, on account of subsequently discovered evidence, withhold whole or part of any payment to such extent as may be necessary to protect itself from loss on account of:

12.1. Defective work not remedied; or

12.2. Claims filed or reasonable evidence indicating possible filing of claims; or

12.3. Failure of Company to make payments promptly to subcontractors or for material or labor which City may pay as an agent for the Company; or

12.4. Damages to another contractor or subcontractor.

When the above grounds to withhold payment are removed, or Company provides a surety bond satisfactory to City, which will protect City in the amount withheld, payment may be released.

13. **Funding Out:** In the event no funds or insufficient funds are appropriated and budgeted or are otherwise available in any fiscal period for the payments due under the contract, then this contract

shall terminate on the last day of the fiscal period for which full appropriations were made, without penalty or expense to City of any kind whatsoever.

14. **Wage Scale:** Company agrees to pay all workmen in his employ no less than the generally prevailing wage rate for employees of similar category in the Permian Basin Area, as is depicted in the wage rate scale attached hereto as EXHIBIT D, and incorporated herein by reference for all legal purposes.

14.1. If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Contract, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Contract, to which the parties to this Contract have agreed to be bound.

15. **Prompt Pay Act:** City and Company agree that Texas Government Code, Chapter 2251, Payment for Goods and Services (the "Prompt Pay Act") does not waive governmental immunity.

16. **Payment:** After all work is completed by Company, including all Change Orders altering the original scope and amount of said contract are completed, and City has inspected and approved that the work is completed and in compliance with the contract and all subsequent Change Orders, City shall thereafter issue payment to Company in the amount of the contract and all Change Orders. City shall be the final judge of when the work is completed by Company. City, in its sole discretion, shall determine if the work under the contract and under any Change Orders has been done to City's requirements. City may make periodic payments to Company, however such periodic payments may only be made pursuant to this paragraph, and only after all work and all Change Orders are completed by Company and approved by City. For contracts exceeding $25,000 and construction time exceeds ninety days, requests for progress payments may be made to the extent of the materials and labor completed at the end of each month. Upon approval by the Owner's Representative the request and invoice shall be forwarded for payment less 5% retainage. The total of these payments shall not exceed 95% of the total contract amount.

17. **No Third Party Beneficiary:** City's approval of this contract does not create a third party beneficiary. There is no third party beneficiary to this contract. No person or entity who is not a party to this contract shall have any third party beneficiary or other rights hereunder.

18. **WAIVER OF ATTORNEY FEES: BY EXECUTING THIS CONTRACT, COMPANY AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE CONTRACT, OR THE CONSTRUCTION,**

INTERPRETATION OR BREACH OF THE CONTRACT. COMPANY SPECIFICALLY AGREES THAT IF COMPANY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS CONTRACT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS CONTRACT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COMPANY AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH COMPANY MIGHT OTHERWISE BE ENTITLED.

COMPANY AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COMPANY ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE CONTRACT. COMPANY FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN CITY AND COMPANY. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF GOVERNMENTAL IMMUNITY.

COMPANY AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS CONTRACT WITH COMPETENT LEGAL COUNSEL PRIOR TO ITS EXECUTION.

19. **Governmental Immunity:** By executing this contract City is not waiving its right of governmental immunity. City is retaining its immunity from suit. City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.

20. **Insurance:**

Company shall at all times during the term of this Contract maintain and keep in full force and effect insurance in the following types and minimum amounts with companies authorized to do business in the State of Texas:

Commercial General Liability (including Contractual liability):

-Personal Injury:	$1,000,000.00 per person
	$1,000,000.00 per occurrence
-Property Damage:	$500,000.00 per occurrence

Business Automobile Liability:	$250,000.00 combined single limit - Personal Injury and Property Damage
Workers' Compensation:	Statutory limits
Employers' Liability:	$500,000.00 per accident or occurrence

The Commercial General Liability shall be on a per project aggregate, including completed operations, and shall be on a claims-occurred basis. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Business Automobile Liability insurance provided by Company shall cover any auto for bodily injury and property damage, including owned vehicles, hired and non-city vehicles, and employee non-ownership, and the amount of such policy shall be a minimum of $250,000.00 covering any vehicle used for the execution of the work that is the subject of this Contract. This insurance shall name City as an additional insured and waive subrogation in favor of City.

The Workers' Compensation coverage provided by Company shall inure to the benefit of employees injured during the course and scope of their employment by Company pursuant to this Contract. The Workers' Compensation shall waive all rights of subrogation in favor of City.

All insurance required pursuant to this Contract shall provide for a waiver of subrogation in favor of City. All insurance required pursuant to this Contract, except for Workers' Compensation Insurance, shall name City as an additional insured on a claims occurred basis. City shall be provided the notice by Company's insurance provider not later than thirty (30) days prior to any reduction or termination of such coverage.

Company shall contractually require all contractors, subcontractors, and sub-subcontractors that work on any portion of the work that is the subject of this Contract to obtain insurance coverage that meets or exceeds the policy requirements and minimum amounts specified herein. All contractors, subcontractors, and sub-subcontractors shall obtain insurance policies that provide blanket waivers of subrogation in favor of the City of Midland and policies that name the City of Midland as an additional insured on a claims occurred basis (except workers' compensation).

The parties agree that, prior to the execution of the Contract, Company shall provide one or more certificates of insurance specifically stating that these requirements have been met and subject to the approval of City. City shall not be required to provide any insurance whatsoever pursuant to this Contract.

Company certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Company shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Company.

21. **Assignment**: Company shall not, either directly or indirectly, assign all or any part of this Contract

or any interest, right or privilege herein, without the prior written consent of City. The issue on whether or not to grant consent to an assignment is in the sole discretion of City.

22. **RELEASE: NOTWITHSTANDING ANY OTHER PROVISIONS, COMPANY HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE**.

23. **Governing Law and Venue:** This Contract shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Contract shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Contract shall be deemed to have occurred in Midland County, Texas. This Contract shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Contract, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction.

24. **Independent Contractor:** It is expressly understood and agreed that Company shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of City; that Company shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between City and Company, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Company. No person performing any of the work and services described hereunder by Company shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Company shall be an independent contractor under this Contract and shall assume all of the risks, obligations and liabilities, applicable to it as such

independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of the Company's work. Company shall assume exclusive responsibility for the work. Company is entirely free to do the work in its own way.

25. **Notice of Alleged Breach; Statutory Prerequisites:** As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Contract, Company or its legal representative, shall give the City Manager, or any other reasonable official of City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this Contract) of such damages, duly verified, within one-hundred fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Company will settle, the physical and mailing addresses of Company at the time and date the claim was presented and the physical and mailing addresses of Company for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Company relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except City from any liability whatsoever. City is under no obligation to provide notice to Company that Company's notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Company's failure to comply with the requirements herein shall perpetually bar Company's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Company agrees that the requirements of this entire Contract are reasonable.

26. **Consideration:** The terms of this Contract are supported by good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties named herein.

27. **Termination At Will:** City may terminate this Contract at will for no or any reason upon giving at least one hundred eighty (180) days written notice to Company. The parties to this Contract understand and agree that it is in City's sole discretion to cancel the Contract during the term of the Contract without penalty to City. Company has no expectation and has received no guarantees that this Contract will not be

terminated before the end of the Contract term. The parties have bargained for the flexibility of terminating this Contract upon tender of the requisite notice at any time during the term of the Contract. All work and services under the Contract shall be suspended upon termination of the Contract becoming effective.

28. **Compliance:** Company agrees that it shall comply with Texas Government Code Section 2252.908, *et seq.*, as amended. Company agrees that it shall comply with Texas Local Government Code Section 176.006, *et seq.*, as amended.

29. To the extent that Tex. Gov't Code section 2270.002 applies to this Contract, Company hereby verifies that Company does not boycott Israel and will not boycott Israel during the term of this Contract. If Tex. Gov't Code section 2270.002 does not apply to this Contract, such verification is not required, and Company shall be deemed to have not made such verification.

30. **Records Retention and Production of Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company shall (1) preserve all contracting information related to the Contract as provided by the records retention requirements applicable to City for the duration of the contract, (2) promptly provide to City any contracting information related to the Contract that is in the custody or possession of Company on request of City, and (3) on completion of the Contract, either (i) provide at no cost to City all contracting information related to the Contract that is in the custody or possession of Company, or (ii) preserve the contracting information related to the Contract as provided by the records retention requirements applicable to City.

31. **Public Information.** To the extent that this Contract is a contract described by Section 552.371 of the Texas Government Code, Company agrees as follows in accordance with Section 552.372(b) of the Texas Government Code: The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter.

32. **Conflict of Terms.** If a conflict of terms or language exists between (i) any of the provisions of this Contract and (ii) any of the provisions contained in Exhibit A, precedence shall be given to the provisions of this Contract. For the avoidance of any doubt, the provisions contained in this Contract shall supersede any and all conflicting provisions contained in Exhibit A.

EXECUTED IN DUPLICATE the day and year first above mentioned.

THE CITY OF MIDLAND, TEXAS

By: _____
Robert Patrick, Interim City Manager

ATTEST

_____
Amy M. Turner, City Secretary

APPROVED ONLYAS TO FORM

_____
John Ohnemiller, City Attorney

COMPANY:

By: _____

Name:_____

Title: _____

STATE OF _____ §
§
COUNTY OF_____ §

BEFORE ME, the undersigned authority, on this ____ day of _____, 20____ personally appeared, _____, an officer of Playworks, Inc., known to me to be the person and official whose name is subscribed to the forgoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the ____day of _____, 20____.

_____
Notary Public, State of Texas

EXHIBIT "A"

PlayWorks

PlayWorks, Inc.

Athletic, Park, and Playground Equipment
Serving Colorado,Texas, New Mexico, Oklahoma, and Arkansas since 1988

www.playwellgroup.com
800-726-1816
505-296-8900 (fax)

INSTALLATION QUOTE

QUOTE # 6898

11/19/2020

BILL TO:

City of Midland
Accounts Payable
2300 Butternut Lane
Midland, TX 79701

Phone: (432) 685-7234

INSTALLATION SITE:

City of Midland-Lancaster Park
Laurie Williams
3501 West Kansas Avenue
Midland, TX 79703

Phone: (432) 685-7234

CUST. PO#	TERMS	SALES REP	COUNTY	QUOTE EXPIRATION
	NET 30	DWR	MIDLAND	12/19/2020

ITEM	DESCRIPTION	QTY	LIST PRICE	TOTAL
BUY #592-19	BUYBOARD CONTRACT #592-19 EXPIRES 09/30/2021	1	0.00	0.00
	DELIVERED AND INSTALLED BY MIKE'S PROFESSIONAL PLAYGROUND			
INSTALL MIKE PROF...	INSTALLATION OF PLAYGROUND EQUIPMENT-CITY TO PROVIDE CONCRETE PAD, CURBING, AND ADA ACCESS	1	28,516.13	28,516.13
INSTALL MIKE PROF...	INSTALLATION OF ENGINEERED WOOD FIBER	68	15.35	1,043.80
FABRIC MPPI PURC...	GEO FABRIC INSTALLATION, MATERIAL PROVIDED BY INSTALLER	1,800	0.55	990.00

QUOTE VALID FOR 30 DAYS. Install will be ordered upon receipt of written approvals and/or deposit.

TOTAL $30,549.93

PLEASE REMIT PAYMENT TO:
PLAYWORKS, INC.
203A STATE HIGHWAY 46 EAST
BOERNE, TX 78006

Date PACKET **Signature** 15.2973 December 15, 2020

PlayWorks, Inc.

Toll Free: (800)726-1816 Fax: (505) 296-8900

TEXAS CORPORATE OFFICE, SALES OFFICE & PROCESSING CENTER

203A State Highway 46 East

Boerne, TX 78006

Colorado Sales Office	*Arkansas Sales Office*	*Oklahoma Sales Office*	*New Mexico Sales Office*
11757 W. Ken Caryl Ave. Suite #F-231	*6929 JFK Blvd., Suite 20-16*	*5030 North May, Suite 129*	*9430 San Mateo Blvd NE Unit G*
Littleton, CO 80127	*N. Little Rock, AR 76116*	*Oklahoma City, OK 73112*	*Albuquerque, NM 87113*

TERMS AND CONDITIONS

INVOICE TERMS

Tax funded and bonded projects only Net 30 days. Finance charge of 1.5% per month or maximum allowable by law will be added to past due balance. All other entities required 50% down and balance due upon completion.

OPEN ACCOUNT

Credit terms are available to municipalities, government agencies, school systems, bonded contractors, and businesses (with prior approved credit). To establish credit your organization must have a satisfactory rating with Dun & Bradstreet and provide three credit references. To establish credit, your initial order must total at least $10,000.00. 50% deposit is required on all orders from non-tax funded entities. Prepayment may be required for any order at PlayWorks, Inc. sole discretion.

METHODS OF PAYMENTS

MasterCard, Visa, American Express, money order, checks. Sorry no C.O.D. orders.

CO-OP CONTRACT'S

Available for Co-Op's and agency accounts on many items.

PLAYGROUND SURFACING WARNING

All play equipment must be installed over impact absorbing surface. Go to www.cpsc.gov for more information.

ROCK CLAUSE

PlayWorks, Inc. reserves the right to charge for additional manpower and equipment rental if subcontractors encounter rock that cannot be penetrated to drill installation holes with a mechanical auger. Every effort will be made prior to installation to determine if additional rock charges may be required. PlayWell's Sales Associate will notify you and meet with you at the work site to review the conditions requiring additional charges.

SITE ACCESS

First off, you'll need a level site to make it free of any obstacles that might encroach upon the required fall zone for your design. Dig-Tess (1(800) Dig-Tess) will call all the possible utility companies that may have underground cables or piping running beneath the play area to mark where their runs might be. The site for equipment to be installed must be accessible by heavy machinery (trucks, trailers, and Bobcats). In the event this equipment is used at your site, please note there may be signs of access afterwards. PlayWorks, Inc. subcontractors will try to keep this to a minimum.

WEATHER DELAY

Unusual weather patterns, heavy rain, lightning or thunder conditions, and flooding "acts of God" or natural disaster, wherein the project site is determined to be unworkable. The installation of your equipment will be delayed.

INSTALLATION WILL BE ORDERED IMMEDIATELY UPON RECEIPT OF WRITTEN APPROVALS. Please email or fax all pages.

Installation Quote #: 6898 **Purchase Order #:** _____

Signature: _____ **Date:** _____

EXHIBIT "A-2"

PlayWorks
PlayWorks, Inc.
Athletic, Park, and Playground Equipment
Serving Colorado,Texas, New Mexico, Oklahoma, and Arkansas since 1988

www.playwellgroup.com
800-726-1816
505-296-8900 (fax)

INSTALLATION QUOTE

QUOTE # 6897

11/19/2020

BILL TO:

City of Midland
Accounts Payable
2300 Butternut Lane
Midland, TX 79701

Phone: (432) 685-7234

INSTALLATION SITE:

City of Midland-Santa Rita Park
Laurie Williams
5200 Whitman Drive
Midland, TX 79705

Phone: (432) 685-7234

CUST. PO#	TERMS	SALES REP	COUNTY	QUOTE EXPIRATION
	NET 30	DWR	MIDLAND	12/19/2020

ITEM	DESCRIPTION	QTY	LIST PRICE	TOTAL
BUY #592-19	BUYBOARD CONTRACT #592-19 EXPIRES 09/30/2021	1	0.00	0.00
	DELIVERED AND INSTALLED BY MIKE'S PROFESSIONAL PLAYGROUND			
INSTALL MIKE PROF...	INSTALLATION OF PLAYGROUND EQUIPMENT PLEASE NOTE:CITY TO PROVIDE CONCRETE PAD, CURBING, ADA ACCESS, AND DEMO OF EXISTING EQUIPMENT	1	28,516.13	28,516.13

TOTAL $28,516.13

QUOTE VALID FOR 30 DAYS. Install will be ordered upon receipt of written approvals and/or deposit.

PLEASE REMIT PAYMENT TO:
PLAYWORKS, INC.
203A STATE HIGHWAY 46 EAST
BOERNE, TX 78006

Date PACKET Signature 15.2975 December 15, 2020

PlayWorks, Inc.

Toll Free: (800)726-1816 Fax: (505) 296-8900

TEXAS CORPORATE OFFICE, SALES OFFICE & PROCESSING CENTER

203A State Highway 46 East

Boerne, TX 78006

Colorado Sales Office	*Arkansas Sales Office*	*Oklahoma Sales Office*	*New Mexico Sales Office*
11757 W. Ken Caryl Ave. Suite #F-231	*6929 JFK Blvd., Suite 20-16*	*5030 North May, Suite 129*	*9430 San Mateo Blvd NE Unit G*
Littleton, CO 80127	*N. Little Rock, AR 76116*	*Oklahoma City, OK 73112*	*Albuquerque, NM 87113*

TERMS AND CONDITIONS

INVOICE TERMS

Tax funded and bonded projects only Net 30 days. Finance charge of 1.5% per month or maximum allowable by law will be added to past due balance. All other entities required 50% down and balance due upon completion.

OPEN ACCOUNT

Credit terms are available to municipalities, government agencies, school systems, bonded contractors, and businesses (with prior approved credit). To establish credit your organization must have a satisfactory rating with Dun & Bradstreet and provide three credit references. To establish credit, your initial order must total at least $10,000.00. 50% deposit is required on all orders from non-tax funded entities. Prepayment may be required for any order at PlayWorks, Inc. sole discretion.

METHODS OF PAYMENTS

MasterCard, Visa, American Express, money order, checks. Sorry no C.O.D. orders.

CO-OP CONTRACT'S

Available for Co-Op's and agency accounts on many items.

PLAYGROUND SURFACING WARNING

All play equipment must be installed over impact absorbing surface. Go to www.cpsc.gov for more information.

ROCK CLAUSE

PlayWorks, Inc. reserves the right to charge for additional manpower and equipment rental if subcontractors encounter rock that cannot be penetrated to drill installation holes with a mechanical auger. Every effort will be made prior to installation to determine if additional rock charges may be required. PlayWell's Sales Associate will notify you and meet with you at the work site to review the conditions requiring additional charges.

SITE ACCESS

First off, you'll need a level site to make it free of any obstacles that might encroach upon the required fall zone for your design. Dig-Tess (1(800) Dig-Tess) will call all the possible utility companies that may have underground cables or piping running beneath the play area to mark where their runs might be. The site for equipment to be installed must be accessible by heavy machinery (trucks, trailers, and Bobcats). In the event this equipment is used at your site, please note there may be signs of access afterwards. PlayWorks, Inc. subcontractors will try to keep this to a minimum.

WEATHER DELAY

Unusual weather patterns, heavy rain, lightning or thunder conditions, and flooding "acts of God" or natural disaster, wherein the project site is determined to be unworkable. The installation of your equipment will be delayed.

INSTALLATION WILL BE ORDERED IMMEDIATELY UPON RECEIPT OF WRITTEN APPROVALS. Please email or fax all pages.

Installation Quote #: 6897 **Purchase Order #:** _____

Signature: _____ **Date:** _____

EXHIBIT C

Bonding Requirements

The successful bidder shall be required to furnish a Performance & Payment Bond* for bids in excess of $50,000.00, in an amount equal to one hundred percent (100%) of the total contract price, such bond to be executed in five (5) original counterparts by a Corporate Surety authorized to do business in the State of Texas and acceptable to the City of Midland. All bonds must be executed on forms contained in these contract documents. The form of agreement which the successful bidder, as contractor, will be required to execute is also included herewith. The form of agreement and the form of the bonds should be carefully examined by the bidder.

A certified check, cashier's check, bank money order, or irrevocable letter of credit issued by a bank satisfactory to the City, or a bidder's bond on the form provided, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City, must accompany the bidder's proposal, as a guaranty that the bidder will enter a contract and execute the required payment bond and guaranty in the forms provided within fifteen (15) days after notice of award of contract to him. Bids or proposals without the required bid guaranty will not be considered. All bid sureties and payment bonds shall name the City of Midland as Obligee.

*A cash security such as a cashier's check or irrevocable letter of credit issued by a bank satisfactory to the City for 100 % of the contract amount may be supplied in lieu of the Performance and Payment Bonds. The check will be returned un-cashed upon satisfactory completion of the work and evidence of payment of all obligations due for the contract.

PAYMENT BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ of the City of _____ of the County of _____ and State of Texas as Principal, and _____, as Surety, are held and firmly bound unto the City of Midland, Texas, as Obligee, in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__, for the furnishing of materials, equipment to perform all labor and work necessary for _____, hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, the condition of the obligation is that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said contract, then this obligation shall be null and void; otherwise, it is to remain in full force and effect.

Surety, for value received, stipulates and agrees that no change, extension of time alteration or addition to the terms of the contract, or to the work performed there under, or the plans, specifications of drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of

time, alteration or addition to the terms of the contract, assignment thereof, or to the work to be performed there under.

IN WITNESS WHEREOF the said Principal and Surety have signed and sealed this instrument, this _____ day of _____ , 20__ .

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

PERFORMANCE BOND

THE STATE OF TEXAS §

COUNTY OF MIDLAND § SURETY NO _____

KNOW ALL MEN BY THESE PRESENTS, THAT _____ (Hereinafter called the Principal[s]), as Principal(s), and _____ (Hereinafter called the Surety), as Surety, are held and firmly bound unto the City of Midland, Texas a home rule municipal corporation of Midland County, Texas, (hereinafter called the Obligee), in the amount of _____ DOLLARS ($ _____) for the payment whereof the said Principal and surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____day of _____ , 20___ , for the furnishing of materials and equipment to perform all labor and work necessary for the construction of _____ , specifically including in the scope of this work and bond, the additional maintenance guaranty provisions set forth in the contract conditions, which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein, as well as the Principal's primary obligation to perform according to plans and specifications.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work in accordance with the plans, specifications, instructions to bidder, general and special conditions and other contract documents, including any addendum thereto, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED further that if any legal action be filed upon this Bond venue shall lie in Midland County, State of Texas.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications or drawings accompanying the same, or any assignment of the contract as may be provided for in the instructions to bidders, shall in anywise affect its obligation on this Bond, and it does waive notice of any such change, extension of time, alteration or addition to the terms of the contract, assignment thereof, or the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and surety do sign and seal this instrument, this _____ day of _____ , 20___.

_____	_____
Principal	Surety
By _____	By _____
Address _____	Address _____
_____	_____
_____	_____

APPROVED AS TO FORM:

_____

City Attorney

NOTE: Attach Power of Attorney

EXHIBIT D – BUILDING WAGE RATES rev 09-14-18

General Decision Number: TX180311 09/14/2018 TX311

Superseded General Decision Number: TX20170311

State: Texas

Construction Type: Building

County: Midland County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2018
1	09/14/2018

BOIL0074-003 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 28.00	22.35

ENGI0178-005 06/01/2014

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
(1) Tower Crane	$ 29.00	10.60
(2) Cranes with Pile Driving or Caisson Attachment and Hydraulic Crane 60 tons and above	$ 28.75	10.60
(3) Hydraulic cranes 59 Tons and under	$ 27.50	10.60

* IRON0084-011 06/01/2018

	Rates	Fringes
IRONWORKER, ORNAMENTAL	$ 23.77	7.12

PLUM0404-001 07/01/2016

	Rates	Fringes
PLUMBER	$ 25.91	9.40

SUTX2014-037 07/21/2014

	Rates	Fringes
BRICKLAYER	$ 20.00	0.00
CARPENTER	$ 13.82	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.76	0.00
ELECTRICIAN	$ 23.18	6.31
INSULATOR - MECHANICAL (Duct, Pipe & Mechanical System Insulation)	$ 19.77	7.13
IRONWORKER, REINFORCING	$ 12.27	0.00
IRONWORKER, STRUCTURAL	$ 22.16	5.26
LABORER: Common or General	$ 11.80	0.00
LABORER: Mason Tender - Brick	$ 11.38	0.00
LABORER: Mason Tender - Cement/Concrete	$ 10.58	0.00
LABORER: Pipelayer	$ 12.49	2.13
LABORER: Roof Tearoff	$ 11.28	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.25	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 13.93	0.00
OPERATOR: Bulldozer	$ 18.29	1.31
OPERATOR: Drill	$ 16.22	0.34
OPERATOR: Forklift	$ 14.83	0.00
OPERATOR: Grader/Blade	$ 13.37	0.00

OPERATOR: Loader	$ 13.55	0.94
OPERATOR: Mechanic	$ 17.52	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 16.03	0.00
OPERATOR: Roller	$ 12.70	0.00
PAINTER (Brush, Roller, and Spray)	$ 15.00	0.73
PIPEFITTER	$ 25.80	8.55
ROOFER	$ 14.75	0.00
SHEET METAL WORKER (HVAC Duct Installation Only)	$ 22.73	7.52
SHEET METAL WORKER, Excludes HVAC Duct Installation	$ 19.50	0.00
TILE FINISHER	$ 11.22	0.00
TILE SETTER	$ 14.74	0.00
TRUCK DRIVER: Dump Truck	$ 12.39	1.18
TRUCK DRIVER: Flatbed Truck	$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck	$ 12.50	0.00
TRUCK DRIVER: Water Truck	$ 12.00	4.11

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO

is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

Vendor Contract Information Summary

Vendor Name	Playworks, Inc.
Contact	Maria Powell
Phone Number	8007261816
Email	maria@playwellgroup.com
Website	www.playwellgroup.com
Federal ID	75-2640029
Accepts RFQs	Yes
Address Line 1	4743 Iberia Avenue Suite C
Vendor City	Dallas
Vendor Zip	75207
Vendor State	TX
Vendor Country	USA
Delivery Days	10
Freight Terms	FOB Destination
Payment Terms	Net 30 days
Shipping Terms	Freight prepaid by vendor and added to invoice
Ship Via	Best Way
Is Designated Dealer	No
EDGAR Forms Received	Yes
Service-Disabled Veteran Owned	No
Minority Owned	No
Women Owned	No
Is National	Yes
No Excluded Foreign Terrorist Orgs	No
No Israel Boycott Certificate	No
Is MWBE	No
Regions Served	All Texas Regions
States Served	Arkansas, Colorado, New Mexico, Oklahoma, Texas
Contract Name	Parks and Recreation Equipment and Field Lighting Products
Contract #	592-19
Effective Date	10/01/2019
Expiration Date	09/30/2022
Quote Reference Number	592-19

City Council Meeting

Item Number: 16

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Morris WIlliams, Assistant City Manager

Subject: Motion approving a Promotional Agreement between the Midland Development Corporation and the Midland Downtown Farmers Market, Inc., to advertise or publicize the City of Midland for the purpose of developing new and expanded business enterprises. (CITY MANAGER)

Purpose:

The Board of Directors of the Midland Development Corporation approved at a regular meeting on November 2, 2020 a resolution authorizing the execution of a promotional agreement with Midland Downtown Farmers Market, Inc., to advertise or publicize the City of Midland for the purpose of developing new and expanded business enterprises.

Recommended City Council Action:

Approve

Fiscal Impact:

$70,000

Discussion:

In the interest of supporting MDFM and the small Midland businesses people that depend upon it for their livelihoods, the MDC will provide staggered payments to MDFM between December 2020 and June 2023. MDFM will make regular reports to the MDC board and staff on its progress and activities.

City Manager's Office

PROMOTIONAL AGREEMENT

THIS PROMOTIONAL AGREEMENT ("***Agreement***") is made and effective the 18th day of November 2020, by and between THE MIDLAND DEVELOPMENT CORPORATION ("***MDC***"), an economic development corporation existing under the authority of Chapter of 504 of the Texas Local Government Code, and MIDLAND DOWNTOWN FARMERS MARKET INC. ("***MDFM***"). In this Agreement, MDC and Midland Downtown Farmers Market, Inc., are sometimes individually referred to as a "***Party***" and collectively referred to as the "***Parties***."

W I T N E S S E T H:

WHEREAS, MDC is authorized to expend promotional funds in order to advertise or publicize the City of Midland for the purpose of developing new and expanded business enterprises pursuant to Section 504.105 of the Texas Local Government Code;

WHEREAS, MDC's expenditure of promotional funds for the advertising and promotional services described herein will advertise and publicize the City of Midland for the purpose of developing new and expanded business enterprises, and will thereby enhance and promote economic development within the City of Midland; and

WHEREAS, it is the desire of the Parties to combine their efforts for the purpose of promoting the City of Midland and the MDFM;

NOW, THEREFORE, in consideration of the covenants and conditions stated herein, and in consideration of the mutual benefits which will accrue to the Parties, as well as the general citizenry of the City of Midland, the Parties have agreed and do hereby agree as follows:

I. PURPOSE

The purpose of this Agreement is to state the terms and conditions under which the MDFM shall perform advertising and promotional services for MDC for the purpose of developing new and expanded business enterprises in the City of Midland and thereby enhance and promote economic development within the City of Midland.

II. OBLIGATIONS OF THE PARTIES

A. MDC Payment. MDC agrees to make one (1) lump-sum payment to MDFM in the amount of $20,000.00, with said payment to be made on or before December 31, 2020. In addition to said lump-sum payment, MDC agrees to make five (5) payments to MDFM in accordance with the following schedule:

1. $20,000.00 on or before June 30, 2021;
2. $10,000.00 on or before December 31, 2021;
3. $10,000.00 on or before June 30, 2022;
4. $5,000.00 on or before December 31, 2022; and
5. $5,000.00 on or before June 30, 2023.

The total funds provided by MDC under this Agreement shall not exceed $70,000.00. The Parties covenant and agree that all funds provided by MDC under this Agreement are in exchange for MDFM's advertising and promotional services set forth herein.

B. MDFM Services. MDFM shall use all reasonable, but commercially prudent, efforts to provide those services described in **Exhibit A**, which is attached hereto and incorporated herein for all purposes. MDFM shall perform all services in a workmanlike manner. MDFM shall coordinate with MDC's Executive Director and Director of Operations regarding the design, nature, content, and implementation of the services to enable the advertising and promotional activities performed hereunder to be effective and efficient in achieving the purpose of this Agreement.

C. MDFM Reports. At least ninety (90) days prior to each of the four (4) payments referenced in Section II.A, MDFM shall report to MDC staff and detail MDFM's efforts to promote new and expanded business enterprises within the City of Midland. Additionally, during the term of this Agreement, at a time and place mutually agreed to by the Parties, MDFM shall provide MDC with a report or presentation containing a detailed summary of MDFM's efforts to promote new and expanded business enterprises within the City of Midland.

III. INDEPENDENT CONTRACTOR

MDFM shall operate hereunder as an independent contractor and not as an officer, agent, servant, or employee of MDC. MDMF shall have exclusive control of, and the exclusive right to control, the details of the work to be performed hereunder and all personnel performing the same, and shall be solely responsible for the acts and omissions of its officers, members, agents, employees or contractors. In no event shall any person participating in or performing any of MDFM's duties or responsibilities hereunder be considered an officer, agent, or employee of MDC. Further, it is specifically understood and agreed that nothing in this Agreement is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control," which would give rise to vicarious liability. MDFM shall be an independent contractor under this Agreement and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. MDC does not have the power to direct the order in which the work is done. MDC shall not have the right to control the means, methods or details of MDFM's work. MDFM shall assume exclusive responsibility for its work.

IV. TERM OF AGREEMENT

Upon execution by the Parties, this Agreement becomes effective November 17, 2020, and shall terminate on December 31, 2023, or when terminated by mutual agreement of the Parties, or when terminated as hereinafter provided.

V. GENERAL TERMS

A. Entire Agreement. This Agreement embodies the complete agreement of the Parties, superseding all oral or written, previous and contemporary agreements between the Parties relating to matters in this Agreement; and except as otherwise provided herein, this Agreement cannot be modified or amended without a written agreement of the Parties.

B. Termination. MDC may terminate this Agreement at will for any or no reason upon giving at least sixty (60) days' written notice to MDFM. The Parties to this Agreement understand and agree that it is in MDC's sole and absolute discretion to cancel the Agreement during the term of the Agreement without penalty to MDC. MDFM has no expectation and has received no guarantees that this Agreement will not be terminated before the end of the Agreement term. The Parties have bargained for the flexibility of terminating this Agreement upon tender of the requisite notice at any time during the term of the Agreement. All work and services under the Agreement shall be suspended upon termination of the Agreement becoming effective.

C. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and constitute one and the same instrument.

D. Legal Construction. In case one or more of the provisions contained in this Agreement shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions hereof and this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein.

E. Notices. All notices to either Party required under this Agreement shall be sent by certified U.S. mail, postage prepaid, addressed to such Party at its respective address shown below. All notices shall be deemed given on the date so deposited in the mail, unless otherwise provided herein. Either Party hereto may change the address below by sending written notice of such change to the other Party. Email shall also be an acceptable method of delivery.

If to MDC:	*If to MDFM:*
Midland Development Corp. 200 N. Loraine St., Suite 610 Midland, Texas 79701	Midland Downtown Farmers Market, Inc PO Box 114 Tarzan, Texas 79783

F. Assignment. This Agreement shall be binding upon the Parties and their successors and assigns. This Agreement may not be assigned by MDFM without the prior written consent of MDC.

G. Release. NOTWITHSTANDING ANY OTHER PROVISION CONTAINED HEREIN, MDFM HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES MDC, MDC'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS CLAIMS, DAMAGES, OR CAUSES OF ACTION OF ANY KIND WHATSOEVER THAT MDFM HAS OR MAY HAVE IN THE FUTURE, INCLUDING, BUT NOT LIMITED TO, BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR MDC'S NEGLIGENCE.

H. Amendments. This Agreement may be amended by written instrument executed by both Parties expressly stating the intention to amend this Agreement.

I. Governmental Immunity. By executing this agreement, MDC is not waiving its right of governmental immunity. MDC is not granting consent to be sued by legislative resolution or action. **THERE IS NO WAIVER OF GOVERNMENTAL IMMUNITY.**

J. Waiver of Attorney Fees. By executing this Agreement, **THE PARTIES AGREE TO WAIVE AND DO HEREBY KNOWINGLY AND CONCLUSIVELY WAIVE ANY CLAIM THEY HAVE OR MAY HAVE AGAINST THE OTHER PARTY REGARDING THE AWARD OF ATTORNEY FEES, WHICH ARE IN ANY WAY RELATED TO THIS AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION, OR BREACH OF THIS AGREEMENT. THE PARTIES SPECIFICALLY AGREE THAT IF EITHER PARTY BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING, BUT NOT LIMITED TO, ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), SAID PARTY AGREES TO WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY FEES TO WHICH IT MIGHT OTHERWISE BE ENTITLED.**

K. Governing Law and Venue. This Agreement shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this Agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Agreement or the performance of this Agreement shall be in Midland County, Texas. The obligations and undertakings of each of the Parties shall be deemed to have occurred in Midland County, Texas.

L. Third-Party Beneficiary. MDC's approval of this Agreement does not create a third-party beneficiary. There is no third-party beneficiary to this Agreement. No person or entity who is not a Party to this Agreement shall have any third-party beneficiary or other rights hereunder.

M. Governmental Function. MDC and MDFM hereby acknowledge and agree that the entirety of MDC's performance and obligations under this Agreement are governmental functions. By entering into this Agreement, MDFM releases MDC from any present or future claims asserting that MDC's performance or obligations under this Agreement are not governmental functions.

[Signature Pages Follow]

EXECUTED by the duly authorized officials of the Parties as of the day and year first above written.

MIDLAND DEVELOPMENT CORPORATION

By_____
Wesley Bownds, Chairman

ATTEST:

_____
Berry Simpson, Secretary

MIDLAND DOWNTOWN FARMERS MARKET, INC.

By Samantha Borgstedt

Name Samantha Borgstedt

Title Market Director

THE STATE OF TEXAS §
§
COUNTY OF MIDLAND §

BEFORE ME, the undersigned authority, on this day personally appeared Samantha Borgstedt, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he/she executed and delivered the foregoing instrument for the purposes and consideration therein expressed on behalf of MIDLAND DOWNTOWN FARMERS MARKET, INC.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 11th day of November, 2020.

CASEY DICK
NOTARY PUBLIC
STATE OF TEXAS
ID# 11692965
EXPIRES 8-20-2023

Casey Dick
Notary Public, State of Texas

City Council Meeting

Item Number: 17

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Tina Jauz, Director

Subject: RESOLUTION AUTHORIZING THE EXECUTION OF A MEDICAL DIRECTOR AGREEMENT WITH THE MIDLAND COUNTY HOSPITAL DISTRICT FOR THE PURPOSE OF PROVIDING THE CITY OF MIDLAND HEALTH DEPARTMENT WITH PROFESSIONAL MEDICAL DIRECTOR SERVICES; AND AUTHORIZING PAYMENT FOR SAID SERVICES (COMMUNITY SERVICES)

Purpose:

Resolution approving an agreement between the City of Midland and Midland Health for Medical Director services for the Midland Health Department for a two-year term in the amount of $48,000.00 annually.

Recommended City Council Action:

Approve

Fiscal Impact:

$48,000 annually

Discussion:

State law requires a local health department manager to appoint a physician as the Health Authority in the local health department's jurisdiction, pending city council approval. Services would include: establishing, maintaining, and enforcing quarantine orders; advise and assist with infectious disease control, suppression, and prevention; supervision of protocols; review of manuals; and supervision of procedures and protocols for clinical services. The term is for two-years.

Dr. James Humphreys has served as Health Authority for the health department for more than

15-years. As we moved through the current year, the need for more cooperation and teamwork with the hospital is evident. The proposed agreement will increase the interaction between the local health department and the local hospital plus provide a depth of knowledge, plus additional resources, through an entity and not an individual.

The current budget for a Health Authority is $18,000. The new agreement increases the annual amount to $48,000.

Robert Patrick

City Manager's Office

RESOLUTION NO. _____

RESOLUTION AUTHORIZING THE EXECUTION OF A MEDICAL DIRECTOR AGREEMENT WITH THE MIDLAND COUNTY HOSPITAL DISTRICT FOR THE PURPOSE OF PROVIDING THE CITY OF MIDLAND HEALTH DEPARTMENT WITH PROFESSIONAL MEDICAL DIRECTOR SERVICES; AND AUTHORIZING PAYMENT FOR SAID SERVICES

WHEREAS, the City of Midland and the Midland County Hospital District desire to enter into a Medical Director Agreement for the purpose of providing the City of Midland Health Department with professional medical director services; and

WHEREAS, the Midland City Council finds it to be in the public interest to authorize the execution of a Medical Director Agreement with the Midland County Hospital District for the purpose of providing the City of Midland Health Department with professional medical director services;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager is hereby authorized and directed to execute, on behalf of the City of Midland, a Medical Director Agreement with the Midland County Hospital District for the purpose of providing the City of Midland Health Department with professional medical director services. Said agreement to be in a form substantially similar to Exhibit A, which is attached hereto and incorporated herein for all purposes.

SECTION TWO. That the City Comptroller is hereby authorized and directed to pay the Midland County Hospital District in accordance with the terms of the Medical Director Agreement from funds available in the budget of the Community Services Department upon receipt of proper invoice approved by the Interim City Manager or his designee.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Tina Jauz, Community Services Director

APPROVED AS TO FORM ONLY:

_____
John Ohnemiller, City Attorney

MEDICAL DIRECTOR AGREEMENT
BETWEEN
THE CITY OF MIDLAND, TEXAS
AND
MIDLAND HEALTH

This MEDICAL DIRECTOR AGREEMENT (the "Agreement") is entered into on this 1st day of January, 2021 (the "Effective Date"), by and between **The City of Midland, Texas**, a home-rule municipal corporation acting by and through its Health Department (the "COMHD"), and Midland County Hospital District dba **Midland Health**, a political subdivision of the state of Texas("MIDLAND HEALTH").

Section 1. MIDLAND HEALTH hereby agrees to provide COMHD with the professional services of Lawrence A. Wilson, MD ("Dr. Wilson,") a MIDLAND HEALTH employed physician, to act as MEDICAL DIRECTOR for the COMHD, subject to approval by the Midland City Council.

Section 2. In the event that Dr. Wilson is unable to fulfill his obligations for the Term of this Agreement (as defined herein), MIDLAND HEALTH agrees to provide a suitable member of its faculty to perform the services of Medical Director for the COMHD as set forth in this Agreement.

Section 3. MIDLAND HEALTH agrees its employed physician, Dr. Wilson, as Medical Director for the COMHD, shall perform the following duties under the administrative supervision of the City of Midland Health Department Manager:

(a) Approve clinic procedures, protocols, and standing orders for clinical services provided by COMHD professional and paraprofessional nursing and clerical staff, including:

(1) Supervision of procedures and protocols based on federal and state regulations, and on generally accepted standards of care.
(2) Approving COMHD manuals at least annually, after review and revision by COMHD clinic staff.
(3) Supervision of procedures and protocols for clinical services currently provided by COMHD, including immunizations and diagnosis and treatment of sexually-transmitted diseases.

(b) Provide COMHD with the physician provider number for submission of Medicare claims for influenza vaccine administration. The parties agree that duties provided as Medical Director under this Agreement do not include providing direct patient care.

Section 4. The parties agree and acknowledge that:

(a) Nothing in this Agreement is intended nor shall be construed to create an employer/employee relationship between the contracting parties nor to grant power to bind the other party in any legal contract or in any other way without prior-written consent of the other party.

(b) Medical Director is providing Medical Director Services as part of COMHD'S workforce, as the term is defined under HIPAA, and is subject to confidentiality obligations applicable to COMHD'S employees and other persons under its control.

Section 5. The term of this Agreement shall begin on the Effective Date and last for a period of two (2) years (the "Initial Term"). COMHD shall have the right to extend the term of this Agreement for two (2) additional two-year periods (the "Subsequest Terms") by providing written notice to Midland Health of COMHD's desire to extend the Agreement not later than sixty (60) days prior to the end of the then current term. The Initial Term and Subsequent Terms are collectively referred to herein as the "Term."

Section 6. Each party represents and warrants on behalf of itself, that all decisions regarding the medical care of patients shall be based solely upon the professional medical judgment of a patient's attending physician(s) and shall be made in the best interests of patients; that the aggregate benefit given or received under this Agreement, whether in cash or in kind, has been determined in advance through a process of arms-length negotiations that were intended to achieve an exchange of goods and/or services consistent with fair market value in the circumstances; and that any benefits given or received under this Agreement is not intended to induce, does not require, and is not contingent upon the admission, recommendation or referral of any patient, directly or indirectly, to the other party.

Section 7. The City of Midland shall pay MIDLAND HEALTH the sum of FOUR THOUSAND AND N0/100 DOLLARS ($4,000.00) per month for approximately twenty (20) hours of service per month, using the established procedures of the City of Midland. Both parties agree that Medical Director shall maintain a log of time spent with a description of the activities for each time period.

Section 8. MIDLAND HEALTH and COMHD represent and warrant that neither party has been excluded from any federal healthcare program, that no basis for such exclusion exists, to the best of the parties' knowledge, and that neither party has been subject to any final adverse action as defined under the Health Care Fraud and Abuse Data Collection Program. Both parties agree to immediately notify the other if either is subject to an inquiry, investigation, or final adverse action by a government agency, third-party payor, or intermediary as to the provision of services under this Agreement.

Section 9. Pursuant to 42 U.S.C. Section 1395x(v) (1)(1) and 42 C.F.R. Part 420, Subpart D Section 420.300 et seq., MIDLAND HEALTH and COMHD shall, until the expiration of four (4) years after the furnishing of Medicare reimbursable services pursuant to this Agreement, upon proper written request, allow the Comptroller General of the United States, the Secretary of Health and Human Services, and their duly-authorized representatives access to this Agreement and to the parties books, documents and records necessary to certify the nature and extent of costs

of Medicare reimbursable services provided by Medical Director under this Agreement are carried out by means of a subcontract with an organization related to MIDLAND HEALTH/Medical Director, and such related organization provides the services at a value or cost of $10,000.00 or more over a twelve-month period, then the subcontract between MIDLAND HEALTH/Medical Director and the related organization shall contain a clause comparable to the clause specified in the preceding sentence.

Section 10. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Agreement, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction. All performance and payment made pursuant to this Agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas.

Section 11. The parties' approval of this Agreement does not create a third-party beneficiary. There is no third-party beneficiary to this Agreement. No person or entity who is not a party to this Agreement shall have any third-party beneficiary or other rights hereunder.

Section 12. Either party may terminate this Agreement at will, for no or any reason, upon giving the other party at least one hundred twenty (120) days' written notice. The parties understand and agree that it is in either party's sole discretion to cancel this Agreement during the Term without penalty to said party. The parties have no expectation and have received no guarantees that this Agreement will not be terminated before the end of the Term. The parties have bargained for the flexibility of terminating this Agreement upon tender of the requisite notice at any time during the Term. All work and services under this Agreement shall be suspended upon termination of the Agreement becoming effective.

EXECUTED by the parties, or their duly authorized representatives, to be and become effective on the Effective Date.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

[SIGNATURE PAGE TO FOLLOW]

CITY OF MIDLAND, TEXAS

_____

Robert Patrick, Interim City Manager

ATTEST

_____

Amy M. Turner, City Secretary

MIDLAND COUNTY HOSPITAL DISTRICT
DBA MIDLAND HEALTH

_____

Russell Meyers,
President/Chief Executive Officer

MEDICAL DIRECTOR AGREEMENT
BETWEEN
THE CITY OF MIDLAND, TEXAS
AND
MIDLAND HEALTH

This MEDICAL DIRECTOR AGREEMENT (the "Agreement") is entered into on this 1st day of January, 2021 (the "Effective Date"), by and between **The City of Midland, Texas**, a home-rule municipal corporation acting by and through its Health Department (the "COMHD"), and Midland County Hospital District dba **Midland Health**, a political subdivision of the state of Texas("MIDLAND HEALTH").

Section 1. MIDLAND HEALTH hereby agrees to provide COMHD with the professional services of Lawrence A. Wilson, MD ("Dr. Wilson,") a MIDLAND HEALTH employed physician, to act as MEDICAL DIRECTOR for the COMHD, subject to approval by the Midland City Council.

Section 2. In the event that Dr. Wilson is unable to fulfill his obligations for the Term of this Agreement (as defined herein), MIDLAND HEALTH agrees to provide a suitable member of its faculty to perform the services of Medical Director for the COMHD as set forth in this Agreement.

Section 3. MIDLAND HEALTH agrees its employed physician, Dr. Wilson, as Medical Director for the COMHD, shall perform the following duties under the administrative supervision of the City of Midland Health Department Manager:

(a) Approve clinic procedures, protocols, and standing orders for clinical services provided by COMHD professional and paraprofessional nursing and clerical staff, including:

(1) Supervision of procedures and protocols based on federal and state regulations, and on generally accepted standards of care.
(2) Approving COMHD manuals at least annually, after review and revision by COMHD clinic staff.
(3) Supervision of procedures and protocols for clinical services currently provided by COMHD, including immunizations and diagnosis and treatment of sexually-transmitted diseases.

(b) Provide COMHD with the physician provider number for submission of Medicare claims for influenza vaccine administration. The parties agree that duties provided as Medical Director under this Agreement do not include providing direct patient care.

Section 4. The parties agree and acknowledge that:

(a) Nothing in this Agreement is intended nor shall be construed to create an employer/employee relationship between the contracting parties nor to grant power to bind the other party in any legal contract or in any other way without prior-written consent of the other party.

(b) Medical Director is providing Medical Director Services as part of COMHD'S workforce, as the term is defined under HIPAA, and is subject to confidentiality obligations applicable to COMHD'S employees and other persons under its control.

Section 5. The term of this Agreement shall begin on the Effective Date and last for a period of two (2) years (the "Initial Term"). COMHD shall have the right to extend the term of this Agreement for two (2) additional two-year periods (the "Subsequest Terms") by providing written notice to Midland Health of COMHD's desire to extend the Agreement not later than sixty (60) days prior to the end of the then current term. The Initial Term and Subsequent Terms are collectively referred to herein as the "Term."

Section 6. Each party represents and warrants on behalf of itself, that all decisions regarding the medical care of patients shall be based solely upon the professional medical judgment of a patient's attending physician(s) and shall be made in the best interests of patients; that the aggregate benefit given or received under this Agreement, whether in cash or in kind, has been determined in advance through a process of arms-length negotiations that were intended to achieve an exchange of goods and/or services consistent with fair market value in the circumstances; and that any benefits given or received under this Agreement is not intended to induce, does not require, and is not contingent upon the admission, recommendation or referral of any patient, directly or indirectly, to the other party.

Section 7. The City of Midland shall pay MIDLAND HEALTH the sum of FOUR THOUSAND AND N0/100 DOLLARS ($4,000.00) per month for approximately twenty (20) hours of service per month, using the established procedures of the City of Midland. Both parties agree that Medical Director shall maintain a log of time spent with a description of the activities for each time period.

Section 8. MIDLAND HEALTH and COMHD represent and warrant that neither party has been excluded from any federal healthcare program, that no basis for such exclusion exists, to the best of the parties' knowledge, and that neither party has been subject to any final adverse action as defined under the Health Care Fraud and Abuse Data Collection Program. Both parties agree to immediately notify the other if either is subject to an inquiry, investigation, or final adverse action by a government agency, third-party payor, or intermediary as to the provision of services under this Agreement.

Section 9. Pursuant to 42 U.S.C. Section 1395x(v) (1)(1) and 42 C.F.R. Part 420, Subpart D Section 420.300 et seq., MIDLAND HEALTH and COMHD shall, until the expiration of four (4) years after the furnishing of Medicare reimbursable services pursuant to this Agreement, upon proper written request, allow the Comptroller General of the United States, the Secretary of Health and Human Services, and their duly-authorized representatives access to this Agreement and to the parties books, documents and records necessary to certify the nature and extent of costs

of Medicare reimbursable services provided by Medical Director under this Agreement are carried out by means of a subcontract with an organization related to MIDLAND HEALTH/Medical Director, and such related organization provides the services at a value or cost of $10,000.00 or more over a twelve-month period, then the subcontract between MIDLAND HEALTH/Medical Director and the related organization shall contain a clause comparable to the clause specified in the preceding sentence.

Section 10. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this Agreement, without regard to conflict on laws and rules that would direct application of the laws of another jurisdiction. All performance and payment made pursuant to this Agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Contract or the performance of this Contract shall be in Midland County, Texas.

Section 11. The parties' approval of this Agreement does not create a third-party beneficiary. There is no third-party beneficiary to this Agreement. No person or entity who is not a party to this Agreement shall have any third-party beneficiary or other rights hereunder.

Section 12. Either party may terminate this Agreement at will, for no or any reason, upon giving the other party at least one hundred twenty (120) days' written notice. The parties understand and agree that it is in either party's sole discretion to cancel this Agreement during the Term without penalty to said party. The parties have no expectation and have received no guarantees that this Agreement will not be terminated before the end of the Term. The parties have bargained for the flexibility of terminating this Agreement upon tender of the requisite notice at any time during the Term. All work and services under this Agreement shall be suspended upon termination of the Agreement becoming effective.

EXECUTED by the parties, or their duly authorized representatives, to be and become effective on the Effective Date.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

[SIGNATURE PAGE TO FOLLOW]

CITY OF MIDLAND, TEXAS

_____

Robert Patrick, Interim City Manager

ATTEST

_____

Amy M. Turner, City Secretary

MIDLAND COUNTY HOSPITAL DISTRICT
DBA MIDLAND HEALTH

_____

Russell Meyers,
President/Chief Executive Officer

City Council Meeting

Item Number: 18

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Tina Jauz, Director

Subject: Motion to appropriate the sum of $240,000.00 from Fund 077 to Fund 126 for the Community Services Department Irrigation and Sod Project. (COMMUNITY SERVICES)

Purpose:

Motion approving the appropriation of funds in the amount of $240,000.00 for irrigation design and sod evaluation for four parks.

Recommended City Council Action:

Approve

Fiscal Impact:

$240,000.00 from Oil and Gas Revenues.

Discussion:

In an effort to improve the overall usability of open space and athletic fields in the current parks system, the Parks Division is recommending a pilot project aimed at improving four parks. The first task order would design and provide bid and construction documents for new irrigation systems. The second task order would include an evaluation of existing turf grass, maintenance capabilities, and current contracted services. The evaluation would include soil samples, water testing, and an action plan to rehabilitate the park turf grass. The information will also be valuable as staff prepares the RFP for maintenance services for parks as the current contract will expire in 2021. The four areas identified for the pilot project include high usage and athletic field areas at Butler, Windlands, Beal, and Washington Parks.

An amount of $240,000 is appropriated in Fund 077 and transferred to Fund 126 for the Irrigation and Sod project.

City Manager's Office

TASK ORDER NO. 27

This Task Order pertains to an Agreement by and between City of Midland, Texas, ("CITY"), and Dunaway Associates, L.P. ("COMPANY"), dated October 30, 2020, ("the Agreement"). COMPANY shall perform services on the project described below as provided herein and in the Agreement. This Task Order shall not be binding until it has been properly signed by both parties. Upon execution, this Task Order shall supplement the Agreement as it pertains to the project described below.

TASK ORDER NUMBER: 27

PROJECT NAME: MIDLAND PARKS IRRIGATION DESIGN

PART 1.0 PROJECT DESCRIPTION:

Since the extreme drought of 2010-2013, Midland has been a City focused on conserving water. Due to the securing of a new water source some restrictions have been lifted, and the City is moving to increase watering of existing public parks to provide better fields for sports and higher quality public open space for the community.

This project will provide design and construction documents for new irrigation systems at Beal Park, Butler Park, Washington Park, and Windlands Park. Each park has different sports field configurations, active and passive uses, and available utilities.

Dunaway will create base maps for each park, based on available NearMap aerial imagery, site visits, and documents provided by the City. In order to reduce cost, professional boundary and topographic surveys will not be performed.

Construction documents will be created from the available information, for the purposes of soliciting bids from multiple qualified contractors. One progress deliverable will be provided for coordination with the City. Construction Documents will be as accurate as possible given limited information but will require field observation and potential changes during construction.

Dunaway will provide bid-phase and construction administration services for each park. It is our intent to provide information and to augment City staff for site visits and observation.

It is the intent of this Task Order to provide landscape architecture services ("ASSIGNMENT") for multiple projects or locations on an as-needed basis.

PART 2.0 SCOPE OF SERVICES TO BE PERFORMED BY COMPANY ON THE PROJECT:

Task 1. Beal Park Irrigation Design.
Task 2. Butler Park Irrigation Design
Task 3. Washington Park Irrigation Design.
Task 4. Windlands Park Irrigation Design.

TASK 1. BEAL PARK IRRIGATION DESIGN

a) The initial phase of the project will involve the COMPANY to prepare CAD base files created from CITY provided information such as plats, utility plans, as-built drawings, and current aerial imagery. The COMPANY will also visit Beal Park and document existing conditions, including tree locations, water meter connections, and any visible surface encumbrances.

   After creating Base Documents and performing the initial site visit, the COMPANY will meet with Parks staff and maintenance personnel to further document existing conditions, gain understanding of the needs of the parks department and acquire specifications on the desired irrigation equipment for conformity and ease of maintenance. During this phase the COMPANY and CITY should discuss potential water sources or identify additional utility coordination.

   The primary objective of this phase is to create accurate base files to be used for the irrigation construction documents. The second objective is to clarify the project program and explore promising alternative design solutions.

b) COMPANY will provide irrigation construction documents for Beal Park. This will include irrigation plans and details. Two submittals are included in this task, a 90% review submittal and a 100% final submittal, signed and sealed by a Licensed Irrigator in the State of Texas. These construction documents can be used to solicit bids from contractors. This phase will include plans, specifications and Opinion of Probable Construction Cost (OPCC).

c) The COMPANY will provide bid phase and construction administration services to review and respond on the CITY'S behalf. This includes review of shop drawings, irrigation submittals and written requests for information related to elements of the design for which the COMPANY is responsible. The COMPANY will assist the CITY in the establishment of bid qualifications, and the solicitation and review of Bids.

   The COMPANY will attend site visits at key milestones during construction. Four (4) site visits are budgeted as necessary during construction, including the performance of a final site visit upon substantial completion, and generating a "Punch List" of any items which are not in compliance with the Construction Drawings. Field reports will be created and provided to CITY to document observations during construction.

TASK 2. BUTLER PARK IRRIGATION DESIGN

a) The initial phase of the project will involve the COMPANY to prepare CAD base files created from CITY provided information such as plats, utility plans, as-built drawings, and current aerial imagery. The COMPANY will also visit Butler Park and document existing conditions, including tree locations, water meter connections, and any visible surface encumbrances.

   After creating Base Documents and performing an initial site visit, the COMPANY will meet with Parks staff and maintenance personnel to further document existing conditions, gain understanding of the needs of the parks department and acquire specifications on the

desired irrigation equipment for conformity and ease of maintenance. During this phase the COMPANY and CITY should discuss potential water sources or identify additional utility coordination.

The primary objective of this phase is to create accurate base files to be used for the irrigation construction documents. The second objective is to clarify the project program and explore promising alternative design solutions.

b) The COMPANY will provide irrigation construction documents for Butler Park. This will include irrigation plans and details. Two submittals are included in this task, a 90% review submittal and a 100% final submittal. These construction documents can be used to solicit bids from contractors. This phase will include plans, specifications and Opinion of Probable Construction Cost (OPCC).

c) The COMPANY will provide bid phase and construction administration services to review and respond on the CITY'S behalf. This includes review of shop drawings, irrigation submittals and written requests for information related to elements of the design for which the COMPANY is responsible. The COMPANY will assist the CITY in the establishment of bid qualifications, and the solicitation and review of Bids.

The COMPANY will attend site visits at key milestones during construction. Four (4) site visits are budgeted as necessary during construction, including the performance of a final site visit upon substantial completion, and generating a "Punch List" of any items which are not in compliance with the Construction Drawings. Field reports will be created and provided to CITY to document observations during construction.

TASK 3. WASHINGTON PARK IRRIGATION DESIGN

a) The initial phase of the project will involve the COMPANY to prepare CAD base files created from CITY provided information such as plats, utility plans, as-built drawings, and current aerial imagery. The COMPANY will also visit Washington Park and document existing conditions, including tree locations, water meter connections, and any visible surface encumbrances.

After creating Base Documents and performing an initial site visit, the COMPANY will meet with Parks staff and maintenance personnel to further document existing conditions, gain understanding of the needs of the parks department and acquire specifications on the desired irrigation equipment for conformity and ease of maintenance. During this phase the COMPANY and CITY should discuss potential water sources or identify additional utility coordination.

The primary objective of this phase is to create accurate base files to be used for the irrigation construction documents. The second objective is to clarify the project program and explore promising alternative design solutions.

b) The COMPANY will provide irrigation construction documents for Washington Park. This will include irrigation plans and details. Two submittals are included in this task, a 90% review submittal and a 100% final submittal. These construction documents can be

used to solicit bids from contractors. This phase will include plans, specifications and Opinion of Probable Construction Cost (OPCC).

c) The COMPANY will provide bid phase and construction administration services to review and respond on the CITY'S behalf. This includes review of shop drawings, irrigation submittals and written requests for information related to elements of the design for which the COMPANY is responsible. The COMPANY will assist the CITY in the establishment of bid qualifications, and the solicitation and review of Bids.

The COMPANY will attend site visits at key milestones during construction. Four (4) site visits are budgeted as necessary during construction, including the performance of a final site visit upon substantial completion, and generating a "Punch List" of any items which are not in compliance with the Construction Drawings. Field reports will be created and provided to CITY to document observations during construction.

TASK 4. WINDLANDS PARK IRRIGATION DESIGN

a) The initial phase of the project will involve the COMPANY to prepare CAD base files created from CITY provided information such as plats, utility plans, as-built drawings, and current aerial imagery. The COMPANY will also visit Windlands Park and document existing conditions, including tree locations, water meter connections, and any visible surface encumbrances.

After creating Base Documents and performing an initial site visit, The COMPANY will meet with Parks staff and maintenance personnel to further document existing conditions, gain understanding of the needs of the parks department and acquire specifications on the desired irrigation equipment for conformity and ease of maintenance. During this phase the COMPANY and CITY should discuss potential water sources or identify additional utility coordination.

The primary objective of this phase is to create accurate base files to be used for the irrigation construction documents. The second objective is to clarify the project program and explore promising alternative design solutions.

b) The COMPANY will provide irrigation construction documents for Windlands Park. This will include irrigation plans and details. Two submittals are included in this task, a 90% review submittal and a 100% final submittal. These construction documents can be used to solicit bids from contractors. This phase will include plans, specifications and Opinion of Probable Construction Cost (OPCC).

c) The COMPANY will provide bid phase and construction administration services to review and respond on the CITY'S behalf. This includes review of shop drawings, irrigation submittals and written requests for information related to elements of the design for which the COMPANY is responsible. The COMPANY will assist the CITY in the establishment of bid qualifications, and the solicitation and review of Bids.

The COMPANY will attend site visits at key milestones during construction. Four (4) site visits are budgeted as necessary during construction, including the performance of a final site visit upon substantial completion, and generating a "Punch List" of any items which

are not in compliance with the Construction Drawings. Field reports will be created and provided to CITY to document observations during construction.

ASSUMPTIONS

- Project Schedule is based upon a three (3) month preliminary design schedule and will include the following items:
- One (1) two-hour design initial kickoff meeting will be conducted with Parks Staff to review knowledge on each park site, including water connections, irrigation equipment, maintenance issues, and scope refinement.
- One (1) two-hour progress review meeting ("page turn") will be conducted with Parks and other CITY staff for detailed review of the 90% Construction Documents Review package.
- Three (3) project progress reports will be completed with each billing invoice on a monthly basis. Field reports will be provided after site visits during Construction Administration.
- Three (3) monthly invoices will be completed and submitted prior to completion of Bid Documents. Construction Administration phase work will be billed separately.
- It is assumed that the COMPANY will be augmenting Parks and Recreation department staff during Construction Administration. Regularly scheduled construction meetings and frequent site visits shall be performed by Parks staff, with the COMPANY available to assist in resolving unique issues. Additional site visits or construction administration activities will be billed as an additional hourly service or may be provided as an amendment to this contract.

DELIVERABLES

A. Meeting summaries with action items.

B. Base Plans, developed by aerial photography, of Existing Conditions at each Park.

C. 90% Irrigation Design progress review submittal

D. Opinion of Probable Construction Cost (OPCC)

E. Signed/Sealed Irrigation Construction Documents for bid and installation.

F. Monthly invoices.

G. Baseline design schedule.

H. Monthly progress reports with schedule narrative describing any current or anticipated schedule changes.

ADDITIONAL SERVICES NOT INCLUDED IN THE SCOPE OF SERVICES

CITY and COMPANY agree that the following services are beyond the Scope of Services described in the tasks above. However, COMPANY can provide these services, if needed, upon the CITY's written request. Any additional amounts paid to the COMPANY as a result of any material change to the Scope of the Project shall be agreed upon in writing by both parties before the services are performed. These additional services include the following:

- Construction Documents for paving, planting and associated details.
- Professional Surveying Services, including boundary survey, topographic surveys, easements by separate instrument, and plats.
- Civil engineering services, including utility studies and design.
- Attend and Prepare Exhibits for a Public Meeting.
- Illumination Plan.
- Geotechnical Services.
- Structural Services.
- Environmental Services.
- Bid Phase Services including a Project Manual.
- Additional site visits during the Construction Administration phase.
- Services related to disputes over pre-qualification, bid protests, bid rejection and re-bidding of the contract for construction.

PART 3.0 CITY'S RESPONSIBILITIES:

The CITY's responsibilities will include the following:

1. The CITY will provide plats, utility plans, as-builts and any other documents that will assist in CAD base file creation as needed for the project locations.
2. The CITY shall coordinate between departments and staff for required meetings, and distribution, review, and approval of Construction Documents.

PART 4.0 PERIODS OF SERVICE:

Project shall follow Project Schedule as agreed upon by both CITY and COMPANY during the project scoping phase of each ASSIGNMENT. If during project execution for any ASSIGNMENT, schedule revisions are requested by either party, such revisions will be agreed to by both CITY and COMPANY before proceeding with written authorization.

PART 5.0 PAYMENTS TO COMPANY:

Executive Fee Summary:

1.	Beal Park Irrigation Design	$45,000 Lump Sum
2.	Butler Park Irrigation Design	$20,000 Lump Sum
3.	Washington Park Irrigation Design	$20,000 Lump Sum
4.	Windlands Park Irrigation Design	$42,500 Lump Sum
	Total	$127,500 Lump Sum

The above work includes tasks to be performed as an Hourly Not to Exceed method, and as a Lump Sum method, as indicated. A level-of-effort (LOE) will be established and agreed to for any ASSIGNMENT under this TASK ORDER.

PART 6.0 OTHER: N/A

This Task Order is executed this _____ day of _____, 20___.

CITY OF MIDLAND, TEXAS "CITY"		DUNAWAY ASSOCIATES, L.P. "COMPANY"	
BY:		BY:	
NAME:	Robert Patrick	NAME:	Tim Hair, ASLA
TITLE:	Interim City Manager	TITLE:	Regional Manager, Associate Principal
ADDRESS:	P.O. Box 1152 Midland, TX 79702	ADDRESS:	4000 N. Big Spring St., #101 Midland, TX 79705

Beal Park



10/19/2020, 1:16:17 PM

Sewer Pressure Main
Sewer Gravity Main
Water Pressure Main
AOZ 4
City Limit
Parcel
Street Centerline
Arterial; Collector
County Road; Frontage; Park; Residential
Interstate; State Highway; State Loop
Lease Road; Misc

1:4,514

0 0.04 0.09 0.18 mi

0 0.05 0.1 0.2 km

DUNAWAY

City of Midland GIS App

Butler Park



10/19/2020, 1:13:49 PM

Sewer Pressure Main
Sewer Gravity Main
Sewer Manhole
Water Pressure Main
Water Hydrant
AOZ 4
City Limit
Parcel

Street Centerline
Arterial; Collector
County Road; Frontage; Park; Residential
Interstate; State Highway; State Loop
Lease Road; Misc

1:2,257

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.14 km

DUNAWAY
City of Midland GIS App

Washington Park



10/19/2020, 1:17:31 PM

Sewer Pressure Main
Sewer Gravity Main
Sewer Manhole
Water Pressure Main
Water Hydrant
AOZ 4
City Limit
Parcel
Street Centerline
Arterial; Collector
County Road; Frontage; Park; Residential
Interstate; State Highway; State Loop
Lease Road; Misc

1:2,257

0 0.02 0.04 0.09 mi
0 0.04 0.07 0.14 km

DUNAWAY
City of Midland GIS App

Windlands Park



10/19/2020, 1:15:01 PM

Sewer Pressure Main
Sewer Gravity Main
Water Pressure Main
AOZ 4
City Limit
Parcel
Street Centerline
Arterial; Collector
County Road; Frontage; Park; Residential
Interstate; State Highway; State Loop
Lease Road; Misc

1:4,514

0 0.04 0.09 0.18 mi

0 0.05 0.1 0.2 km

DUNAWAY
City of Midland GIS App

TASK ORDER NO. 28

This Task Order pertains to an Agreement by and between City of Midland, Texas, ("CITY"), and Dunaway Associates, L.P. ("COMPANY"), dated October 30, 2020, ("the Agreement"). COMPANY shall perform services on the project described below as provided herein and in the Agreement. This Task Order shall not be binding until it has been properly signed by both parties. Upon execution, this Task Order shall supplement the Agreement as it pertains to the project described below.

TASK ORDER NUMBER: 28

PROJECT NAME: MIDLAND PARKS TURFGRASS REHABILITATION

PART 1.0 PROJECT DESCRIPTION:

Since the extreme drought of 2010-2013, Midland has been a City focused on conserving water. Due to the securing of a new water source some restrictions have been lifted, and the City is moving to increase watering of existing public parks to provide better fields for sports and higher quality public open space for the community.

This project will evaluate existing turfgrass conditions at four parks, make recommendations for rehabilitation of sports fields and open areas as defined in the attached Exhibits, and provide Bid Documents for those recommendations at Beal Park, Butler Park, Washington Park, and Windlands Park.

Base map documents for each park within the scope of Task Order 27, to be executed in concurrence with this Project. Specific site visits will be made within this Project to identify issues affecting turfgrass or sports fields at each park location.

An evaluation of each park will be conducted to determine the condition of turfgrass in sports fields and open areas, with soil samples taken and analyzed for classification, pH, and organic components (including recommendations for remediation). Water testing data will be provided by the CITY.

The Project Team (including subconsultants to COMPANY) shall conduct an evaluation of existing turfgrass, Parks operations and maintenance capability, budget, and current contracted maintenance. An action plan will be developed to rehabilitate sports fields and open areas at the four (4) parks under consideration, as well as improve turfgrass quality and maintenance across the system.

As an optional service, the Project Team may assist the CITY in developing Requests for Proposals for contracted maintenance, including recommendations for contract management, oversight, performance evaluation, and other expectations and responsibilities of the Parks department.

Bid and Construction documents will be created from the evaluation and recommendations, for the purposes of soliciting bids from multiple qualified contractors. One progress deliverable will be provided for coordination with the City. Construction Documents will be as accurate as possible given limited information but will require field observation and potential changes during construction.

Dunaway will provide bid-phase and construction administration services for each park. It is our intent to provide information and to augment City staff for site visits and observation.

It is the intent of this Task Order to provide landscape architecture services ("ASSIGNMENT") for multiple projects or locations on an as-needed basis.

PART 2.0 SCOPE OF SERVICES TO BE PERFORMED BY COMPANY ON THE PROJECT:

Task 1. Parks Turfgrass and Soil Evaluation
Task 2. Parks Maintenance and Operations Assessment
Task 3. Turfgrass Rehabilitation Action Plan
Task 4: Beal Park Turfgrass Rehabilitation Bid Documents
Task 5. Butler Park Turfgrass Rehabilitation Bid Documents
Task 6. Washington Park Turfgrass Rehabilitation Bid Documents
Task 7. Windlands Park Turfgrass Rehabilitation Bid Documents

TASK 1. PARKS TURFGRASS AND SOIL ASSESSMENT

a) The COMPANY will perform site visits to Beal, Butler, Washington, and Windlands Parks, for visual inspection of turfgrass conditions, photo documentation, and to create Existing Conditions documents for each location. Documents will note areas of uneven grading, drainage considerations, bare soil, and any visible features that could impact the sustainable growth of quality turfgrass, or that indicate soil or operational deficiencies.

b) The COMPANY will procure soil tests to evaluate two (2) locations at each of the four defined Parks to test for Soil Grading and Classification, pH, and Organic Compounds. Test results will be evaluated for the suitability of the soil to support turfgrass growth and for recommendations on soil amendment, fertilizing regime, and ongoing maintenance protocols. Only one set of tests is provided for each sample location. Testing multiple soil profiles from the same sample location may be provided as an additional service, after sample locations have been dug and with approval by CITY.

TASK 2. PARKS MAINTENANCE AND OPERATIONS ASSESSMENT

a) The COMPANY will gather information from each park under design, and from Parks Department maintenance and operations. Information will include:
   i) Irrigation supply water tests (to be gathered by Parks staff)
   ii) Any information on construction, replacement, and maintenance of sports fields
   iii) Current maintenance program, including mowing frequency and height, aeration, soil topdressing, fertilizer and soil amendments, herbicide, watering frequency, and winter overseeding
   iv) Parks Equipment inventory, including mowers, tractors, trucks and trailers, small equipment, irrigation systems and control
   v) Organizational structure, including licenses and certifications, and seasonal employees
   vi) Current operating budget, including contracted maintenance

b) The COMPANY will review current operating procedures, including seasonal programs, established maintenance and task workflow, and quality assurance and inspection programs.

c) The COMPANY will review current maintenance contracts and work performed.

TASK 3. TURFGRASS REHABILITATION ACTION PLAN

d) The COMPANY will create a Short-Term Action Plan for renovation or replacement for each sports field in the four (4) parks, and for open/common areas to be rejuvenated. Tasks will be developed with Parks staff to help with successful grow-in and turfgrass sustainability. Based on the evaluation in this task, the following will be provided:
   i) Specific areas of improvement for the Parks department, including workflow and maintenance – mechanical, agronomical, irrigation, pesticide and herbicide
   ii) Recommended course of action for each sports field and park
   iii) A list of contractors that specialize in turfgrass replacement
   iv) Recommendations of ongoing tasks to promote sustainable turfgrass throughout the Parks system
   v) Make recommendations for organizational structure and training
   vi) Assist in building Requests for Proposals for yearly maintenance

e) The COMPANY will develop Opinions of Probable Construction Cost (OPCC), and explore phasing options or combinations of work with separate Irrigation work under COMPANY Task Order 27. Formal recommendations, with supporting exhibits, will be presented to CITY for budget and approval purposes.

TASK 4. BEAL PARK BID DOCUMENTS AND ADMINISTRATION

a) COMPANY will provide turfgrass rehabilitation construction documents for Beal Park. This will include plans, specifications, and details for the method of rehabilitation determined in Task 3. Two submittals are included in this task, a 90% review submittal and a 100% final submittal. These construction documents can be used to solicit bids from qualified contractors. This phase will include plans, specifications and opinion of probable construction costs.

b) The COMPANY will provide bid phase services to review and respond on the CITY'S behalf if required. This includes review of submittals, samples, and written requests for information related to elements of the design for which the COMPANY is responsible. The COMPANY will assist the CITY in the solicitation and review of Bids.

c) The COMPANY will attend site visits at key milestones during construction. Four (4) site visits are budgeted as necessary during construction, including the performance of a final site visit upon substantial completion, and generating a "Punch List" of any items which are not in compliance with the Construction Drawings. Field reports will be created and provided to CITY to document observations during construction.

TASK 5. BUTLER PARK BID DOCUMENTS AND ADMINISTRATION

a) COMPANY will provide turfgrass rehabilitation construction documents for Beal Park. This will include plans, specifications, and details for the method of rehabilitation determined in Task 3. Two submittals are included in this task, a 90% review submittal and a 100% final submittal. These construction documents can be used to solicit bids from

qualified contractors. This phase will include plans, specifications and opinion of probable construction costs.

b) The COMPANY will provide bid phase services to review and respond on the CITY'S behalf if required. This includes review of submittals, samples, and written requests for information related to elements of the design for which the COMPANY is responsible. The COMPANY will assist the CITY in the solicitation and review of Bids.

c) The COMPANY will attend site visits at key milestones during construction. Four (4) site visits are budgeted as necessary during construction, including the performance of a final site visit upon substantial completion, and generating a "Punch List" of any items which are not in compliance with the Construction Drawings. Field reports will be created and provided to CITY to document observations during construction.

TASK 6. WASHINGTON PARK BID DOCUMENTS AND ADMINISTRATION

a) COMPANY will provide turfgrass rehabilitation construction documents for Beal Park. This will include plans, specifications, and details for the method of rehabilitation determined in Task 3. Two submittals are included in this task, a 90% review submittal and a 100% final submittal. These construction documents can be used to solicit bids from qualified contractors. This phase will include plans, specifications and opinion of probable construction costs.

b) The COMPANY will provide bid phase services to review and respond on the CITY'S behalf if required. This includes review of submittals, samples, and written requests for information related to elements of the design for which the COMPANY is responsible. The COMPANY will assist the CITY in the solicitation and review of Bids.

c) The COMPANY will attend site visits at key milestones during construction. Four (4) site visits are budgeted as necessary during construction, including the performance of a final site visit upon substantial completion, and generating a "Punch List" of any items which are not in compliance with the Construction Drawings. Field reports will be created and provided to CITY to document observations during construction.

TASK 7. WINDLANDS PARK BID DOCUMENTS AND ADMINISTRATION

a) COMPANY will provide turfgrass rehabilitation construction documents for Beal Park. This will include plans, specifications, and details for the method of rehabilitation determined in Task 3. Two submittals are included in this task, a 90% review submittal and a 100% final submittal. These construction documents can be used to solicit bids from qualified contractors. This phase will include plans, specifications and opinion of probable construction costs.

b) The COMPANY will provide bid phase services to review and respond on the CITY'S behalf if required. This includes review of submittals, samples, and written requests for

information related to elements of the design for which the COMPANY is responsible. The COMPANY will assist the CITY in the solicitation and review of Bids.

c) The COMPANY will attend site visits at key milestones during construction. Four (4) site visits are budgeted as necessary during construction, including the performance of a final site visit upon substantial completion, and generating a "Punch List" of any items which are not in compliance with the Construction Drawings. Field reports will be created and provided to CITY to document observations during construction.

ASSUMPTIONS

- Project Schedule is based upon a three (3) month preliminary schedule.
- One (1) two-hour design initial kickoff meeting will be conducted with Parks Staff to review knowledge on each park site. Additional in-person or virtual meetings will be conducted by Team members with Parks staff for maintenance and operations evaluation and action plan development.
- CITY will provide water sample data for City water supply, to be used in recommendations for turfgrass rehabilitation.
- One (1) two-hour progress review meeting ("page turn") will be conducted with Parks and other CITY staff for detailed review of the 90% Construction Documents Review package.
- Three (3) project progress reports will be completed with each billing invoice on a monthly basis. Field reports will be provided after site visits during Construction Administration.
- It is assumed that the COMPANY will be augmenting Parks and Recreation department staff during Construction Administration. Regularly scheduled construction meetings and frequent site visits shall be performed by Parks staff, with the COMPANY available to assist in resolving unique issues. Additional site visits or construction administration activities will be billed as an additional hourly service or may be provided as an amendment to this contract.

DELIVERABLES

A. Meeting summaries with action items.

B. Base Plans, developed by aerial photography, of Existing Conditions at each Park.

C. Soil sample reports and remediation recommendations

D. Short-Term Action Plan for turfgrass renovations and system-wide enhancement

E. Opinion of Probable Construction Cost (OPCC)

F. Interim review, and Signed/Sealed Construction Documents for bid and installation.

G. Monthly invoices and progress reports.

H. Baseline design schedule.

ADDITIONAL SERVICES NOT INCLUDED IN THE SCOPE OF SERVICES

CITY and COMPANY agree that the following services are beyond the Scope of Services described in the tasks above. However, COMPANY can provide these services, if needed, upon the CITY's written request. Any additional amounts paid to the COMPANY as a result of any material change to the Scope of the Project shall be agreed upon in writing by both parties before the services are performed. These additional services include the following:

- Construction Documents for paving, site hardscape features
- Professional Surveying Services, including boundary survey, topographic surveys, easements by separate instrument, and plats.
- Civil engineering services, including utility studies and design.
- Attend and Prepare Exhibits for a Public Meeting.
- Illumination Plan.
- Geotechnical Services.
- Structural Services.
- Environmental Services.
- Bid Phase Services including a Project Manual.
- Additional site visits during the Construction Administration phase.
- Services related to disputes over pre-qualification, bid protests, bid rejection and re-bidding of the contract for construction.

PART 3.0 CITY'S RESPONSIBILITIES:

The CITY's responsibilities will include the following:

1. The CITY will provide plats, utility plans, as-builts and any other documents that will assist in CAD base file creation as needed for the project locations.
2. The CITY shall coordinate between departments and staff for required meetings, and distribution, review, and approval of Construction Documents.

PART 4.0 PERIODS OF SERVICE:

Project shall follow Project Schedule as agreed upon by both CITY and COMPANY during the project scoping phase of each ASSIGNMENT. If during project execution for any ASSIGNMENT, schedule revisions are requested by either party, such revisions will be agreed to by both CITY and COMPANY before proceeding with written authorization.

PART 5.0 PAYMENTS TO COMPANY:

Executive Fee Summary:

1.	Parks Turfgrass and Soil Evaluation	$13,000 Lump Sum
2.	Parks Maintenance and Operations Assessment	$22,500 Lump Sum
3.	Turfgrass Rehabilitation Action Plan	$17,500 Lump Sum
4.	Beal Park Bid Documents and Administration	$18,500 Lump Sum
5.	Butler Park Bid Documents and Administration	$15,000 Lump Sum
6.	Washington Park Bid Documents and Administration	$7,500 Lump Sum
7.	Windlands Park Bid Documents and Administration	$18,500 Lump Sum
	Total	$112,500 Lump Sum

The above work includes tasks to be performed as an Hourly Not to Exceed method, and as a Lump Sum method, as indicated. A level-of-effort (LOE) will be established and agreed to for any ASSIGNMENT under this TASK ORDER.

PART 6.0 OTHER: N/A

This Task Order is executed this _____ day of _____, 20___.

CITY OF MIDLAND, TEXAS "CITY"		DUNAWAY ASSOCIATES, L.P. "COMPANY"	
BY:	_____	BY:	_____
NAME:	Robert Patrick	NAME:	Tim Hair, ASLA
TITLE:	Interim City Manager	TITLE:	Regional Manager, Associate Principal
ADDRESS:	P.O. Box 1152 Midland, TX 79702	ADDRESS:	4000 N. Big Spring St., #101 Midland, TX 79705

Windlands Park



10/19/2020, 1:15:01 PM

- Sewer Pressure Main
- Sewer Gravity Main
- Water Pressure Main
- AOZ 4
- City Limit
- Parcel
- Street Centerline
- Arterial; Collector
- County Road; Frontage; Park; Residential
- Interstate; State Highway; State Loop
- Lease Road; Misc

1:4,514

0 0.04 0.09 0.18 mi

0 0.05 0.1 0.2 km

DUNAWAY
City of Midland GIS App

Beal Park



10/19/2020, 1:16:17 PM

Sewer Pressure Main
Sewer Gravity Main
Water Pressure Main
AOZ 4
City Limit
Parcel
Street Centerline
Arterial; Collector
County Road; Frontage; Park; Residential
Interstate; State Highway; State Loop
Lease Road; Misc

1:4,514

0 0.04 0.09 0.18 mi

0 0.05 0.1 0.2 km

DUNAWAY

City of Midland GIS App

Butler Park



10/19/2020, 1:13:49 PM

Sewer Pressure Main
Sewer Gravity Main
Sewer Manhole
Water Pressure Main
Water Hydrant
AOZ 4
City Limit
Parcel
Street Centerline
Arterial; Collector
County Road; Frontage; Park; Residential
Interstate; State Highway; State Loop
Lease Road; Misc

1:2,257

0 0.02 0.04 0.09 mi
0 0.04 0.07 0.14 km

DUNAWAY
City of Midland GIS App

Washington Park



10/19/2020, 1:17:31 PM

Sewer Pressure Main
Sewer Gravity Main
Sewer Manhole
Water Pressure Main
Water Hydrant
AOZ 4
City Limit
Parcel

Street Centerline
Arterial; Collector
County Road; Frontage; Park; Residential
Interstate; State Highway; State Loop
Lease Road; Misc

1:2,257

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.14 km

DUNAWAY
City of Midland GIS App

City Council Meeting

Item Number: 5

Meeting Date: November 23, 2020

To: City Council / City Manager

From: Isaac Garnett, Manager, Community Development

Subject: RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS FOR THE FACILITY IMPROVEMENT PROGRAM IN THE AMOUNT OF $244,303.00 (DEVELOPMENT SERVICES) (DEFERRED FROM NOVEMBER 17, 2020)

Purpose:

RESOLUTION AUTHORIZING THE EXECUTION OF THE CITY OF MIDLAND EMERGENCY AID, RELIEF, and ECONOMIC SECURITY FUNDS CONTRACTS WITH YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND TEXAS FOR FACILITY IMPROVEMENT PROGRAM; APPROVING FUNDS FOR SAID CONTRACTS IN THE AMOUNT OF $244,303.00. (DEVELOPMENT SERVICES) (DEVELOPMENT SERVICES)

Recommended City Council Action:

Approve

Fiscal Impact:

Recovered funds from the Cares Grant are available in Fund 065 – Cares Grant for this purpose.

Discussion:

The consequences of COVID19 resulted in substantial membership loss (approx. 50%). YMCA membership supports many of the mission-driven programming offered at the YMCA. In efforts to recruit, retain, and recapture membership, the YMCA is looking to modernize youth spaces and commons area. The Transformation of School Age Child Care areas to a versatile space to promote learning, and provide educational support while also engaging in fun activities as a primary goal. The YMCA is the leading childcare provider in Midland which services more than

600 children annually. The YMCA provided emergency childcare to over 150 children during the COVID shutdown, which allowed essential workers to continue their great work. Post shut down, MISD opted for an at-home learning model, and the YMCA provided virtual learning care that enabled parents to continue working so they could provide for their family.

City Manager's Office

RESOLUTION NO. _____

RESOLUTION AUTHORIZING THE EXECUTION OF A CONTRACT WITH THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS FOR THE FACILITY IMPROVEMENT PROGRAM IN THE AMOUNT OF $244,303.00

WHEREAS, the City of Midland, Texas, has heretofore allocated $244,303.00 to the Young Mens Christian Association of Midland, Texas ("YMCA") for facility improvements; and

WHEREAS, the City Council finds it to be in the public interest to enter into a contract with the YMCA to provide this service with such funds;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Interim City Manager and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, Texas, a contract with the YMCA to administer and operate the Facility Improvement Program, said contract to be substantially in the form of that attached hereto as Exhibit "1" and made a part hereof for all legal purposes.

SECTION TWO. Recovered funds from the Cares Grant are available in Fund 065 - Cares Grant for this purpose.

SECTION THREE. That the City Comptroller is hereby authorized and directed to make payment to the YMCA pursuant to terms of the contract, not to exceed a total amount of $244,303.00, upon receipt of proper invoice or statement approved by the City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

_____
Mark Mason, Director of Finance

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Isaac Garnett, Community Development
Administrator

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

AGREEMENT BETWEEN CITY OF MIDLAND, TEXAS AND THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS, REGARDING THE FACILITY IMPROVEMENT PROGRAM

This Agreement made by and between the **CITY OF MIDLAND**, a Texas home rule municipal corporation, herein called "City", and **THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS**, hereinafter called "Corporation";

I. PURPOSE

The purpose of this Agreement is to state the terms and conditions by which Corporation will carry out the Facility Improvement Program utilizing City's Emergency Aid, Relief and Economic Security Fund as described in Exhibit "A", attached hereto and incorporated herein for all legal purposes. Any change in the performance schedule, purpose or the location of the operation must be approved in advance by the City.

II. PAYMENT

Upon and after the receipt of a notice to proceed from the City, Corporation is authorized to incur costs against a total amount of TWO HUNDRED FORTY-FOUR THOUSAND THREE HUNDRED THREE DOLLARS and No/100 ($244,303.00). Payments shall be made on a reimbursement basis to Corporation for services and expenses as shown in Exhibit "A", attached hereto and made a part hereof for all legal purposes. All payments shall be made to Corporation upon certification by Corporation and approval by the Community Development Division of the City's Development Services Department and the City Manager. When reimbursements for personnel services are requested, time sheets must be presented by Corporation to the City, in a form suitable to City. Final payment on the project must be at least THREE THOUSAND DOLLARS ($3,000.00), and will not be made until all final project reporting is completed.

III. PROCUREMENT STANDARDS

Corporation will make project procurement in accordance with 24 CFR Part 84 and Part 85 and applicable Texas Statutes. At least ten (10) days before Corporation seeks competitive bids on procurement of over TEN THOUSAND DOLLARS ($10,000.00) and for any work contracts of over TWO THOUSAND DOLLARS ($2,000.00) of the above described project, the plans and specifications and other bid documents shall be submitted to the City and reviewed by the City's Community Development Division for conformance with federal and City requirements.

IV. INDEMNITY

CORPORATION WILL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATHS, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CORPORATION, ITS AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, ARISING OUT OF, OR RESULTING FROM, CORPORATION'S USE OF, OR ACTIVITIES ON, THE AGREEMENT PREMISES, AND CORPORATION WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING REASONABLE ATTORNEY'S FEES.

CORPORATION SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND CITY AND ALL OF CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATHS, PROPERTY DAMAGE, LOSSES, AND EXPENSE OF ANY CHARACTER WHATSOEVER INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF CITY, CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH CORPORATION OR CORPORATION'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS AGREEMENT AND CORPORATION WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST CITY OR ANY OF CITY'S OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

CORPORATION AGREES THAT IT WILL INDEMNIFY AND SAVE THE CITY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND SUPPLIERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS, ALL SUPPLIES, INCLUDING COMMISSARY INCURRED IN

THE FURTHERANCE OF THE PERFORMANCE OF THIS AGREEMENT. WHEN CITY SO DESIRES, CORPORATION SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREIN ABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED.

V. INSURANCE

A. Corporation shall carry insurance in the following types and amounts for the duration of this Agreement and furnish Certificates of Insurance along with copies of policy declaration pages and all policy endorsements as evidence hereof to City:

1. Statutory Workers' Compensation; said insurance shall provide for a waiver of subrogation in favor of the City;

2. Commercial General Liability Insurance with a minimum bodily injury and property damage per occurrence limit of $1,000,000. The policy must provide contractual liability coverage for liability assumed under this Agreement, products and completed operations coverage, independent contractors coverage, and a waiver of a Transfer of Right of Recovery Against Others in favor of the City. If this coverage is underwritten on a claims made basis, the retroactive date shall be coincident with the date of this Agreement and the certificate of insurance shall state that the coverage is claims made and the retroactive date. Corporation shall maintain coverage for the duration of this Agreement and for six months following completion of the construction improvements associated with this Agreement. Corporation shall pay for this extended reporting period coverage. This insurance shall name the City as an additional insured and shall provide a waiver of subrogation in favor of the City.

B. If insurance policies are not written for amounts specified in Subsection A, above, Corporation shall carry umbrella or excess liability insurance for any differences in amounts specified. If excess liability insurance is provided, it must follow the form of the primary coverage.

C. Corporation shall provide City at least thirty (30) days written notice of erosion of the aggregate limit below the minimum required combined single limit coverage.

D. Corporation shall provide all provisions of this Agreement concerning liability, duty, standard of care, together with the indemnification or defense provisions herein, shall be underwritten by contractual coverage sufficient to include such obligations within applicable policies.

E. Corporation shall not commence work under this Agreement until it has obtained all required insurance and until such insurance has been reviewed by the City Attorney's Office of the City of Midland.

F. Corporation shall produce an endorsement to each affected policy that contains language similar to the following:

1. That names City of Midland, Texas, Attn.: Isaac Garnett, 300 N. Loraine, P. O. Box 1152, Midland, Texas, 79702, as additional insured (except for Workers' Compensation and Employee's Liability coverage), with right of subrogation against City waived on each affected policy including Worker's Compensation.

2. That obligates the insurance company to notify City of any non-renewal, cancellation, or material change to the policy, at least thirty (30) calendar days before the change or cancellation;

3. That the "other" insurance clause shall not apply to City where City is an additional insured shown on the policy. It is intended that the policies required in this Agreement, covering both City and Corporation, shall be considered primary coverage, as applicable.

G. Corporation shall not cause any insurance to be canceled or permit any insurance to lapse during the term of this Agreement or the six-month period following completion, in the case of a claims-made policy.

H. City reserves the right to review the insurance requirements of this Article V during the effective period of this Agreement and to make reasonable adjustments to insurance coverages, their limits when deemed necessary and prudent by City based upon changes in statutory law, court decisions, or the claims history of the industry or financial condition of the insurance company as well as that of Corporation. City shall be entitled to review, upon request, and without expense to City, to receive copies of the requisite insurance policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions, except where policy provisions are established by law or regulation binding upon either of the parties hereto or the underwriter on any of such policies.

I. All certificates shall include a clause to the effect that the policy may not be canceled, reduced, restricted, or limited until thirty (30) calendar days after City has received written notice of such cancellation or change. During the term of this Agreement, Corporation shall have in effect a general liability insurance policy in an amount of not less than $1,000,000 combined single limit for bodily injury and property damage. This liability policy shall be

endorsed to name the City of Midland as an additional insured. Corporation shall provide City with a Certificate of Insurance evidencing the required coverage upon execution of this Agreement.

J. Corporation certifies that the certificate of insurance provided as required herein complies with the requirements of Chapter 1811 of the Texas Insurance Code. Corporation shall not use an unapproved certificate of insurance or insert inappropriate language on a certificate. Compliance with state law is the sole responsibility of Corporation.

VI. INDEPENDENT CONTRACTOR

It is expressly understood and agreed that Corporation shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the City; that Corporation shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents employees, contractors, and subcontractors; that the doctrine of respondent superior shall not apply as between City and Corporation, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and Corporation. No person performing any work hereunder shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Agreement is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Corporation shall be an independent contractor under this Agreement and shall assume all of the rights, obligations and liabilities applicable to it as such independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of Corporation's work. Corporation shall assume exclusive responsibility for the work. Corporation is entirely free to do the work in its own way.

VII. APPLICABLE LAWS, ORDINANCES

Corporation shall comply with all applicable laws, ordinances and codes of the United States, State of Texas and the City and shall require all contractors and subcontractors to comply with the same. Corporation hereby agrees as follows:

A. Corporation will comply with the policies, guidelines and requirements of 24 CFR Part 84 and 85 and OMB Circulars A-87 and A-122, as they relate to the application, acceptance and use of federal funds for this federally assisted program. Corporation will also comply with the Single Audit provisions of OMB Circular A-133 and make the all audits for fiscal years in which program funds are expended available to the City.

B. Corporation will comply with Title VI of the Civil Rights Act of 1964 (Public Law 88-352), which provides that no person in the United States shall on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity for which the applicant received federal financial assistance.

C. Corporation will comply with Section 109 of the Housing and Community Development Act of 1974, and the regulations issued pursuant thereto (24 CFR 570.602), which provides that no person in the United States shall, on the ground of race, color, national origin or sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity funded in whole or in part with Community Development Block Grant (CDBG) funds. Corporation will comply even if the program or activity is not funded wholly or partly with CDBG funds. Additionally, Corporation will comply with regulations at 24 CFR 570.613 concerning eligibility restrictions for certain resident aliens.

D. Corporation will comply with Title VIII of the Civil Rights Act of 1968 (Public Law 90-284), which provides that it is the policy of the United States to provide for fair housing throughout the United States. It prohibits particular discriminatory acts regarding housing if the discrimination is based on race, color, religion, sex, national origin, family status, or mental and physical disability.

E. Corporation will comply with Section 3 of the Housing and Urban Development Act of 1968 (12 USC 1701u), as amended, and the regulations issued pursuant thereto (24 CFR Part 135) which provides that to the greatest extent feasible opportunities for employment and other economic opportunities be directed to low and very low income City residents and to business concerns which provide economic opportunity to low and very low income persons.

F. Corporation will obtain and maintain documentation evidencing that program beneficiaries meet program income eligibility criteria, specifically as required by 24 CFR 570.208. Corporation shall further comply with the retention of records provisions of 24 CFR 570.502.

G. Corporation will insure that subcontractors for work or construction activity under this Agreement shall comply with the equal opportunity requirements of Executive Order 11246, as amended.

H. Corporation will insure that subcontractors for work or construction activity under this Agreement shall comply with 24 CFR Part 84 and 85and Section 110 of the Housing and Community Development Act of 1974 and the regulations issued pursuant thereto (24 CFR 570.603), which provide for adherence to certain labor standards.

I. No officer, employee or board member of Corporation shall have a financial interest, direct or indirect, in this Agreement or the monies transferred hereunder, or be financially interested, directly or indirectly in the sale to Corporation of any land, materials, supplies or services purchased with any funds transferred hereunder, except on behalf of Corporation as an officer, employee, member, or program participant. Corporation shall further comply with the conflict of interest provisions of 24 CFR 570.611 and 24 CFR Part 84 and Part 85.

J. Corporation will insure that funds will not be used to directly or indirectly employ, award contracts to or otherwise engage the services of or fund any subcontractor during any period of debarment, suspension, or placement in ineligibility status under the provisions of 24 CFR Part 24.

K. Corporation shall follow the provisions of 24 CFR Part 84 and Part 85 concerning standards for financial management systems.

L. Corporation will comply with the property management and disposition requirements of 24 CFR Part 84 and 85 including copyright provisions therein.

M. Corporation certifies that:

No Federal appropriated funds have been paid or will be paid, by or on behalf of Corporation, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

If any funds other than Federal appropriated funds have been paid or will be paid to any persons for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, Corporation shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.

N. Corporation shall comply with and shall ensure that its subcontractors comply with the provisions of the Drug-Free Workplace Act, 41 U.S.C, 701, et seq.

O. Corporation shall follow the provisions of 24 CFR 570.614 Architectural Barriers Act and the Americans with Disabilities Act.

P. Corporation shall make available to the City, as determined by the City information and/or data which document compliance, in all phases of its work, with the above paragraphs A through O. Corporation shall fully cooperate with City when City monitors the services and work performed under this Agreement, which the City may do at any time during the term of this Agreement. Corporation shall maintain accounts and records adequate to identify and account for all cost pertaining to the Agreement. Records are to be retained in accordance with 24 CFR Part 84 and Part 85.

VIII. PROGRAM INCOME

It is agreed and understood that except in the disposition of program acquired assets that there will be no program income generated as a result of this Agreement which requires compliance with 24 CFR 570.504.

IX. TRANSFER OF ASSETS

Corporation shall upon termination or expiration of this Agreement transfer to the City all program funds and all loans and accounts receivable attributable to the use of program funds that Corporation has on hand at the time of termination. If Corporation ceases to use any asset acquired with program funds for the purposes described in this Agreement, Corporation shall either pay to the City the fair market value of the asset or transfer control of the asset to the City.

X. RECOGNITION OF FUNDING

Corporation shall provide recognition of program funding in its procurement announcements. Corporation shall post, in a publicly visible location where program assisted activity is provided, an acknowledgment that the City of Midland Community Development Block Grant Program is contributing to the project. The City's Community Development Office will determine if posting is adequate given the scale of the program assisted activity.

XI. PROJECT REPORTS

Monthly status reports are to be prepared by Corporation and submitted in a timely fashion to the City. A final performance report shall be prepared and submitted promptly after project completion. An inventory of program acquired assets shall be submitted to the City, in a form suitable to the City, on an annual basis and at the end of the Agreement.

XII. TERM OF AGREEMENT

The term of this Agreement shall begin November 4, 2020, and end September 30, 2021, unless an extension of time is granted by the City Council.

XIII. RELEASE

CORPORATION HEREBY RELEASES, RELINQUISHES, ACQUITS AND FOREVER DISCHARGES CITY, CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH COMPANY HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKINGS CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS, OR CITY'S NEGLIGENCE.

XIV. ATTORNEY FEES

BY EXECUTING THIS AGREEMENT, CORPORATION AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT. CORPORATION SPECIFICALLY AGREES THAT IF CORPORATION BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, CORPORATION AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH CORPORATION MIGHT OTHERWISE BE ENTITLED.

CORPORATION AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. CORPORATION ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. CORPORATION FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY

AND CORPORATION. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

CORPORATION AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

XV. DEFAULT PROVISION

In the event that either Corporation or the City fails to perform or is unable to perform substantially its obligations under the terms of this Agreement, the nondefaulting party shall notify the defaulting party in writing of such default. Within five (5) days after receipt of such notification, Corporation and City shall meet to discuss the default, the reasons thereof and the methods to cure default. If the defaulting party has not substantially cured the default within ten (10) days after receipt of such notification, or the City and Corporation have not agreed within such time upon a solution to the default, the nondefaulting party may, at its option, pursue any remedies at law or in equity.

In any event this Agreement may be terminated by the mutual consent of Corporation and City in writing.

XVI. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES

As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Agreement, Corporation or its legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one hundred and fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Corporation will settle, the physical and mailing addresses of Corporation at the time and date the claim was presented and the physical and mailing addresses of Corporation for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Corporation relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Corporation that its notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Corporation's failure to comply with the requirements herein shall perpetually bar Corporation's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. Corporation agrees that the requirements of this entire agreement are reasonable.

XVII. SOVEREIGN IMMUNITY

By executing this Agreement the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

XIII. THIRD-PARTY BENEFICIARY

The City's approval of this Agreement does not create a third party beneficiary. There is no third party beneficiary to this Agreement. No person or entity who is not a party to this Agreement shall have any third party beneficiary or other rights hereunder.

XIX. ASSIGNMENT

Corporation shall not, either directly or indirectly, assign all or any part of this agreement or any interest, right or privilege herein, without the prior written consent of the City. The issue on whether or not to grant consent to an assignment is in the sole discretion of the City.

XX. TERMINATION WITHOUT CAUSE

The City shall have the right, at its sole option, to terminate this Agreement at any time, with or without cause, by giving 90 days written notice to Corporation of City's election to so terminate.

XXI. VENUE AND GOVERNING LAW

This agreement shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this agreement or the performance of this agreement shall be in

Midland County, Texas. The obligations and undertakings of each of the parties to this agreement shall be deemed to have occurred in Midland County, Texas. This agreement shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this agreement, without regard to conflict of laws and rules that would direct application of the laws of another jurisdiction.

XXII. PROCUREMENT SUSPENSION AND DEBARMENT

The City has found that Corporation has not been suspended or debarred from performing work on Federal contracts.

XXIII. FEDERAL WAGE REQUIREMENTS

If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Agreement, and all terms and requirements under said laws, by such incorporation, are made terms and requirements of this Agreement, to which the parties to this Agreement have agreed to be bound.

XXIV. COMPLIANCE

Corporation agrees that it shall comply with Texas Government Code Section 2252.908, as amended. Corporation agrees that it shall comply with Texas Local Government Code Section 176.006, as amended.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement this the _____ day of _____, 2020.

CITY OF MIDLAND, TEXAS	THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS
By_____	By_____
Robert Patrick,	
Interim City Manger	Name_____
	Title_____

ATTEST:

_____
Amy M. Turner, City Secretary

THE STATE OF TEXAS §
§
COUNTY OF MIDLAND §

BEFORE ME, the undersigned authority, on this day personally appeared _____, an officer of THE YOUNG MENS CHRISTIAN ASSOCIATION OF MIDLAND, TEXAS known to me to be the person and official whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as the act and deed of said corporation, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____, 2020.

_____
Notary Public, State of Texas

SCOPE OF SERVICE- CITY OF MIDLAND EMERGENCY AID, RELIEF, AND ECONOMIC SECURITY FUND PROGRAM

The YMCA of Midland is requesting funds from the City of Midland to update and repair facility spaces in the youth services area. The consequences of the oil downturn and COIVD -19 resulted in substantial YMCA membership loss (appox.50%). YMCA membership support many mission driven programming offered at the center. In an effort to recruit, retain and recapture memberships the YMCA is looking to modernize the youth spaces.

The YMCA is the leading Childcare provider in Midland with over 600 children receiving service annually. In 2019/2020, the YMCA awarded $216,418 in program scholarships to 283 individuals and families. The YMCA knows that the ever-changing needs in our area will require solidarity and collaboration within the community to continue adapting and creating programs that will serve a noble purpose for Midlands's.

BUDGET:

$244,303

City Council Meeting

Item Number: 20

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Ron Jenkins, Oil and Gas Coordinator

Subject: RESOLUTION GRANTING A VARIANCE FOR AN OIL AND GAS WELL TO BE LOCATED IN SECTION 10, BLOCK 39, T-2-S, T&P RR CO. SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED 2,410 FEET WEST OF RANKIN HIGHWAY AND 515 FEET SOUTH OF WEST INTERSTATE 20) BY ALLOWING SAID OIL AND GAS WELL TO BE NO CLOSER THAN 265 FEET OF AN OCCUPIED COMMERCIAL STRUCTURE OR RESIDENCE; APPROVING THE ISSUANCE OF A PERMIT TO PERMIAN DEEP ROCK OIL CO., LLC ("OPERATOR") TO DRILL SAID OIL AND GAS WELL WITHIN THE CITY LIMITS; AND WAIVING THE REQUIREMENT OF A ROAD REPAIR AGREEMENT (DEVELOPMENT SERVICES)

Purpose:

Resolution approving the issuance of permits to Permian Deep Rock Oil Co., LLC for the drilling of the oil and gas well Charger #H120WB; said well being generally located 2,410 feet west of Rankin Highway and 515 feet south of West Interstate 20. The required 30-day public comment has passed, and the Council may consider this request. Currently no notices of objection received.

Recommended City Council Action:

Approve

Fiscal Impact:

There is no cost to the City to process this application.

Discussion:

The Oil and Gas Advisory Committee has reviewed the well site in detail and recommends

approval with the addition of one exhibit. This application is for a previously approved permit that has expired. A 16 ft. sound wall will be used during drilling and fracing operations being located on the south side of location. This well application was approved under a previous permit but has expired. The operator has a surface agreement with the surface owner. Receiving support of the Oil & Gas Advisory Committee, Permian Deep Rock Oil is requesting the following variances:

(1) Permian Deep Rock Oil Company requests variance to residence or commercial structure within 265 feet.
(2) Permian Deep Rock Oil Company requests a variance to the requirement of landscaping and irrigation since city water is not available.
(3) Permian Deep Rock Oil Company requests variance for fence of the drill pad instead of individual well.
(4) Permian Deep Rock Oil Company requests variance to the Road Repair Agreement due to no city streets will be used.
(5) Permian Deep Rock Oil Company requests to allow for twenty-four-hour fracing operations.

Attachments: Applications; Location maps; Exhibit - Drill site maps; Exhibit – Flow Line Location.

Robert Patrick

City Manager's Office

RESOLUTION NO. _____

RESOLUTION GRANTING A VARIANCE FOR AN OIL AND GAS WELL TO BE LOCATED IN SECTION 10, BLOCK 39, T-2-S, T&P RR CO. SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED 2,410 FEET WEST OF RANKIN HIGHWAY AND 515 FEET SOUTH OF WEST INTERSTATE 20) BY ALLOWING SAID OIL AND GAS WELL TO BE NO CLOSER THAN 265 FEET OF AN OCCUPIED COMMERCIAL STRUCTURE OR RESIDENCE; APPROVING THE ISSUANCE OF A PERMIT TO PERMIAN DEEP ROCK OIL CO., LLC ("OPERATOR") TO DRILL SAID OIL AND GAS WELL WITHIN THE CITY LIMITS; AND WAIVING THE REQUIREMENT OF A ROAD REPAIR AGREEMENT

WHEREAS, on December 8, 2009, the City Council of the City of Midland duly approved Ordinance No. 8769 which amended Title VI, "Police Regulations,"Chapter 1, "General Offenses," of the City Code of Midland, Texas, so as to establish Section 23, "Oil and Gas Well Permits issued on or after January 1, 2010," which governs the granting or rejecting of Oil and Gas Well Permits; and

WHEREAS, the purpose of said section is to establish reasonable and uniform limitations, safeguards, and regulations for present and future operations related to the exploring, drilling, developing, producing, transporting and storing of oil or gas or other substances produced in association with oil and gas within the City of Midland to protect the health, safety, and general welfare of the public and the orderly development of the City of Midland; abate or prevent potential public nuisances; minimize the potential adverse impact to surface and mineral owners, protect the quality of the environment and encourage the orderly production of available mineral resources; and

WHEREAS, Section 6-1-23(C) of the City Code of Midland, Texas, makes it an offense to knowingly drill or participate in the drilling of any well or to re-enter any well within the corporate limits of the City of Midland without a permit having first been issued by the authority of the City Council; and

WHEREAS, Operator has submitted an application to the City of Midland to drill an

oil and gas well on the property described in Section Two hereof; and

WHEREAS, pursuant to Section 6-1-23(H)(2)(a) of the City Code of Midland, Texas, Operator has requested a variance in order to allow said oil and gas well to be no closer than 265 feet of an occupied commercial structure or residence; and

WHEREAS, notice of the public hearing on this matter was provided in accordance with Section 6-1-23(H)(1) and a public hearing was held on November 3, 2020; and

WHEREAS, subsequent to said public hearing, and in accordance with Section 6-1-23(H)(1), the City Council allowed the public and Operator thirty (30) days to submit written input to the City Manager regarding Operator's application to drill an oil and gas well on the property described in Section Two hereof; and

WHEREAS, the City Council has considered those issues set forth in Section 6-1-23(I) in determining whether to grant or deny a permit to Operator to drill an oil and gas well on the property described in Section Two hereof; and

WHEREAS, the City Council finds and determines that granting a permit to Operator to drill an oil and gas well on the property described in Section Two hereof will not present a health or safety risk; and

WHEREAS, the City Council finds it to be in the public interest to approve the issuance of a permit to Operator to drill an oil and gas well on the property described in Section Two hereof;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the above recitals are hereby adopted and approved by the City Council of the City of Midland, and a variance is hereby granted for an oil and gas well to be located on the property described in Section Two hereof by allowing said oil and gas well to be no closer than 265 feet of an occupied commercial structure or residence.

SECTION TWO. That the Mayor is hereby authorized and directed to execute a

permit, on behalf of the City of Midland, that will allow Operator to drill the following oil and gas well:

Charger #H120WB;

located in Section 10, Block 39, T-2-S, T&P RR Co. Survey, City and County of Midland, Texas. Said permit is attached hereto as Exhibit "A" and incorporated herein for all legal purposes.

SECTION THREE. That the requirement of a Road Repair Agreement between Operator and the City of Midland is hereby waived in regard to said permit.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

OIL AND GAS WELL PERMIT

The City Council of the City of Midland, Texas, at its regular meeting on May 26, 2020, considered the application of Permian Deep Rock Oil Co., LLC ("Operator") dated February 3, 2020 to drill an oil and gas well inside the territorial limits of the City of Midland, Texas. The City Council of the City of Midland, Texas, by appropriate action approved the application and authorized the issuance of this permit.

This documentation hereby constitutes a permit, issued in accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), to drill an oil and gas well as requested in Operator's application that has been filed with the Oil & Gas Compliance Coordinator and is incorporated herein for all legal purposes.

The location of Operator's Charger #H120WB oil and gas well shall be 240 feet from the north line and 2,410 feet from the east line, Section 10, Block 39, T-2-S, T&P RR Co. Survey, Midland County, Texas. The hole size, casing program, cement program and total depth of that well shall be in strict compliance with the proposed hole size, casing program, cementing program and proposed total depth found in Operator's application. Further, all operations done under this permit shall be done and accomplished in strict accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), which is hereby incorporated into this permit by reference and made applicable hereto with the same force and effect as if the same were copied fully in this permit, including, but not limited to, Subsections (K) through (Z).

This permit shall be effective from December 15, 2020 through December 15, 2021, and so long thereafter as oil or gas is produced, or until Operator has permanently abandoned the operations of the well or facility for which this permit is issued.

The issuance of this permit by the City of Midland does not in any way alter or modify the rights as between the surface estate owner(s) and mineral estate owner(s) if there exists a severance of the surface estate and mineral estate. This permit in no way exempts Operator from its responsibilities or obligations as to third parties. The issuance of this permit only means that Operator has, at this time, complied with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance No. 8769) and that the Midland City Council, as a regulatory body, will allow Operator to proceed under the conditions of this permit. The issuance of this permit is intended to be only a negative pronouncement that grants no affirmative rights to the permittee to occupy the property. It is expressly provided

that this permit does not authorize a trespass by the permittee as to any third party. This permit does not in any way restrict the use of the surface estate. Securing a permit does not authorize Operator to act with impunity as to third parties, nor does it insulate Operator from the consequences of its actions with regard to those third parties. The receipt of a permit does not undertake to adjudicate property rights.

This permit granted by the City of Midland does not act to immunize Operator from civil tort liability from private parties for actions arising out of the use of the permit. This is because the permit is a "negative pronouncement" that grants no affirmative rights to the permittee. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of State or local law or regulations. Operator has obtained a permit from the City of Midland but the consequences of acting under the permit have not been immunized. The fact that the City of Midland has issued a permit to drill an oil and gas well does not shield Operator from third party tort liability stemming from the consequences of the permitted activity.

NOTWITHSTANDING ANY OTHER PROVISION, OPERATOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY OF MIDLAND, CITY OF MIDLAND'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH OPERATOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR CITY OF MIDLAND'S NEGLIGENCE.

OPERATOR AGREES TO INDEMNIFY AND HOLD HARMLESS AND DEFEND THE CITY OF MIDLAND, THE CITY'S OFFICERS, AGENTS, AND EMPLOYEES FROM ANY AND ALL CLAIMS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, AND LIABILITY OF ANY KIND, INCLUDING ALL EXPENSES OF LITIGATION, COURT COSTS, AND ATTORNEY'S FEES, FOR INJURY TO OR DEATH OF ANY PERSON, OR FOR DAMAGE TO ANY PROPERTY ARISING OUT OF OR IN CONNECTION WITH THE WORK DONE BY OPERATOR UNDER AN OIL AND GAS WELL PERMIT WHERE SUCH INJURIES, DEATH, OR DAMAGES ARE CAUSED BY OPERATOR'S SOLE NEGLIGENCE OR THE JOINT NEGLIGENCE OF THE OPERATOR AND ANY OTHER PERSON OR ENTITY.

A right-of-way license agreement approved by a resolution of the Midland City Council is required for any oil and/or gas flowline or pipeline or any other device associated with a proposed well site that extends into, on, above, in, under, across or through any City rights-of-way, including but not limited to streets, alleys, and utility and drainage rights-of-way.

If the well that is the subject of this permit is not located within the County of Midland, Texas, Operator shall notify the Midland Central Appraisal District of the following: (1) the well's location within the territorial limits of the City of Midland; and (2) that the City of Midland is to be included as a taxing entity. Operator shall make said notification no later than 60 days after completion of the well.

The Midland City Council, in granting this permit, also grants the following variance(s):

1. Well shall be no closer than 265 feet of an occupied residential and commercial structure.
2. No landscaping and irrigation required because city water is not available.
3. A perimeter fence around the entire well site instead of a fence around each individual well.
4. No road repair agreement required because no City streets will be used to access the well site.
5. Twenty-four-hour hydraulic fracturing operations allowed including the use of necessary lighting.

Sound walls shall be used during drilling and completion operations as noted in the application.

This permit shall constitute a written contract for purposes of insurance requirements.

In addition to the requirements of this permit and the Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), including, but not limited to Subsections (K) through (Z), Operator shall develop, maintain and operate the well described herein in accordance with the conditions, limitations and safeguards contained in Operator's application for said well.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS _____ day of December 2020.

CITY OF MIDLAND, TEXAS

BY: _____

Patrick N. Payton, Mayor

UNDERSTOOD AND AGREE THIS _____day of December 2020.

Permian Deep Rock Oil Co., LLC

BY: _____

Keith E. Bucy

General Manager

MIDLAND Planning Division

APPLICATION FOR OIL AND GAS PERMIT

(Pursuant to Midland City Ordinance No. 8769)

I. General Information

Date	Operator Name (must match W-1)	Operator Address
09/01/2020	Permian Deep Rock Oil Co., LLC	P.O. Box 11405 Midland, TX 79702
Representative Name	**Representative Address (within Midland City Limits)**	**Rep. Tele.** 432-682-6685
Keith E. Bucy	500 W. Wall St. Ste 300 Midland, TX 79701	**Rep. Fax** 432-684-4519
Fee: $4,000.00 Rec'd Yes ✓ **No** ___	**NOTE: All attachments need to bound and put in a binder before submitting.**	**Pages 1-4**

Permit Compliance Contact (Choose 1):

Option A:

24/7 Answering Services - No. 1 (Tele.): **No. 2 (Tele.):**

Option B:

Company Compliance Representative (Name, Address, Local Telephone) ***(ATTACH STATEMENT AS EXHIBIT A):*** See Exhibit "A"

Emergency Contact Representative (Name, Address, 24-Hour Tele. No.):

See Exhibit "A"

Other Permitted Wells in City ***(ATTACH EXHIBIT B*** **[see § J(26)]).** See Exhibit "B"

II. Mineral Ownership

Name(s) and Address(es) of Mineral Estate Lessors (under applicable lease):

1.

2.

3.

ATTACHED AS EXHIBIT C **is** List of subdivisions within Charger Unit

See Exhibit "C"

III. Surface Ownership & Use

General Description of Current Surface Use (within 860 feet of proposed surface location):
Surface use: Undeveloped Rangeland, service company yards and apartment complex
Surface ownership: Two residences, apartment complex and service company yards:

See Exhibit "D"

ATTACHED AS EXHIBIT D **is**

Current Tax Roll from Midland Central Appraisal District), **which lists the name(s) and address(es) of all surface owners within 860 feet of the surface well location. [See § J(7)].**

ATTACHED AS EXHIBIT E **is a** ***(map/p lat/satellite/aerial photo)*** **depicting all Residences, commercial structures, public buildings, all publicly dedicated Streets and alleys, Rights of Way, and permanent accessory structures surrounding the proposed Drill Site. The** ***(map/p lat/satellite/aerial photo)*** **includes two circles, as required by the Ordinance—one depicting a 500 foot radius and one depicting an 860 foot radius from the proposed well's surface location. [See § J(10)].**

ATTACHED AS EXHIBIT F **is a copy of the notification letter(s) sent to 100 percent of the surface owners, Certified Mail, Return Receipt Requested. [See § J(36)].**

IV. Well & Operations Information

Proposed Well Name: Charger #H120WB Original city permit expires 09/26/2020

Proposed Hole Size, Casing Program and Cementing Program (attach Exhibit as Necessary)[See § J(11) and § L(4)]:

See Exhibit "G"

Legal Description of Proposed Well Site: SHL: 240' FNL & 2410' FEL, Section 10
Block 39, T-2-S, T&PRR Co. Survey, Midland County, Texas

ATTACHED AS EXHIBIT G **is the Location Site Plan [See § J(9)].**

ATTACHED AS EXHIBIT H **is the Map with the proposed transportation route(s) and road(s) for equipment, chemicals, or refuse products used or produced in the proposed oil and gas operations. [See § J(12)].**

ATTACHED AS EXHIBIT I **is a copy of the approved Texas Railroad Commission permit to drill (Form W-1), together with all attachments** ***(also file copy of W-1 with City Secretary before commencement of drilling operations).*** **[See § J(16) and (20)].**

ATTACHED AS EXHIBIT J **is a copy of the required TCEQ report as to depth of usable quality ground water. [See § J(17)].**

ATTACHED AS EXHIBIT K (if applicable) **is the list of alternative locations developed in consultation with the Oil & Gas Advisory Committee. [See § J(27)].**

ATTACHED AS EXHIBIT L **is the Fencing and Irrigation Plan. [See § J(30)].**

ATTACHED AS EXHIBIT M: **No city roads will be used**

ATTACHED AS EXHIBIT N **is the Concept Plan depicting the proposed Operations Site (which includes tanks, roads, power lines, and pipeline routes). [See § J(32)].**

Description of Public Utilities required during (1) drilling and (2) operations:

(1) Drilling: None

(2) Operations: Oncor

Description of water source to be used during Drilling: Water is to be piped in from our water wells, drill additional water wells or truck fresh water in. All brine water will be trucked in.

Description of all electric lines to production facilities (reference exhibits as necessary) [See § L(10)]:

See Exhibit "N"

Plan detailing construction, location, and closure of pits used for Drilling and Completion operations (attach exhibit if necessary) [See § J(35)]: Trench and encapsulate per TXRRC Rule 27(c)(10)(v)

See Exhibit "O"

V. Additional Required Exhibits

ATTACHED AS EXHIBIT P **is the** *Letter of Credit/Certificate of Deposit* **in accordance with Subsection (K)(2). [See § J(18)].**

ATTACHED AS EXHIBIT Q **: Tax certificates from Midland Central Appraisal District to be submitted indicating that all taxes on personal and real property, including minerals, owned by applicant are current. (See § J(29)**

ATTACHED AS EXHIBIT R **is the required Insurance Certificate. [See § J(19) and § K(3)].**

ATTACHED AS EXHIBIT S (if applicable) **is the Drainage Plan relating to Applicant's proposed operations. [See § J(21)].**

ATTACHED AS EXHIBIT T **is Applicant's Emergency Action Response Plan. [See § J(22)].**

ATTACHED AS EXHIBIT U **is Applicant's Hazardous Materials Management Plan, a copy of which has been submitted and is on file with the Midland Fire Department. [See § J(23)].**

Attached as Exhibit V: Applicants variances

Permian Deep Rock Oil Company LLC
[NAME OF COMPANY]

By _____
Its General Manager

State of Texas)

County of Midland)

Keith E Bury, personally appeared before me, and being first duly sworn declared he/she signed the application in the capacity designated, if any, and further states that he/she has read the above application and attached exhibits and the statements therein are true and correct to the best of their knowledge.

_____
Notary Public, State of Texas

CHRISTOPHER HALL
Notary Public, State of Texas
Comm. Expires 08-11-2019
Notary ID 128701314

[S E A L]

SCALE: 1" = 300'

0' 150' 300'

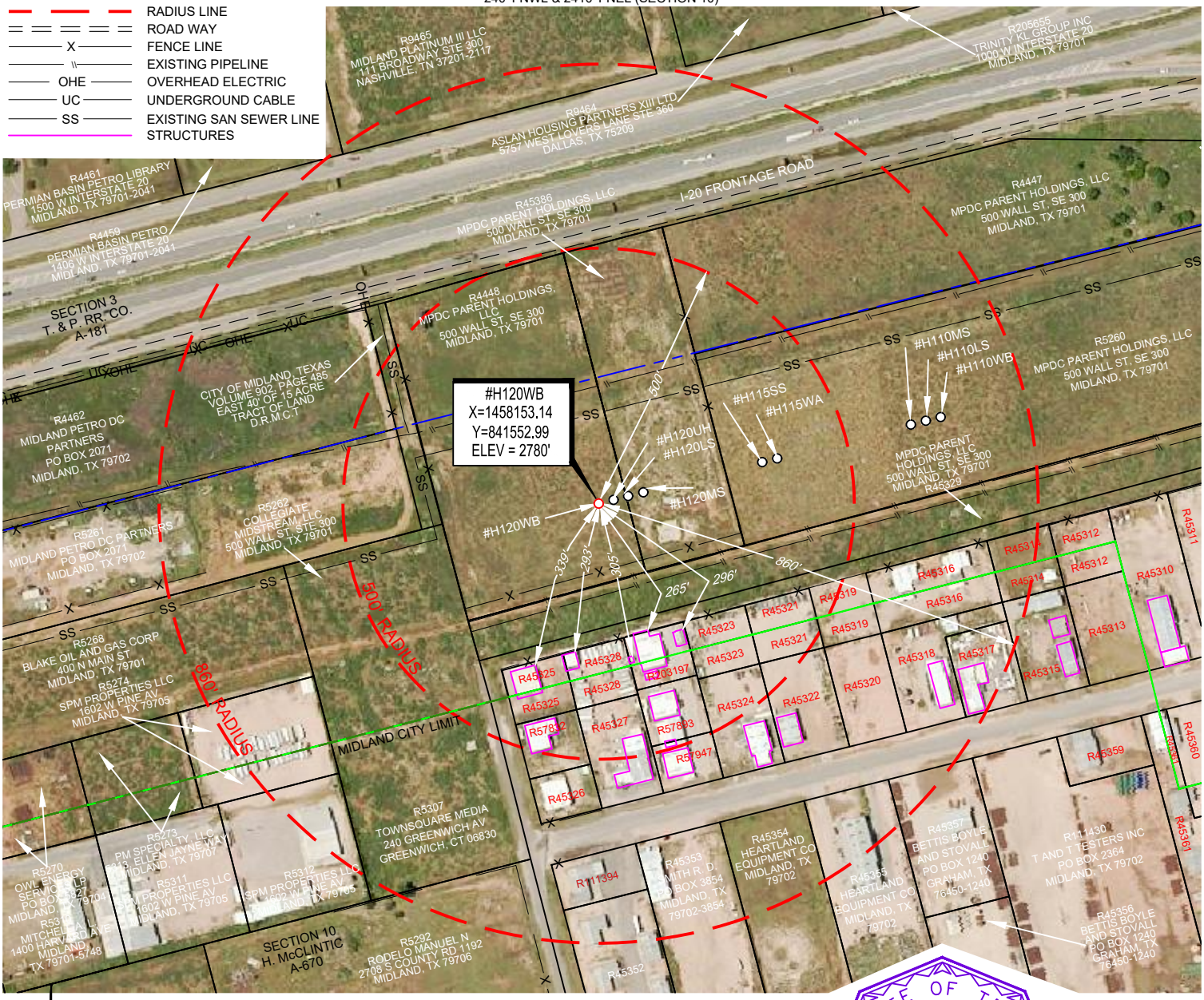
SECTION 10, T. & P. RR. CO. SURVEY, A-670
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

SHOWING STRUCTURES WITHIN 500' RADIUS
AND PROPERTY OWNERS WITHIN 860' RADIUS
FOR PROPOSED **CHARGER #H120WB**
240' FNWL & 2410' FNEL (SECTION 10)

PERMIAN DEEP ROCK OIL CO., L.L.C.

LEGEND

- SURVEY/SECTION LINE
- RADIUS LINE
- ROAD WAY
- X — FENCE LINE
- EXISTING PIPELINE
- OHE — OVERHEAD ELECTRIC
- UC — UNDERGROUND CABLE
- SS — EXISTING SAN SEWER LINE
- STRUCTURES



N

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
TEXAS FIRM REGISTRATION NO. 10042504
WWW.TOPOGRAPHIC.COM

STATE OF TEXAS
REGISTERED
JEFFREY N. LUEDERS
6512
PROFESSIONAL
LAND SURVEYOR

Jeffrey N. Lueders, R.P.L.S. No. 6512
MARCH 29, 2018

CHARGER #H120WB	REVISION:	
	DRH	08/12/2020
	DRH	08/28/2020
DATE: 11/09/2018		
FILE: CD_CHARGER_A_H120WB_REV2		
DRAWN BY: PAC		
SHEET : 1 OF 4		

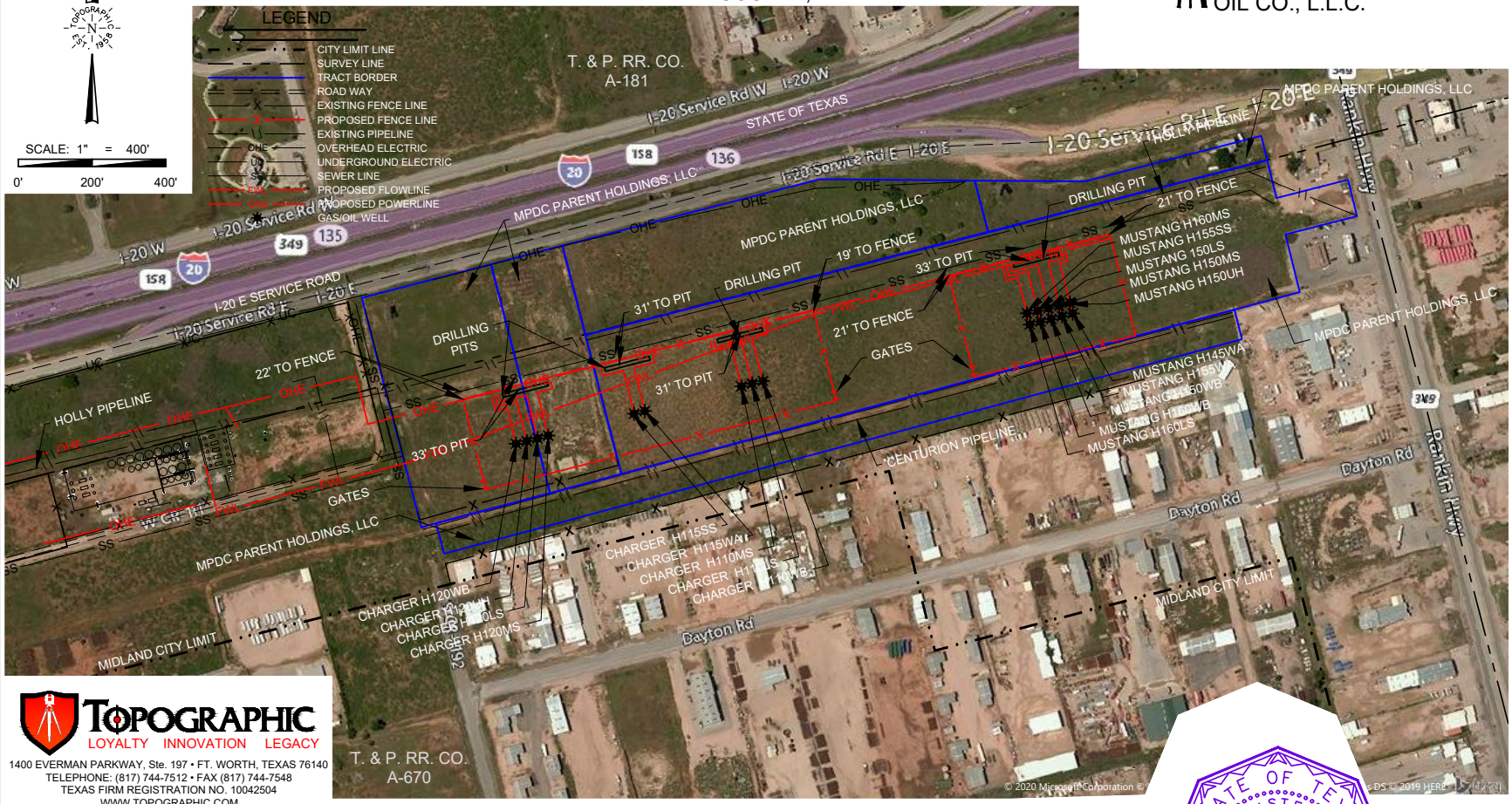
NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1927.
3. THIS PROPOSED LOCATION HAS BEEN CAREFULLY SURVEYED ON THE GROUND UNDER MY SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE ACCORDING TO THE EVIDENCE, OFFICIAL SURVEY RECORDS, MAPS, AND OTHER DATA PROVIDED PERMIAN DEEP ROCK OIL CO., LLC. THIS PLAT WAS CREATED FOR THE SOLE PURPOSE OF FILING A PERMIT WITH THE CITY OF MIDLAND, MIDLAND COUNTY, TEXAS AND SHOULD NOT BE CONSTRUED AS A "BOUNDARY SURVEY" IN COMPLIANCE WITH T.B.P.L.S. MINIMUM STANDARDS OF PROCEDURES FOR BOUNDARY SURVEYS. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE.
4. OWNERSHIP INFORMATION SHOWN HEREON WAS TAKEN FROM THE CITY OF MIDLAND, TEXAS GIS SITE.
5. DISTANCES SHOWN HEREON TO EXISTING STRUCTURES ARE SCALED PER AERIAL MAP.

PACKET
20-31064
December 15, 2020

EXHIBIT "G"

SECTION 3, BLOCK 39, T2S, T. & P. RR. CO. SURVEY, A-181 &
SECTION 10, BLOCK 39, T2S, H. MCCLINTIC SURVEY, A-670
MIDLAND COUNTY, TEXAS

PERMIAN DEEP ROCK OIL CO., L.L.C.



TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 197 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
TEXAS FIRM REGISTRATION NO. 10042504
WWW.TOPOGRAPHIC.COM

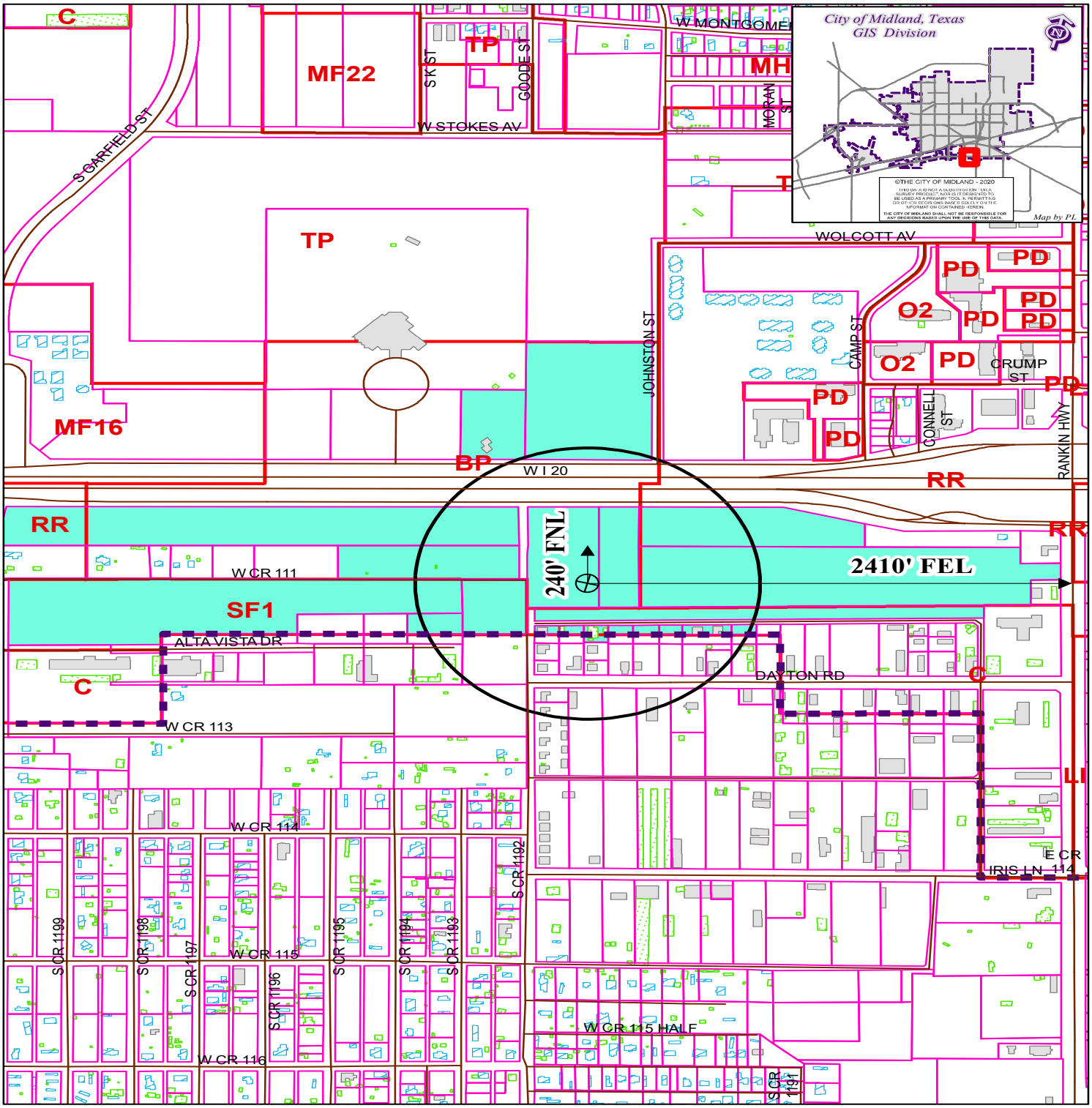
CHARGER UNIT CITY PERMIT		REVISION:	
		MJM	11/26/18
		JRH	11/07/19
		DRH	11/13/19
DATE:	03/28/2018	DRH	11/14/19
FILE:	SK_MUSTANG_UNIT_A_CHARGER_UNIT_A_PERMIT_REV10	DRH	12/13/19
DRAWN BY:	GJU	DRH	08/12/20
SHEET :	3 OF 12	DRH	08/26/20

NOTES:
1. ORIGINAL DOCUMENT SIZE: 11" X 8.5"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1927.
3. CERTIFICATION IS MADE ONLY FOR PROPOSED UTILITIES AND SITES, IN RELATION TO THE EVIDENCE FOUND DURING A FIELD SURVEY, MADE ON THE GROUND, UNDER MY SUPERVISION, AND USING DOCUMENTATION PROVIDED BY PERMIAN DEEP ROCK OIL CO., L.L.C. ONLY UTILITIES/EASEMENTS THAT WERE VISIBLE ON THE DATE OF THIS SURVEY, WITHIN/ADJOINING THIS EASEMENT, HAVE BEEN LOCATED AS SHOWN HEREON OF WHICH I HAVE KNOWLEDGE. THIS CERTIFICATION IS LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE, AND MADE FOR THIS TRANSACTION ONLY.
4. ALL PROPOSED INFRASTRUCTURE SHOWN HEREON IS SOLELY FOR THE PURPOSE OF APPLYING FOR A PERMIT WITH THE CITY OF MIDLAND, TEXAS. THIS IS EXHIBIT IS NOT TO BE CONSTRUED AS A "BOUNDARY SURVEY" IN COMPLIANCE WITH THE T.B.P.L.S. MINIMUM STANDARDS OF PROCEDURES FOR BOUNDARY SURVEYS. THESE ARE FOR PLANNING PURPOSES ONLY.
5. ADJOINER INFORMATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
6. D.R.M.C.T. = DEED RECORDS MIDLAND COUNTY, TEXAS
7. C.C.O.R.M.C.T. = C. C. OFFICIAL RECORDS MIDLAND COUNTY, TEXAS

STATE OF TEXAS
REGISTERED
JEFFREY N. LUEDERS
6512
PROFESSIONAL LAND SURVEYOR

JEFFREY N LUEDERS, R.P.L.S. No. 6512
SURVEYED ON THE GROUND: OCTOBER 7, 2016

S:\SURVEY\ARRINGTON\MUSTANG_UNIT\FINAL_PRODUCTS\SKETCH\SK_MUSTANG_UNIT_A_CHARGER_UNIT_A_PERMIT_REV10.DWG 8/26/2020 8:30:11 AM dharris



LOCATION AND ZONING MAP

Oil - 028208 - 2020 **Scale: 1" = 700'**

Consider a request for a Permit to drill an Oil and Gas Well within the City Limits located 240' FNL and 2,410' FEL, Section 10, Block 39, T-2-S, T&P RR CO Survey, Midland County, Texas.

Generally located 2,410 feet west of Rankin Highway and 515 feet south of West Interstate 20.

Charger #H120WB

LEGEND

CITY PARCELS	PUBLIC BLDGS	CITY LIMITS
COUNTY PARCELS	PRIVATE BLDGS	860 FT. BUFFER
ZONING	ACCESSORY BLDGS	SURVEY SEC.

ZONING DISTRICTS:

FD	FUTURE DEVELOPMENT	BP	BUSINESS PARK
PD	PLANNED DISTRICT	P	PARKING
AE	AGRICULTURE ESTATE	01, O2	OFFICE
CE	COUNTRY ESTATE	NS	NEIGHBORHOOD SERVICE
SF1, SF2, SF3	ONE-FAMILY DWELLING	CR	COMMUNITY RETAIL
MH	MOBILE HOME DWELLING	C1, C2, C3	COMMERCIAL
TH	TOWNHOUSE DWELLING	IP ,IP1, IP2, IP3	INDUSTRIAL PARK
2F	TWO-FAMILY DWELLING	LI	LIGHT INDUSTRY
MF1, MF2	MULTIPLE FAMILY DWELLING	HI	HEAVY INDUSTRY

OIL AND GAS WELL PERMIT

The City Council of the City of Midland, Texas, at its regular meeting on May 26, 2020, considered the application of Permian Deep Rock Oil Co., LLC ("Operator") dated February 3, 2020 to drill an oil and gas well inside the territorial limits of the City of Midland, Texas. The City Council of the City of Midland, Texas, by appropriate action approved the application and authorized the issuance of this permit.

This documentation hereby constitutes a permit, issued in accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), to drill an oil and gas well as requested in Operator's application that has been filed with the Oil & Gas Compliance Coordinator and is incorporated herein for all legal purposes.

The location of Operator's Charger #H120WB oil and gas well shall be 240 feet from the north line and 2,410 feet from the east line, Section 10, Block 39, T-2-S, T&P RR Co. Survey, Midland County, Texas. The hole size, casing program, cement program and total depth of that well shall be in strict compliance with the proposed hole size, casing program, cementing program and proposed total depth found in Operator's application. Further, all operations done under this permit shall be done and accomplished in strict accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), which is hereby incorporated into this permit by reference and made applicable hereto with the same force and effect as if the same were copied fully in this permit, including, but not limited to, Subsections (K) through (Z).

This permit shall be effective from December 15, 2020 through December 15, 2021, and so long thereafter as oil or gas is produced, or until Operator has permanently abandoned the operations of the well or facility for which this permit is issued.

The issuance of this permit by the City of Midland does not in any way alter or modify the rights as between the surface estate owner(s) and mineral estate owner(s) if there exists a severance of the surface estate and mineral estate. This permit in no way exempts Operator from its responsibilities or obligations as to third parties. The issuance of this permit only means that Operator has, at this time, complied with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance No. 8769) and that the Midland City Council, as a regulatory body, will allow Operator to proceed under the conditions of this permit. The issuance of this permit is intended to be only a negative pronouncement that grants no affirmative rights to the permittee to occupy the property. It is expressly provided

that this permit does not authorize a trespass by the permittee as to any third party. This permit does not in any way restrict the use of the surface estate. Securing a permit does not authorize Operator to act with impunity as to third parties, nor does it insulate Operator from the consequences of its actions with regard to those third parties. The receipt of a permit does not undertake to adjudicate property rights.

This permit granted by the City of Midland does not act to immunize Operator from civil tort liability from private parties for actions arising out of the use of the permit. This is because the permit is a "negative pronouncement" that grants no affirmative rights to the permittee. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of State or local law or regulations. Operator has obtained a permit from the City of Midland but the consequences of acting under the permit have not been immunized. The fact that the City of Midland has issued a permit to drill an oil and gas well does not shield Operator from third party tort liability stemming from the consequences of the permitted activity.

NOTWITHSTANDING ANY OTHER PROVISION, OPERATOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY OF MIDLAND, CITY OF MIDLAND'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH OPERATOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR CITY OF MIDLAND'S NEGLIGENCE.

OPERATOR AGREES TO INDEMNIFY AND HOLD HARMLESS AND DEFEND THE CITY OF MIDLAND, THE CITY'S OFFICERS, AGENTS, AND EMPLOYEES FROM ANY AND ALL CLAIMS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, AND LIABILITY OF ANY KIND, INCLUDING ALL EXPENSES OF LITIGATION, COURT COSTS, AND ATTORNEY'S FEES, FOR INJURY TO OR DEATH OF ANY PERSON, OR FOR DAMAGE TO ANY PROPERTY ARISING OUT OF OR IN CONNECTION WITH THE WORK DONE BY OPERATOR UNDER AN OIL AND GAS WELL PERMIT WHERE SUCH INJURIES, DEATH, OR DAMAGES ARE CAUSED BY OPERATOR'S SOLE NEGLIGENCE OR THE JOINT NEGLIGENCE OF THE OPERATOR AND ANY OTHER PERSON OR ENTITY.

A right-of-way license agreement approved by a resolution of the Midland City Council is required for any oil and/or gas flowline or pipeline or any other device associated with a proposed well site that extends into, on, above, in, under, across or through any City rights-of-way, including but not limited to streets, alleys, and utility and drainage rights-of-way.

If the well that is the subject of this permit is not located within the County of Midland, Texas, Operator shall notify the Midland Central Appraisal District of the following: (1) the well's location within the territorial limits of the City of Midland; and (2) that the City of Midland is to be included as a taxing entity. Operator shall make said notification no later than 60 days after completion of the well.

The Midland City Council, in granting this permit, also grants the following variance(s):

1. Well shall be no closer than 265 feet of an occupied residential and commercial structure.
2. No landscaping and irrigation required because city water is not available.
3. A perimeter fence around the entire well site instead of a fence around each individual well.
4. No road repair agreement required because no City streets will be used to access the well site.
5. Twenty-four-hour hydraulic fracturing operations allowed including the use of necessary lighting.

Sound walls shall be used during drilling and completion operations as noted in the application.

This permit shall constitute a written contract for purposes of insurance requirements.

In addition to the requirements of this permit and the Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), including, but not limited to Subsections (K) through (Z), Operator shall develop, maintain and operate the well described herein in accordance with the conditions, limitations and safeguards contained in Operator's application for said well.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS _____ day of December 2020.

CITY OF MIDLAND, TEXAS

BY: _____

Patrick N. Payton, Mayor

UNDERSTOOD AND AGREE THIS _____day of December 2020.

Permian Deep Rock Oil Co., LLC

BY: _____

Keith E. Bucy

General Manager

City Council Meeting

Item Number: 21

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Ron Jenkins, Oil and Gas Coordinator

Subject: RESOLUTION APPROVING THE ISSUANCE OF PERMITS TO PERMIAN DEEP ROCK OIL CO., LLC ("OPERATOR") TO DRILL TWO OIL AND GAS WELLS LOCATED IN SECTION 3, BLOCK 39, T-2-S, T&P RR CO. SURVEY, CITY OF MIDLAND, MIDLAND COUNTY, TEXAS (GENERALLY LOCATED BETWEEN 2,043 AND 2,343 FEET EAST OF SOUTH GARFIELD STREET AND 320 FEET NORTH OF WEST COUNTY ROAD 111); AND WAIVING THE REQUIREMENT OF A ROAD REPAIR AGREEMENT (DEVELOPMENT SERVICES)

Purpose:

Resolution approving the issuance of permits to Permian Deep Rock Oil Co., LLC for the drilling of the following oil and gas wells: Charger #H130WB and Charger #H135WA; said wells being generally located between 2,043 and 2,343 feet east of South Garfield Street and 320 feet north of West County Road 111. The required 30-day public comment has passed, and the Council may consider this request. Currently no notices of objection received.

Recommended City Council Action:

Approve

Fiscal Impact:

There is no cost to the City to process this application.

Discussion:

The Oil and Gas Advisory Committee has reviewed the well sites in detail and recommends approval with the addition of one exhibit. This application is for a previously approved permit that has expired. A 16 ft. sound wall will be used during drilling and fracing operations being located on the north side of location. These well locations were approved under previous

permits but have expired. The operator has a surface agreement with the surface owner. Receiving support of the Oil & Gas Advisory Committee, Permian Deep Rock Oil is requesting the following variances:

(1) Permian Deep Rock Oil Company requests a variance to the requirement of landscaping and irrigation since city water is not available.
(2) Permian Deep Rock Oil Company requests variance for fence of the drill pad instead of individual well.
(3) Permian Deep Rock Oil Company requests variance to the Road Repair Agreement due to no city streets will be used.
(4) Permian Deep Rock Oil Company requests to allow for twenty-four-hour fracing operations.

Attachments: Applications; Location maps; Exhibit - Drill site maps, Exhibit – Flow Line Location.

Robert Patrick

City Manager's Office

RESOLUTION NO. _____

RESOLUTION APPROVING THE ISSUANCE OF PERMITS TO PERMIAN DEEP ROCK OIL CO., LLC ("OPERATOR") TO DRILL TWO OIL AND GAS WELLS LOCATED IN SECTION 3, BLOCK 39, T-2-S, T&P RR CO. SURVEY, CITY OF MIDLAND, MIDLAND COUNTY, TEXAS (GENERALLY LOCATED BETWEEN 2,043 AND 2,343 FEET EAST OF SOUTH GARFIELD STREET AND 320 FEET NORTH OF WEST COUNTY ROAD 111); AND WAIVING THE REQUIREMENT OF A ROAD REPAIR AGREEMENT

WHEREAS, on December 8, 2009, the City Council of the City of Midland duly approved Ordinance No. 8769 which amended Title VI, "Police Regulations," Chapter 1, "General Offenses," of the City Code of Midland, Texas, so as to establish Section 23, "Oil and Gas Well Permits issued on or after January 1, 2010," which governs the granting or rejecting of Oil and Gas Well Permits; and

WHEREAS, the purpose of said section is to establish reasonable and uniform limitations, safeguards, and regulations for present and future operations related to the exploring, drilling, developing, producing, transporting and storing of oil or gas or other substances produced in association with oil and gas within the City of Midland to protect the health, safety, and general welfare of the public and the orderly development of the City of Midland; abate or prevent potential public nuisances; minimize the potential adverse impact to surface and mineral owners, protect the quality of the environment and encourage the orderly production of available mineral resources; and

WHEREAS, Section 6-1-23(C) of the City Code of Midland, Texas, makes it an offense to knowingly drill or participate in the drilling of any well or to re-enter any well within the corporate limits of the City of Midland without a permit having first been issued by the authority of the City Council; and

WHEREAS, Operator has submitted applications to the City of Midland to drill oil and gas wells on the property described in Section Two hereof; and

WHEREAS, notice of the public hearing on this matter was provided in accordance

with Section 6-1-23(H)(1) and a public hearing was held on November 3, 2020; and

WHEREAS, subsequent to said public hearing, and in accordance with Section 6-1-23(H)(1), the City Council allowed the public and Operator thirty (30) days to submit written input to the City Manager regarding Operator's applications to drill oil and gas wells on the property described in Section Two hereof; and

WHEREAS, the City Council has considered those issues set forth in Section 6-1-23(I) in determining whether to grant or deny permits to Operator to drill oil and gas wells on the property described in Section Two hereof; and

WHEREAS, the City Council finds it to be in the public interest to approve the issuance of permits to Operator to drill oil and gas wells on the property described in Section Two hereof;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the above recitals are hereby adopted and approved by the City Council of the City of Midland.

SECTION TWO. That the Mayor is hereby authorized and directed to execute permits, on behalf of the City of Midland, that will allow Operator to drill the following oil and gas wells:

Charger #H130WB; and Charger #H135WA;

located in Section 3, Block 39, T-2-S, T&P RR Co. Survey, City of Midland, Midland County, Texas. Said permits shall be in forms substantially similar to those attached hereto as Exhibits "A" and "B" and incorporated herein for all legal purposes.

SECTION THREE. That the requirement of a Road Repair Agreement between Operator and the City of Midland is hereby waived in regard to said permits.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the

City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

OIL AND GAS WELL PERMIT

The City Council of the City of Midland, Texas, at its regular meeting on May 26, 2020, considered the application of Permian Deep Rock Oil Co., LLC ("Operator") dated February 3, 2020 to drill an oil and gas well inside the territorial limits of the City of Midland, Texas. The City Council of the City of Midland, Texas, by appropriate action approved the application and authorized the issuance of this permit.

This documentation hereby constitutes a permit, issued in accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), to drill an oil and gas well as requested in Operator's application that has been filed with the Oil & Gas Compliance Coordinator and is incorporated herein for all legal purposes.

The location of Operator's Charger #H130WB oil and gas well shall be 108 feet from the south line and 2,280 feet from the west line, Section 3, Block 39, T-2-S, T&P RR Co. Survey, Midland County, Texas. The hole size, casing program, cement program and total depth of that well shall be in strict compliance with the proposed hole size, casing program, cementing program and proposed total depth found in Operator's application. Further, all operations done under this permit shall be done and accomplished in strict accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), which is hereby incorporated into this permit by reference and made applicable hereto with the same force and effect as if the same were copied fully in this permit, including, but not limited to, Subsections (K) through (Z).

This permit shall be effective from December 15, 2020 through December 15, 2021, and so long thereafter as oil or gas is produced, or until Operator has permanently abandoned the operations of the well or facility for which this permit is issued.

The issuance of this permit by the City of Midland does not in any way alter or modify the rights as between the surface estate owner(s) and mineral estate owner(s) if there exists a severance of the surface estate and mineral estate. This permit in no way exempts Operator from its responsibilities or obligations as to third parties. The issuance of this permit only means that Operator has, at this time, complied with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance No. 8769) and that the Midland City Council, as a regulatory body, will allow Operator to proceed under the conditions of this permit. The issuance of this permit is intended to be only a negative pronouncement that grants no affirmative rights to the permittee to occupy the property. It is expressly provided

that this permit does not authorize a trespass by the permittee as to any third party. This permit does not in any way restrict the use of the surface estate. Securing a permit does not authorize Operator to act with impunity as to third parties, nor does it insulate Operator from the consequences of its actions with regard to those third parties. The receipt of a permit does not undertake to adjudicate property rights.

This permit granted by the City of Midland does not act to immunize Operator from civil tort liability from private parties for actions arising out of the use of the permit. This is because the permit is a "negative pronouncement" that grants no affirmative rights to the permittee. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of State or local law or regulations. Operator has obtained a permit from the City of Midland but the consequences of acting under the permit have not been immunized. The fact that the City of Midland has issued a permit to drill an oil and gas well does not shield Operator from third party tort liability stemming from the consequences of the permitted activity.

NOTWITHSTANDING ANY OTHER PROVISION, OPERATOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY OF MIDLAND, CITY OF MIDLAND'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH OPERATOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR CITY OF MIDLAND'S NEGLIGENCE.

OPERATOR AGREES TO INDEMNIFY AND HOLD HARMLESS AND DEFEND THE CITY OF MIDLAND, THE CITY'S OFFICERS, AGENTS, AND EMPLOYEES FROM ANY AND ALL CLAIMS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, AND LIABILITY OF ANY KIND, INCLUDING ALL EXPENSES OF LITIGATION, COURT COSTS, AND ATTORNEY'S FEES, FOR INJURY TO OR DEATH OF ANY PERSON, OR FOR DAMAGE TO ANY PROPERTY ARISING OUT OF OR IN CONNECTION WITH THE WORK DONE BY OPERATOR UNDER AN OIL AND GAS WELL PERMIT WHERE SUCH INJURIES, DEATH, OR DAMAGES ARE CAUSED BY OPERATOR'S SOLE NEGLIGENCE OR THE JOINT NEGLIGENCE OF THE OPERATOR AND ANY OTHER PERSON OR ENTITY.

A right-of-way license agreement approved by a resolution of the Midland City Council is required for any oil and/or gas flowline or pipeline or any other device associated with a proposed well site that extends into, on, above, in, under, across or through any City rights-of-way, including but not limited to streets, alleys, and utility and drainage rights-of-way.

If the well that is the subject of this permit is not located within the County of Midland, Texas, Operator shall notify the Midland Central Appraisal District of the following: (1) the well's location within the territorial limits of the City of Midland; and (2) that the City of Midland is to be included as a taxing entity. Operator shall make said notification no later than 60 days after completion of the well.

The Midland City Council, in granting this permit, also grants the following variance(s):

1. No landscaping and irrigation required because city water is not available.
2. A perimeter fence around the entire well site instead of a fence around each individual well.
3. No road repair agreement required because no City streets will be used to access the well site.
4. Twenty-four-hour hydraulic fracturing operations allowed including the use of necessary lighting.

Sound walls shall be used during drilling and completion operations as noted in the application.

This permit shall constitute a written contract for purposes of insurance requirements.

In addition to the requirements of this permit and the Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), including, but not limited to Subsections (K) through (Z), Operator shall develop, maintain and operate the well described herein in accordance with the conditions, limitations and safeguards contained in Operator's application for said well.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS _____ day of December 2020.

CITY OF MIDLAND, TEXAS

BY: _____

Patrick N. Payton, Mayor

UNDERSTOOD AND AGREE THIS _____day of December 2020.

Permian Deep Rock Oil Co., LLC

BY: _____

Keith E. Bucy

General Manager

OIL AND GAS WELL PERMIT

The City Council of the City of Midland, Texas, at its regular meeting on May 26, 2020, considered the application of Permian Deep Rock Oil Co., LLC ("Operator") dated February 3, 2020 to drill an oil and gas well inside the territorial limits of the City of Midland, Texas. The City Council of the City of Midland, Texas, by appropriate action approved the application and authorized the issuance of this permit.

This documentation hereby constitutes a permit, issued in accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), to drill an oil and gas well as requested in Operator's application that has been filed with the Oil & Gas Compliance Coordinator and is incorporated herein for all legal purposes.

The location of Operator's Charger #H135WA oil and gas well shall be 108 feet from the south line and 1,980 feet from the west line, Section 3, Block 39, T-2-S, T&P RR Co. Survey, Midland County, Texas. The hole size, casing program, cement program and total depth of that well shall be in strict compliance with the proposed hole size, casing program, cementing program and proposed total depth found in Operator's application. Further, all operations done under this permit shall be done and accomplished in strict accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), which is hereby incorporated into this permit by reference and made applicable hereto with the same force and effect as if the same were copied fully in this permit, including, but not limited to, Subsections (K) through (Z).

This permit shall be effective from December 15, 2020 through December 15, 2021, and so long thereafter as oil or gas is produced, or until Operator has permanently abandoned the operations of the well or facility for which this permit is issued.

The issuance of this permit by the City of Midland does not in any way alter or modify the rights as between the surface estate owner(s) and mineral estate owner(s) if there exists a severance of the surface estate and mineral estate. This permit in no way exempts Operator from its responsibilities or obligations as to third parties. The issuance of this permit only means that Operator has, at this time, complied with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance No. 8769) and that the Midland City Council, as a regulatory body, will allow Operator to proceed under the conditions of this permit. The issuance of this permit is intended to be only a negative pronouncement that grants no affirmative rights to the permittee to occupy the property. It is expressly provided

that this permit does not authorize a trespass by the permittee as to any third party. This permit does not in any way restrict the use of the surface estate. Securing a permit does not authorize Operator to act with impunity as to third parties, nor does it insulate Operator from the consequences of its actions with regard to those third parties. The receipt of a permit does not undertake to adjudicate property rights.

This permit granted by the City of Midland does not act to immunize Operator from civil tort liability from private parties for actions arising out of the use of the permit. This is because the permit is a "negative pronouncement" that grants no affirmative rights to the permittee. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of State or local law or regulations. Operator has obtained a permit from the City of Midland but the consequences of acting under the permit have not been immunized. The fact that the City of Midland has issued a permit to drill an oil and gas well does not shield Operator from third party tort liability stemming from the consequences of the permitted activity.

NOTWITHSTANDING ANY OTHER PROVISION, OPERATOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY OF MIDLAND, CITY OF MIDLAND'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH OPERATOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR CITY OF MIDLAND'S NEGLIGENCE.

OPERATOR AGREES TO INDEMNIFY AND HOLD HARMLESS AND DEFEND THE CITY OF MIDLAND, THE CITY'S OFFICERS, AGENTS, AND EMPLOYEES FROM ANY AND ALL CLAIMS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, AND LIABILITY OF ANY KIND, INCLUDING ALL EXPENSES OF LITIGATION, COURT COSTS, AND ATTORNEY'S FEES, FOR INJURY TO OR DEATH OF ANY PERSON, OR FOR DAMAGE TO ANY PROPERTY ARISING OUT OF OR IN CONNECTION WITH THE WORK DONE BY OPERATOR UNDER AN OIL AND GAS WELL PERMIT WHERE SUCH INJURIES, DEATH, OR DAMAGES ARE CAUSED BY OPERATOR'S SOLE NEGLIGENCE OR THE JOINT NEGLIGENCE OF THE OPERATOR AND ANY OTHER PERSON OR ENTITY.

A right-of-way license agreement approved by a resolution of the Midland City Council is required for any oil and/or gas flowline or pipeline or any other device associated with a proposed well site that extends into, on, above, in, under, across or through any City rights-of-way, including but not limited to streets, alleys, and utility and drainage rights-of-way.

If the well that is the subject of this permit is not located within the County of Midland, Texas, Operator shall notify the Midland Central Appraisal District of the following: (1) the well's location within the territorial limits of the City of Midland; and (2) that the City of Midland is to be included as a taxing entity. Operator shall make said notification no later than 60 days after completion of the well.

The Midland City Council, in granting this permit, also grants the following variance(s):

1. No landscaping and irrigation required because city water is not available.
2. A perimeter fence around the entire well site instead of a fence around each individual well.
3. No road repair agreement required because no City streets will be used to access the well site.
4. Twenty-four-hour hydraulic fracturing operations allowed including the use of necessary lighting.

Sound walls shall be used during drilling and completion operations as noted in the application.

This permit shall constitute a written contract for purposes of insurance requirements.

In addition to the requirements of this permit and the Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), including, but not limited to Subsections (K) through (Z), Operator shall develop, maintain and operate the well described herein in accordance with the conditions, limitations and safeguards contained in Operator's application for said well.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS _____ day of December 2020.

CITY OF MIDLAND, TEXAS

BY: _____

Patrick N. Payton, Mayor

UNDERSTOOD AND AGREE THIS _____day of December 2020.

Permian Deep Rock Oil Co., LLC

BY: _____

Keith E. Bucy

General Manager

OIL AND GAS WELL PERMIT

The City Council of the City of Midland, Texas, at its regular meeting on May 26, 2020, considered the application of Permian Deep Rock Oil Co., LLC ("Operator") dated February 3, 2020 to drill an oil and gas well inside the territorial limits of the City of Midland, Texas. The City Council of the City of Midland, Texas, by appropriate action approved the application and authorized the issuance of this permit.

This documentation hereby constitutes a permit, issued in accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), to drill an oil and gas well as requested in Operator's application that has been filed with the Oil & Gas Compliance Coordinator and is incorporated herein for all legal purposes.

The location of Operator's Charger #H130WB oil and gas well shall be 108 feet from the south line and 2,280 feet from the west line, Section 3, Block 39, T-2-S, T&P RR Co. Survey, Midland County, Texas. The hole size, casing program, cement program and total depth of that well shall be in strict compliance with the proposed hole size, casing program, cementing program and proposed total depth found in Operator's application. Further, all operations done under this permit shall be done and accomplished in strict accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), which is hereby incorporated into this permit by reference and made applicable hereto with the same force and effect as if the same were copied fully in this permit, including, but not limited to, Subsections (K) through (Z).

This permit shall be effective from December 15, 2020 through December 15, 2021, and so long thereafter as oil or gas is produced, or until Operator has permanently abandoned the operations of the well or facility for which this permit is issued.

The issuance of this permit by the City of Midland does not in any way alter or modify the rights as between the surface estate owner(s) and mineral estate owner(s) if there exists a severance of the surface estate and mineral estate. This permit in no way exempts Operator from its responsibilities or obligations as to third parties. The issuance of this permit only means that Operator has, at this time, complied with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance No. 8769) and that the Midland City Council, as a regulatory body, will allow Operator to proceed under the conditions of this permit. The issuance of this permit is intended to be only a negative pronouncement that grants no affirmative rights to the permittee to occupy the property. It is expressly provided

that this permit does not authorize a trespass by the permittee as to any third party. This permit does not in any way restrict the use of the surface estate. Securing a permit does not authorize Operator to act with impunity as to third parties, nor does it insulate Operator from the consequences of its actions with regard to those third parties. The receipt of a permit does not undertake to adjudicate property rights.

This permit granted by the City of Midland does not act to immunize Operator from civil tort liability from private parties for actions arising out of the use of the permit. This is because the permit is a "negative pronouncement" that grants no affirmative rights to the permittee. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of State or local law or regulations. Operator has obtained a permit from the City of Midland but the consequences of acting under the permit have not been immunized. The fact that the City of Midland has issued a permit to drill an oil and gas well does not shield Operator from third party tort liability stemming from the consequences of the permitted activity.

NOTWITHSTANDING ANY OTHER PROVISION, OPERATOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY OF MIDLAND, CITY OF MIDLAND'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH OPERATOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR CITY OF MIDLAND'S NEGLIGENCE.

OPERATOR AGREES TO INDEMNIFY AND HOLD HARMLESS AND DEFEND THE CITY OF MIDLAND, THE CITY'S OFFICERS, AGENTS, AND EMPLOYEES FROM ANY AND ALL CLAIMS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, AND LIABILITY OF ANY KIND, INCLUDING ALL EXPENSES OF LITIGATION, COURT COSTS, AND ATTORNEY'S FEES, FOR INJURY TO OR DEATH OF ANY PERSON, OR FOR DAMAGE TO ANY PROPERTY ARISING OUT OF OR IN CONNECTION WITH THE WORK DONE BY OPERATOR UNDER AN OIL AND GAS WELL PERMIT WHERE SUCH INJURIES, DEATH, OR DAMAGES ARE CAUSED BY OPERATOR'S SOLE NEGLIGENCE OR THE JOINT NEGLIGENCE OF THE OPERATOR AND ANY OTHER PERSON OR ENTITY.

A right-of-way license agreement approved by a resolution of the Midland City Council is required for any oil and/or gas flowline or pipeline or any other device associated with a proposed well site that extends into, on, above, in, under, across or through any City rights-of-way, including but not limited to streets, alleys, and utility and drainage rights-of-way.

If the well that is the subject of this permit is not located within the County of Midland, Texas, Operator shall notify the Midland Central Appraisal District of the following: (1) the well's location within the territorial limits of the City of Midland; and (2) that the City of Midland is to be included as a taxing entity. Operator shall make said notification no later than 60 days after completion of the well.

The Midland City Council, in granting this permit, also grants the following variance(s):

1. No landscaping and irrigation required because city water is not available.
2. A perimeter fence around the entire well site instead of a fence around each individual well.
3. No road repair agreement required because no City streets will be used to access the well site.
4. Twenty-four-hour hydraulic fracturing operations allowed including the use of necessary lighting.

Sound walls shall be used during drilling and completion operations as noted in the application.

This permit shall constitute a written contract for purposes of insurance requirements.

In addition to the requirements of this permit and the Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), including, but not limited to Subsections (K) through (Z), Operator shall develop, maintain and operate the well described herein in accordance with the conditions, limitations and safeguards contained in Operator's application for said well.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS _____ day of December 2020.

CITY OF MIDLAND, TEXAS

BY: _____

Patrick N. Payton, Mayor

UNDERSTOOD AND AGREE THIS _____day of December 2020.

Permian Deep Rock Oil Co., LLC

BY: _____

Keith E. Bucy

General Manager

OIL AND GAS WELL PERMIT

The City Council of the City of Midland, Texas, at its regular meeting on May 26, 2020, considered the application of Permian Deep Rock Oil Co., LLC ("Operator") dated February 3, 2020 to drill an oil and gas well inside the territorial limits of the City of Midland, Texas. The City Council of the City of Midland, Texas, by appropriate action approved the application and authorized the issuance of this permit.

This documentation hereby constitutes a permit, issued in accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), to drill an oil and gas well as requested in Operator's application that has been filed with the Oil & Gas Compliance Coordinator and is incorporated herein for all legal purposes.

The location of Operator's Charger #H135WA oil and gas well shall be 108 feet from the south line and 1,980 feet from the west line, Section 3, Block 39, T-2-S, T&P RR Co. Survey, Midland County, Texas. The hole size, casing program, cement program and total depth of that well shall be in strict compliance with the proposed hole size, casing program, cementing program and proposed total depth found in Operator's application. Further, all operations done under this permit shall be done and accomplished in strict accordance with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), which is hereby incorporated into this permit by reference and made applicable hereto with the same force and effect as if the same were copied fully in this permit, including, but not limited to, Subsections (K) through (Z).

This permit shall be effective from December 15, 2020 through December 15, 2021, and so long thereafter as oil or gas is produced, or until Operator has permanently abandoned the operations of the well or facility for which this permit is issued.

The issuance of this permit by the City of Midland does not in any way alter or modify the rights as between the surface estate owner(s) and mineral estate owner(s) if there exists a severance of the surface estate and mineral estate. This permit in no way exempts Operator from its responsibilities or obligations as to third parties. The issuance of this permit only means that Operator has, at this time, complied with Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance No. 8769) and that the Midland City Council, as a regulatory body, will allow Operator to proceed under the conditions of this permit. The issuance of this permit is intended to be only a negative pronouncement that grants no affirmative rights to the permittee to occupy the property. It is expressly provided

that this permit does not authorize a trespass by the permittee as to any third party. This permit does not in any way restrict the use of the surface estate. Securing a permit does not authorize Operator to act with impunity as to third parties, nor does it insulate Operator from the consequences of its actions with regard to those third parties. The receipt of a permit does not undertake to adjudicate property rights.

This permit granted by the City of Midland does not act to immunize Operator from civil tort liability from private parties for actions arising out of the use of the permit. This is because the permit is a "negative pronouncement" that grants no affirmative rights to the permittee. The issuance of this permit does not authorize any injury to persons or property or an invasion of other property rights, or any infringement of State or local law or regulations. Operator has obtained a permit from the City of Midland but the consequences of acting under the permit have not been immunized. The fact that the City of Midland has issued a permit to drill an oil and gas well does not shield Operator from third party tort liability stemming from the consequences of the permitted activity.

NOTWITHSTANDING ANY OTHER PROVISION, OPERATOR HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES CITY OF MIDLAND, CITY OF MIDLAND'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS, DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER WHICH OPERATOR HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO BREACH OF CONTRACT, QUANTUM MERUIT, CLAIMS UNDER THE DUE PROCESS AND TAKING CLAUSES OF THE TEXAS AND UNITED STATES CONSTITUTIONS, TORT CLAIMS OR CITY OF MIDLAND'S NEGLIGENCE.

OPERATOR AGREES TO INDEMNIFY AND HOLD HARMLESS AND DEFEND THE CITY OF MIDLAND, THE CITY'S OFFICERS, AGENTS, AND EMPLOYEES FROM ANY AND ALL CLAIMS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, AND LIABILITY OF ANY KIND, INCLUDING ALL EXPENSES OF LITIGATION, COURT COSTS, AND ATTORNEY'S FEES, FOR INJURY TO OR DEATH OF ANY PERSON, OR FOR DAMAGE TO ANY PROPERTY ARISING OUT OF OR IN CONNECTION WITH THE WORK DONE BY OPERATOR UNDER AN OIL AND GAS WELL PERMIT WHERE SUCH INJURIES, DEATH, OR DAMAGES ARE CAUSED BY OPERATOR'S SOLE NEGLIGENCE OR THE JOINT NEGLIGENCE OF THE OPERATOR AND ANY OTHER PERSON OR ENTITY.

A right-of-way license agreement approved by a resolution of the Midland City Council is required for any oil and/or gas flowline or pipeline or any other device associated with a proposed well site that extends into, on, above, in, under, across or through any City rights-of-way, including but not limited to streets, alleys, and utility and drainage rights-of-way.

If the well that is the subject of this permit is not located within the County of Midland, Texas, Operator shall notify the Midland Central Appraisal District of the following: (1) the well's location within the territorial limits of the City of Midland; and (2) that the City of Midland is to be included as a taxing entity. Operator shall make said notification no later than 60 days after completion of the well.

The Midland City Council, in granting this permit, also grants the following variance(s):

1. No landscaping and irrigation required because city water is not available.
2. A perimeter fence around the entire well site instead of a fence around each individual well.
3. No road repair agreement required because no City streets will be used to access the well site.
4. Twenty-four-hour hydraulic fracturing operations allowed including the use of necessary lighting.

Sound walls shall be used during drilling and completion operations as noted in the application.

This permit shall constitute a written contract for purposes of insurance requirements.

In addition to the requirements of this permit and the Midland City Code § 6-1-23, "Oil and Gas Well Permits Issued On or After January 1, 2010" (Ordinance 8769), including, but not limited to Subsections (K) through (Z), Operator shall develop, maintain and operate the well described herein in accordance with the conditions, limitations and safeguards contained in Operator's application for said well.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS _____ day of December 2020.

CITY OF MIDLAND, TEXAS

BY: _____

Patrick N. Payton, Mayor

UNDERSTOOD AND AGREE THIS _____day of December 2020.

Permian Deep Rock Oil Co., LLC

BY: _____

Keith E. Bucy

General Manager

MIDLAND
Planning Division

APPLICATION FOR OIL AND GAS PERMIT

(Pursuant to Midland City Ordinance No. 8769)

I. General Information

Date	Operator Name (must match W-1)	Operator Address
09/01/2020	Permian Deep Rock Oil Co., LLC	P.O. Box 11405 Midland, TX 79702

Representative Name	Representative Address (within Midland City Limits)	Rep. Tele. / Rep. Fax
Keith E. Bucy	500 W. Wall St. Ste 300 Midland, TX 79701	Rep. Tele. 432-682-6685 Rep. Fax 432-684-4519
Fee: $4,000.00 Rec'd Yes ✓ No___	NOTE: All attachments need to bound and put in a binder before submitting.	Pages 1-4

Permit Compliance Contact (Choose 1):

Option A:

24/7 Answering Services - No. 1 (Tele.): **No. 2 (Tele.):**

Option B:

Company Compliance Representative (Name, Address, Local Telephone) ***(ATTACH STATEMENT AS EXHIBIT A):*** See Exhibit "A"

Emergency Contact Representative (Name, Address, 24-Hour Tele. No.):

See Exhibit "A"

Other Permitted Wells in City ***(ATTACH EXHIBIT B*** **[see § J(26)]).** See Exhibit "B"

II. Mineral Ownership

Name(s) and Address(es) of Mineral Estate Lessors (under applicable lease):

1.

2.

3.

ATTACHED AS EXHIBIT C **is** List of subdivisions within Charger Unit

See Exhibit "C"

III. Surface Ownership & Use

General Description of Current Surface Use (within 860 feet of proposed surface location):
Surface use: Undeveloped Rangeland, service company yards and apartment complex
Surface ownership: Two residences, apartment complex and service company yards:

See Exhibit "D"

ATTACHED AS EXHIBIT D **is**

Current Tax Roll from Midland Central Appraisal District), **which lists the name(s) and address(es) of all surface owners within 860 feet of the surface well location. [See § J(7)].**

ATTACHED AS EXHIBIT E **is a** ***(map/p lat/satellite/aerial photo)*** **depicting all Residences, commercial structures, public buildings, all publicly dedicated Streets and alleys, Rights of Way, and permanent accessory structures surrounding the proposed Drill Site. The** ***(map/p lat/satellite/aerial photo)*** **includes two circles, as required by the Ordinance—one depicting a 500 foot radius and one depicting an 860 foot radius from the proposed well's surface location. [See § J(10)].**

ATTACHED AS EXHIBIT F **is a copy of the notification letter(s) sent to 100 percent of the surface owners, Certified Mail, Return Receipt Requested. [See § J(36)].**

IV. Well & Operations Information

Proposed Well Name: Charger #H130WB Original City permit (Charger A H130WB) expired 05/20/2020

Proposed Hole Size, Casing Program and Cementing Program (attach Exhibit as Necessary)[See § J(11) and § L(4)]:

See Exhibit "G"

Legal Description of Proposed Well Site: SHL: 108' FSL & 2280' FWL, Section 3
Block 39, T-2-S, T&PRR Co. Survey, Midland County, Texas

ATTACHED AS EXHIBIT G **is the Location Site Plan [See § J(9)].**

ATTACHED AS EXHIBIT H **is the Map with the proposed transportation route(s) and road(s) for equipment, chemicals, or refuse products used or produced in the proposed oil and gas operations. [See § J(12)].**

ATTACHED AS EXHIBIT I **is a copy of the approved Texas Railroad Commission permit to drill (Form W-1), together with all attachments** ***(also file copy of W-1 with City Secretary before commencement of drilling operations).*** **[See § J(16) and (20)].**

ATTACHED AS EXHIBIT J **is a copy of the required TCEQ report as to depth of usable quality ground water. [See § J(17)].**

ATTACHED AS EXHIBIT K (if applicable) **is the list of alternative locations developed in consultation with the Oil & Gas Advisory Committee. [See § J(27)].**

ATTACHED AS EXHIBIT L **is the Fencing and Irrigation Plan. [See § J(30)].**

ATTACHED AS EXHIBIT M: **No city roads will be used**

ATTACHED AS EXHIBIT N **is the Concept Plan depicting the proposed Operations Site (which includes tanks, roads, power lines, and pipeline routes). [See § J(32)].**

Description of Public Utilities required during (1) drilling and (2) operations:

(1) Drilling: None

(2) Operations: Oncor

Description of water source to be used during Drilling: Water is to be piped in from our water wells, drill additional water wells or truck fresh water in. All brine water will be trucked in.

Description of all electric lines to production facilities (reference exhibits as necessary) [See § L(10)]:

See Exhibit "N"

Plan detailing construction, location, and closure of pits used for Drilling and Completion operations (attach exhibit if necessary) [See § J(35)]: Trench and encapsulate per TXRRC Rule 27(c)(10)(v)

See Exhibit "O"

V. Additional Required Exhibits

ATTACHED AS EXHIBIT P **is the** ***Letter of Credit/Certificate of Deposit*** **in accordance with Subsection (K)(2). [See § J(18)].**

ATTACHED AS EXHIBIT Q **: Tax certificates from Midland Central Appraisal District to be submitted indicating that all taxes on personal and real property, including minerals, owned by applicant are current. (See § J(29)**

ATTACHED AS EXHIBIT R **is the required Insurance Certificate. [See § J(19) and § K(3)].**

ATTACHED AS EXHIBIT S (if applicable) **is the Drainage Plan relating to Applicant's proposed operations. [See § J(21)].**

ATTACHED AS EXHIBIT T **is Applicant's Emergency Action Response Plan. [See § J(22)].**

ATTACHED AS EXHIBIT U **is Applicant's Hazardous Materials Management Plan, a copy of which has been submitted and is on file with the Midland Fire Department. [See § J(23)].**

Attached as Exhibit V: Applicants variances

Permian Deep Rock Oil Company LLC
[NAME OF COMPANY]

By Keith E. Bury
Its General Manager

State of Texas)

County of Midland)

Keith E Bury, personally appeared before me, and being first duly sworn declared he/she signed the application in the capacity designated, if any, and further states that he/she has read the above application and attached exhibits and the statements therein are true and correct to the best of their knowledge.

Notary Public, State of Texas

CHRISTOPHER HALL
Notary Public, State of Texas
Comm. Expires 08-11-2019
Notary ID 128701314

[SEAL]

SCALE: 1" = 300'

0' 150' 300'

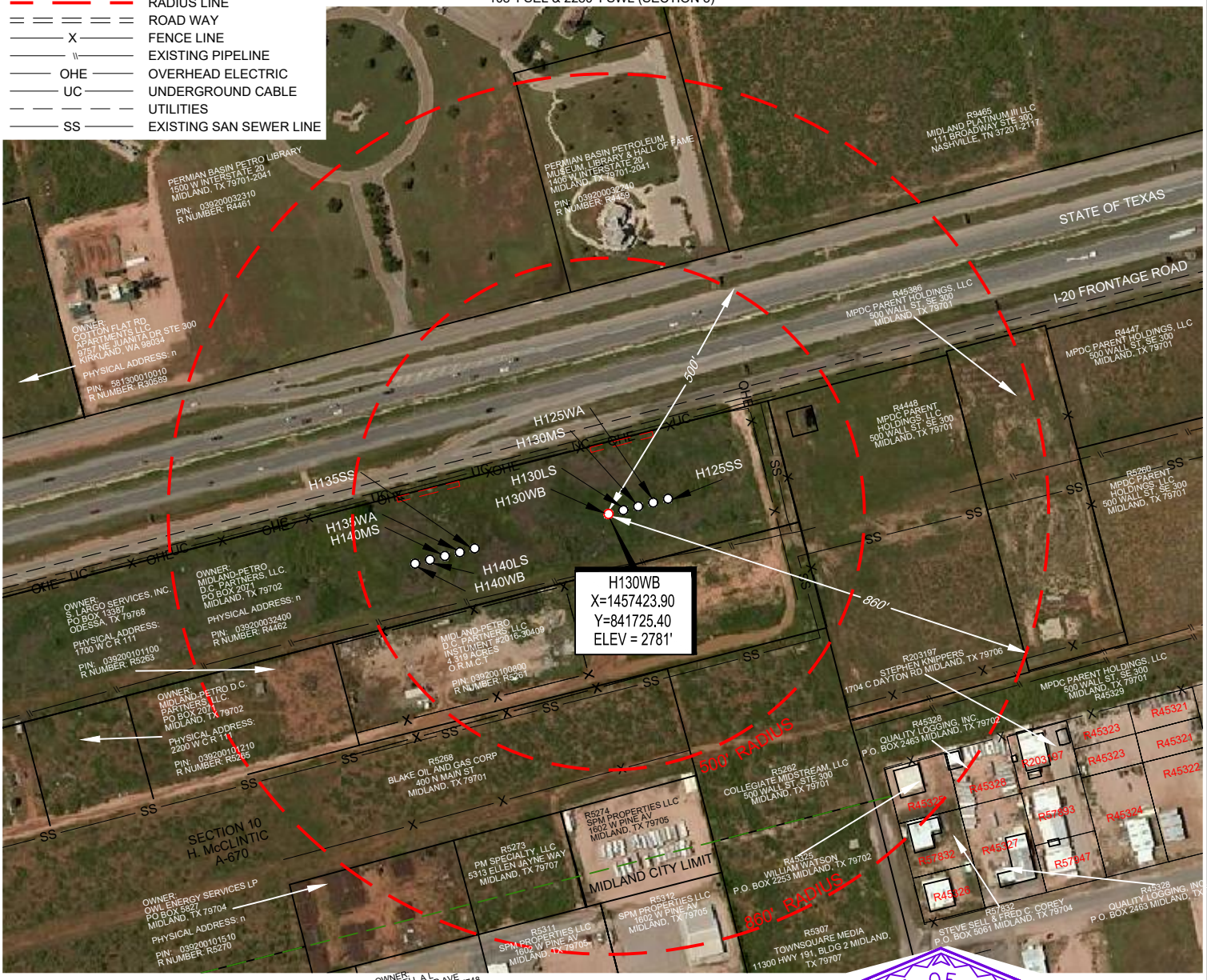
LEGEND

- SURVEY/SECTION LINE
- RADIUS LINE
- ROAD WAY
- X — FENCE LINE
- EXISTING PIPELINE
- OHE — OVERHEAD ELECTRIC
- UC — UNDERGROUND CABLE
- UTILITIES
- SS — EXISTING SAN SEWER LINE

SECTION 3, T. & P. RR. CO. SURVEY, A-181
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

SHOWING STRUCTURES WITHIN 500' RADIUS
AND PROPERTY OWNERS WITHIN 860' RADIUS
FOR PROPOSED **CHARGER H130WB**
108' FSEL & 2280' FSWL (SECTION 3)

PERMIAN DEEP ROCK OIL CO., L.L.C.



N

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
TEXAS FIRM REGISTRATION NO. 10042504
WWW.TOPOGRAPHIC.COM

STATE OF TEXAS
REGISTERED
JEFFREY N. LUEDERS
6512
PROFESSIONAL
LAND SURVEYOR

Jeffrey N. Lueders, R.P.L.S. No. 6512
SURVEYED ON THE GROUND: MAY 24, 2018

CHARGER H130WB	REVISION:	
	DRH	08/12/2020
DATE: 07/03/2018		
FILE: CD_CHARGER_A_H130WB_REV1		
DRAWN BY: PAC		
SHEET : 1 OF 2		

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1927.
3. THIS PROPOSED LOCATION HAS BEEN CAREFULLY SURVEYED ON THE GROUND UNDER MY SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE ACCORDING TO THE EVIDENCE, OFFICIAL SURVEY RECORDS, MAPS, AND OTHER DATA PROVIDED PERMIAN DEEP ROCK OIL CO., LLC. THIS PLAT WAS CREATED FOR THE SOLE PURPOSE OF FILING A PERMIT WITH THE CITY OF MIDLAND, MIDLAND COUNTY, TEXAS AND SHOULD NOT BE CONSTRUED AS A "BOUNDARY SURVEY" IN COMPLIANCE WITH T.B.P.L.S. MINIMUM STANDARDS OF PROCEDURES FOR BOUNDARY SURVEYS. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THIS FACE OF THIS PLAT AND IS NON-TRANSFERABLE.
4. OWNERSHIP INFORMATION SHOWN HEREON WAS TAKEN FROM THE CITY OF MIDLAND, TEXAS GIS SITE.
5. DISTANCES SHOWN HEREON TO EXISTING STRUCTURES ARE SCALED PER AERIAL MAP.

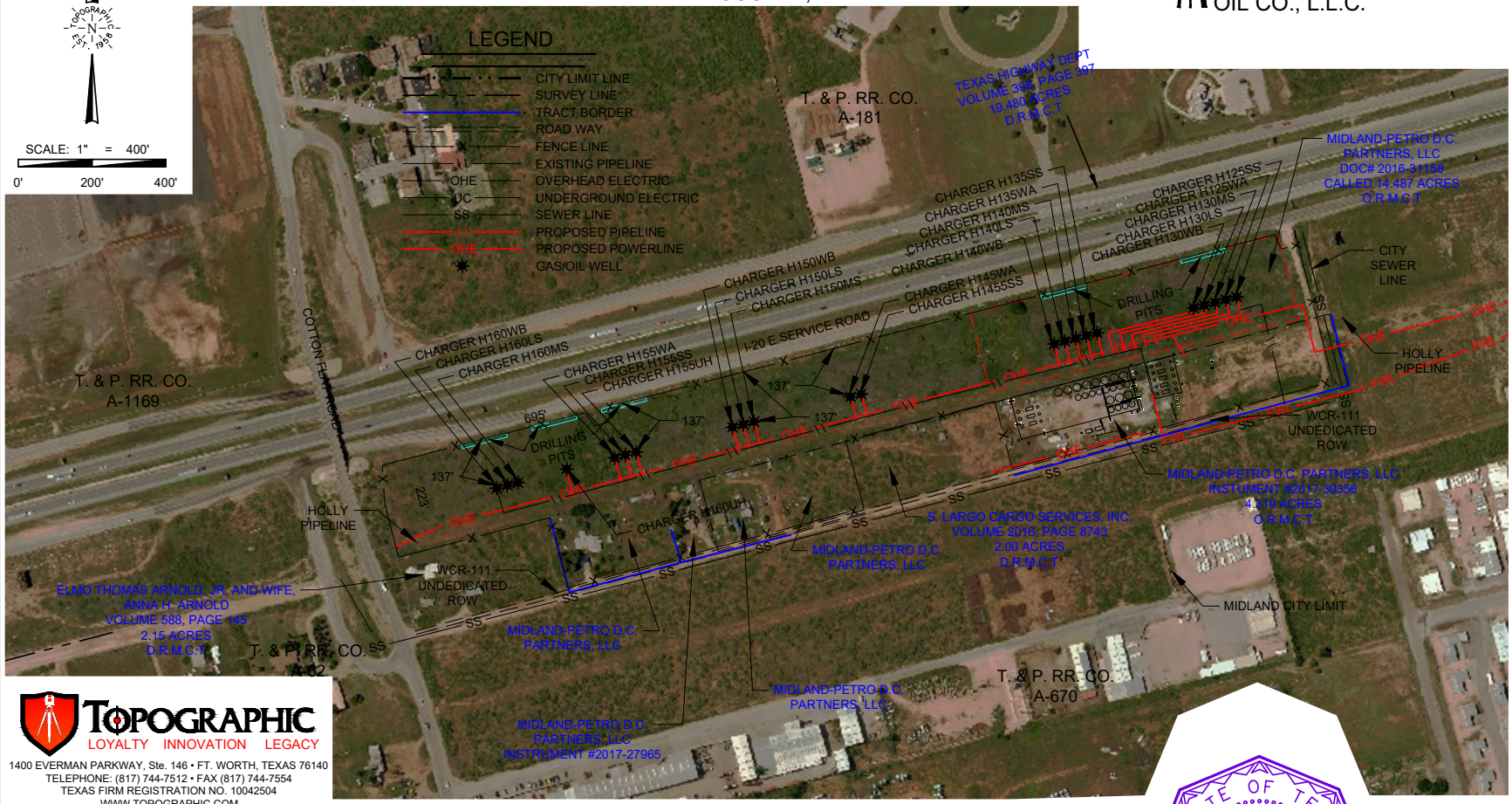
PACKET
21-30196
December 15, 2020

S:\SURVEY\ARRINGTON\CHARGER_UNIT\FINAL_PRODUCTS\CITY_PERMITS\NAD_27\CD_CHARGER_A_H130WB_REV1.DWG 8/14/2020 8:59:48 AM jlueders

EXHIBIT "G"

SECTION 3, BLOCK 39, T2S, T. & P. RR. CO. SURVEY, A-181 &
SECTION 10, BLOCK 39, T2S, H. MCCLINTIC SURVEY, A-670
MIDLAND COUNTY, TEXAS

PERMIAN DEEP ROCK OIL CO., L.L.C.



TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
TEXAS FIRM REGISTRATION NO. 10042504
WWW.TOPOGRAPHIC.COM

CHARGER UNIT CITY PERMIT	REVISION:	
	MBB	09/19/17
	AMD	06/22/18
	JRH	07/18/18
DATE: 07/05/2017	JRH	05/24/19
FILE: SK_CHARGER_UNIT_CL_PERMIT_REV22	JRH	11/07/19
DRAWN BY: CAR	DRH	08/12/20
SHEET : 3 OF 12	DRH	08/26/20

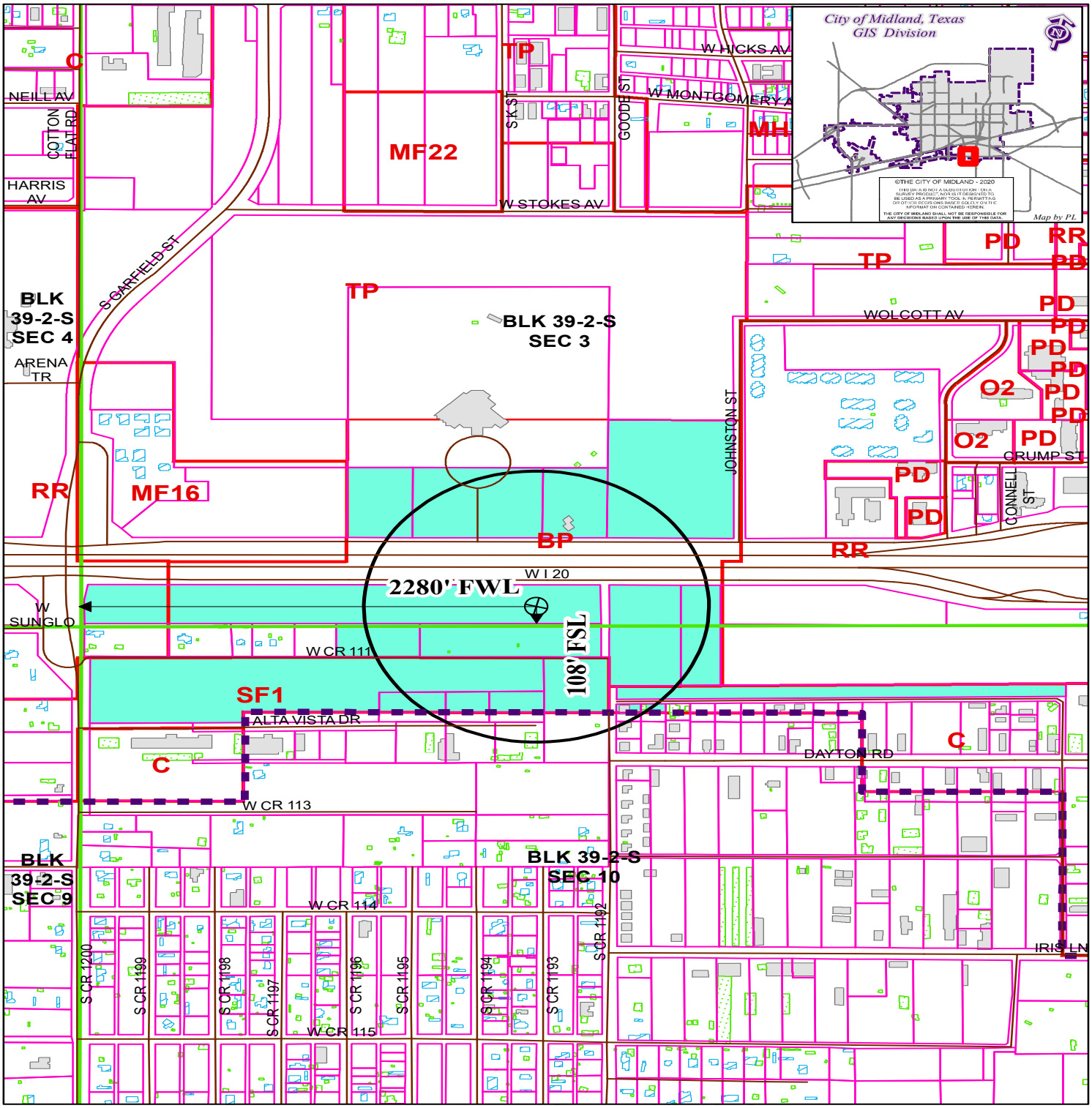
NOTES:
1. ORIGINAL DOCUMENT SIZE: 11" X 8.5"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1927.
3. CERTIFICATION IS MADE ONLY FOR PROPOSED UTILITIES AND SITES, IN RELATION TO THE EVIDENCE FOUND DURING A FIELD SURVEY, MADE ON THE GROUND, UNDER MY SUPERVISION, AND USING DOCUMENTATION PROVIDED BY PERMIAN DEEP ROCK OIL CO., L.L.C. ONLY UTILITIES/EASEMENTS THAT WERE VISIBLE ON THE DATE OF THIS SURVEY, WITHIN/ADJOINING THIS EASEMENT, HAVE BEEN LOCATED AS SHOWN HEREON OF WHICH I HAVE KNOWLEDGE. THIS CERTIFICATION IS LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE, AND MADE FOR THIS TRANSACTION ONLY.
4. ALL PROPOSED INFRASTRUCTURE SHOWN HEREON IS SOLELY FOR THE PURPOSE OF APPLYING FOR A PERMIT WITH THE CITY OF MIDLAND, TEXAS. THIS IS EXHIBIT IS NOT TO BE CONSTRUED AS A "BOUNDARY SURVEY" IN COMPLIANCE WITH THE T.B.P.L.S. MINIMUM STANDARDS OF PROCEDURES FOR BOUNDARY SURVEYS. THESE ARE FOR PLANNING PURPOSES ONLY.
5. ADJOINER INFORMATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
6. D.R.M.C.T. = DEED RECORDS MIDLAND COUNTY, TEXAS
7. C.C.O.R.M.C.T. = C. C. OFFICIAL RECORDS MIDLAND COUNTY, TEXAS

STATE OF TEXAS REGISTERED JEFFREY N. LUEDERS 6512 PROFESSIONAL LAND SURVEYOR

JEFFREY N. LUEDERS, R.P.L.S. No. 6512
SURVEYED ON THE GROUND: OCTOBER 7, 2016

S:\SURVEY\ARRINGTON\CHARGER_UNIT\FINAL_PRODUCTS\SKETCH\SK_CHARGER_UNIT_CL_PERMIT_REV22.DWG 8/26/2020 8:28:18 AM dharris

PACKET
21.3097
December 15, 2020



LOCATION AND ZONING MAP

Oil - 028207 - 2020 **Scale: 1" = 700'**

Consider a request for a Permit to drill an Oil and Gas Well within the City Limits located 108' FSL and 2,280' FWL, Section 3, Block 39, T-2-S, T&P RR CO Survey, Midland County, Texas.

Generally located 2,343 feet east of South Garfield Street and 320 feet north of West County Road 111.

Charger #H130WB

LEGEND

CITY PARCELS	PUBLIC BLDGS	CITY LIMITS
COUNTY PARCELS	PRIVATE BLDGS	860 FT. BUFFER
ZONING	ACCESSORY BLDGS	SURVEY SEC.

ZONING DISTRICTS:

FD	FUTURE DEVELOPMENT	BP	BUSINESS PARK
PD	PLANNED DISTRICT	P	PARKING
AE	AGRICULTURE ESTATE	01, O2	OFFICE
CE	COUNTRY ESTATE	NS	NEIGHBORHOOD SERVICE
RR, R1, R2, F3	ONE-FAMILY DWELLING	CR1, CR2, CLRS	COMMERCIAL RETAIL
MH	MOBILE HOME DWELLING	C1, C2, C3	COMMERCIAL
TH	TOWNHOUSE DWELLING	IP ,IP1, IP2, IP3	INDUSTRIAL PARK
2F	TWO-FAMILY DWELLING	LI	LIGHT INDUSTRY
MF1, MF2	MULTIPLE FAMILY DWELLING	HI	HEAVY INDUSTRY

MIDLAND
Planning Division

APPLICATION FOR OIL AND GAS PERMIT

(Pursuant to Midland City Ordinance No. 8769)

I. General Information

Date	Operator Name (must match W-1)	Operator Address
09/01/2020	Permian Deep Rock Oil Co., LLC	P.O. Box 11405 Midland, TX 79702

Representative Name	Representative Address (within Midland City Limits)	Rep. Tele.
Keith E. Bucy	500 W. Wall St. Ste 300 Midland, TX 79701	432-682-6685 Rep. Fax 432-684-4519
Fee: $4,000.00 Rec'd Yes ✓ No___	NOTE: All attachments need to bound and put in a binder before submitting.	Pages 1-4

Permit Compliance Contact (Choose 1):

Option A:

24/7 Answering Services - No. 1 (Tele.): **No. 2 (Tele.):**

Option B:

Company Compliance Representative (Name, Address, Local Telephone) ***(ATTACH STATEMENT AS EXHIBIT A):*** See Exhibit "A"

Emergency Contact Representative (Name, Address, 24-Hour Tele. No.):

See Exhibit "A"

Other Permitted Wells in City ***(ATTACH EXHIBIT B*** **[see § J(26)]).** See Exhibit "B"

II. Mineral Ownership

Name(s) and Address(es) of Mineral Estate Lessors (under applicable lease):

1.

2.

3.

ATTACHED AS EXHIBIT C **is** List of subdivisions within Charger Unit

See Exhibit "C"

III. Surface Ownership & Use

General Description of Current Surface Use (within 860 feet of proposed surface location):
Surface use: Undeveloped Rangeland, service company yards and apartment complex
Surface ownership: Two residences, apartment complex and service company yards:

See Exhibit "D"

ATTACHED AS EXHIBIT D **is**

Current Tax Roll from Midland Central Appraisal District), **which lists the name(s) and address(es) of all surface owners within 860 feet of the surface well location. [See § J(7)].**

ATTACHED AS EXHIBIT E **is a** ***(map/p lat/satellite/aerial photo)*** **depicting all Residences, commercial structures, public buildings, all publicly dedicated Streets and alleys, Rights of Way, and permanent accessory structures surrounding the proposed Drill Site. The** ***(map/p lat/satellite/aerial photo)*** **includes two circles, as required by the Ordinance—one depicting a 500 foot radius and one depicting an 860 foot radius from the proposed well's surface location. [See § J(10)].**

ATTACHED AS EXHIBIT F **is a copy of the notification letter(s) sent to 100 percent of the surface owners, Certified Mail, Return Receipt Requested. [See § J(36)].**

IV. Well & Operations Information

Proposed Well Name: Charger #H135WA Original City permit (Charger A H135WA) expired 05/20/2020

Proposed Hole Size, Casing Program and Cementing Program (attach Exhibit as Necessary)[See § J(11) and § L(4)]:

See Exhibit "G"

Legal Description of Proposed Well Site: SHL: 108' FSL & 1980' FWL, Section 3
Block 39, T-2-S, T&PRR Co. Survey, Midland County, Texas

ATTACHED AS EXHIBIT G **is the Location Site Plan [See § J(9)].**

ATTACHED AS EXHIBIT H **is the Map with the proposed transportation route(s) and road(s) for equipment, chemicals, or refuse products used or produced in the proposed oil and gas operations. [See § J(12)].**

ATTACHED AS EXHIBIT I **is a copy of the approved Texas Railroad Commission permit to drill (Form W-1), together with all attachments** ***(also file copy of W-1 with City Secretary before commencement of drilling operations).*** **[See § J(16) and (20)].**

ATTACHED AS EXHIBIT J **is a copy of the required TCEQ report as to depth of usable quality ground water. [See § J(17)].**

ATTACHED AS EXHIBIT K (if applicable) **is the list of alternative locations developed in consultation with the Oil & Gas Advisory Committee. [See § J(27)].**

ATTACHED AS EXHIBIT L **is the Fencing and Irrigation Plan. [See § J(30)].**

ATTACHED AS EXHIBIT M: **No city roads will be used**

ATTACHED AS EXHIBIT N **is the Concept Plan depicting the proposed Operations Site (which includes tanks, roads, power lines, and pipeline routes). [See § J(32)].**

Description of Public Utilities required during (1) drilling and (2) operations:

(1) Drilling: None

(2) Operations: Oncor

Description of water source to be used during Drilling: Water is to be piped in from our water wells, drill additional water wells or truck fresh water in. All brine water will be trucked in.

Description of all electric lines to production facilities (reference exhibits as necessary) [See § L(10)]:

See Exhibit "N"

Plan detailing construction, location, and closure of pits used for Drilling and Completion operations (attach exhibit if necessary) [See § J(35)]: Trench and encapsulate per TXRRC Rule 27(c)(10)(v)

See Exhibit "O"

V. Additional Required Exhibits

ATTACHED AS EXHIBIT P **is the** ***Letter of Credit/Certificate of Deposit*** **in accordance with Subsection (K)(2). [See § J(18)].**

ATTACHED AS EXHIBIT Q **: Tax certificates from Midland Central Appraisal District to be submitted indicating that all taxes on personal and real property, including minerals, owned by applicant are current. (See § J(29)**

ATTACHED AS EXHIBIT R **is the required Insurance Certificate. [See § J(19) and § K(3)].**

ATTACHED AS EXHIBIT S (if applicable) **is the Drainage Plan relating to Applicant's proposed operations. [See § J(21)].**

ATTACHED AS EXHIBIT T **is Applicant's Emergency Action Response Plan. [See § J(22)].**

ATTACHED AS EXHIBIT U **is Applicant's Hazardous Materials Management Plan, a copy of which has been submitted and is on file with the Midland Fire Department. [See § J(23)].**

Attached as Exhibit V: Applicants variances

Permian Deep Rock Oil Company LLC
[NAME OF COMPANY]

By _____
Its General Manager

State of Texas)

County of Midland)

Keith E Bucy, personally appeared before me, and being first duly sworn declared he/she signed the application in the capacity designated, if any, and further states that he/she has read the above application and attached exhibits and the statements therein are true and correct to the best of their knowledge.

_____
Notary Public, State of Texas

CHRISTOPHER HALL
Notary Public, State of Texas
Comm. Expires 08-11-2019
Notary ID 128701314

[SEAL]

SCALE: 1" = 300'

0' 150' 300'

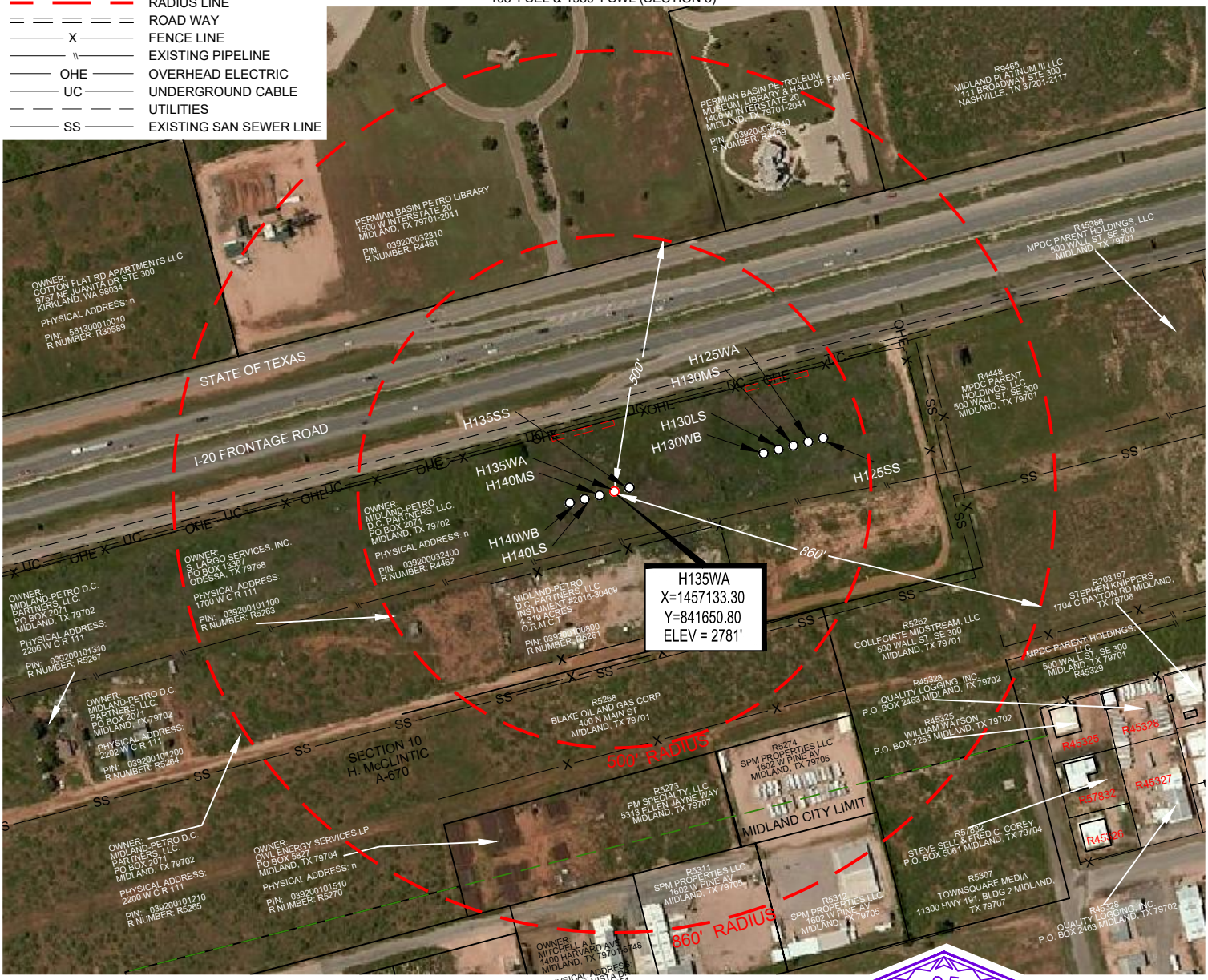
LEGEND

- SURVEY/SECTION LINE
- RADIUS LINE
- ROAD WAY
- X — FENCE LINE
- \\ — EXISTING PIPELINE
- OHE — OVERHEAD ELECTRIC
- UC — UNDERGROUND CABLE
- UTILITIES
- SS — EXISTING SAN SEWER LINE

SECTION 3, T. & P. RR. CO. SURVEY, A-181
CITY OF MIDLAND, MIDLAND COUNTY, TEXAS

SHOWING STRUCTURES WITHIN 500' RADIUS
AND PROPERTY OWNERS WITHIN 860' RADIUS
FOR PROPOSED **CHARGER H135WA**
108' FSEL & 1980' FSWL (SECTION 3)

PERMIAN DEEP ROCK OIL CO., L.L.C.



N

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
TEXAS FIRM REGISTRATION NO. 10042504
WWW.TOPOGRAPHIC.COM

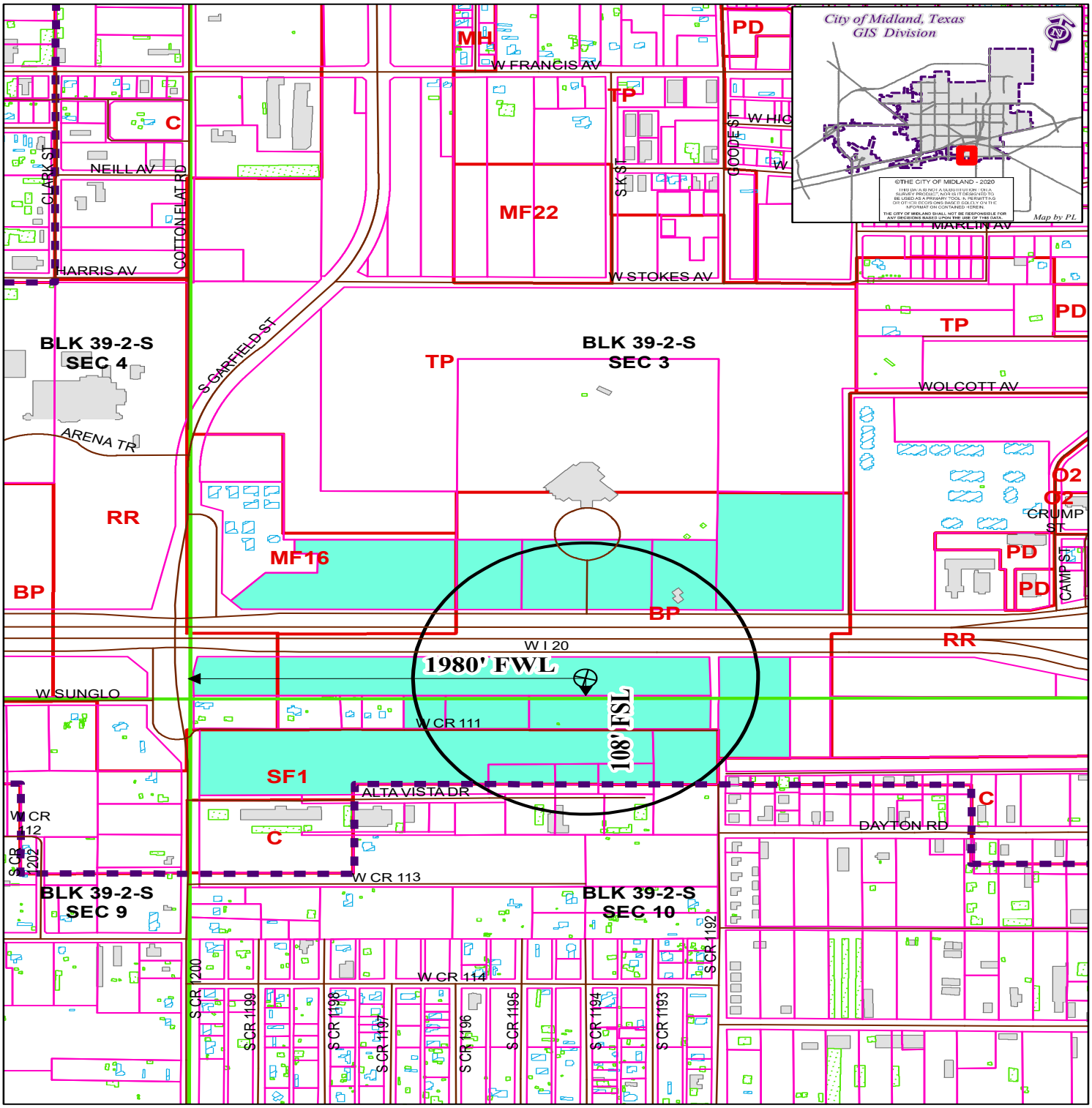
STATE OF TEXAS
REGISTERED
JEFFREY N. LUEDERS
6512
PROFESSIONAL LAND SURVEYOR

Jeffrey N. Lueders, R.P.L.S. No. 6512
SURVEYED ON THE GROUND: MAY 24, 2018

CHARGER H135WA	REVISION:	
	DRH	08/12/2020
	DRH	08/20/2020
DATE: 07/03/2018		
FILE: CD_CHARGER_A_H135WA_REV2		
DRAWN BY: PAC		
SHEET : 1 OF 2		

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, U.S. SURVEY FEET, NORTH AMERICAN DATUM 1927.
3. THIS PROPOSED LOCATION HAS BEEN CAREFULLY SURVEYED ON THE GROUND UNDER MY SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE ACCORDING TO THE EVIDENCE, OFFICIAL SURVEY RECORDS, MAPS, AND OTHER DATA PROVIDED PERMIAN DEEP ROCK OIL CO., LLC. THIS PLAT WAS CREATED FOR THE SOLE PURPOSE OF FILING A PERMIT WITH THE CITY OF MIDLAND, MIDLAND COUNTY, TEXAS AND SHOULD NOT BE CONSTRUED AS A "BOUNDARY SURVEY" IN COMPLIANCE WITH T.B.P.L.S. MINIMUM STANDARDS OF PROCEDURES FOR BOUNDARY SURVEYS. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THIS FACE OF THIS PLAT AND IS NON-TRANSFERABLE.
4. OWNERSHIP INFORMATION SHOWN HEREON WAS TAKEN FROM THE CITY OF MIDLAND, TEXAS GIS SITE.
5. DISTANCES SHOWN HEREON TO EXISTING STRUCTURES ARE SCALED PER AERIAL MAP.

PACKET
Pg. 3109
December 15, 2020



LOCATION AND ZONING MAP

Oil - 028206 - 2020 **Scale: 1" = 700'**

Consider a request for a Permit to drill an Oil and Gas Well within the City Limits located 108' FSL and 1,980' FWL, Section 3, Block 39, T-2-S, T&P RR CO Survey, Midland County, Texas.

Generally located 2,043 feet east of South Garfield Street and 320 feet north of West County Road 111.

Charger #H135WA

LEGEND

CITY PARCELS	PUBLIC BLDGS	CITY LIMITS
COUNTY PARCELS	PRIVATE BLDGS	860 FT. BUFFER
ZONING	ACCESSORY BLDGS	SURVEY SEC.

ZONING DISTRICTS:

FD	FUTURE DEVELOPMENT	BP	BUSINESS PARK
PD	PLANNED DISTRICT	P	PARKING
AE	AGRICULTURE ESTATE	01, O2	OFFICE
CE	COUNTRY ESTATE	NS	NEIGHBORHOOD SERVICE
RE, RS, RM, RMH, RF3	ONE-FAMILY DWELLING	CR	COMMUNITY RETAIL
MH	MOBILE HOME DWELLING	C1, C2, C3	COMMERCIAL
TH	TOWNHOUSE DWELLING	IP ,IP1, IP2, IP3	INDUSTRIAL PARK
2F	TWO-FAMILY DWELLING	LI	LIGHT INDUSTRY
MF1, MF2	MULTIPLE FAMILY DWELLING	HI	HEAVY INDUSTRY

City Council Meeting

Item Number: 22

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Ron Jenkins, Oil and Gas Coordinator

Subject: **RESOLUTION APPROVING THE TRANSFER OF FOUR OIL AND GAS WELL PERMITS FROM SMC OIL & GAS, INC. ("OPERATOR") TO MCM EXPLORATION COMPANY, LLC ("TRANSFEREE"); AND APPROVING THE TRANSFER OF THE ROAD REPAIR AGREEMENT REGARDING SAID OIL AND GAS WELL PERMITS FROM OPERATOR TO TRANSFEREE; SAID OIL AND GAS WELLS BEING LOCATED IN SECTION 6, BLOCK X, H.P. HILLIARD SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE EAST SIDE OF HOLIDAY HILL ROAD, SOUTH OF MOCKINGBIRD LANE) (DEVELOPMENT SERVICES)**

Purpose:

Consider a resolution approving the transfer of the Oil and Gas Well Permits and Road Repair Agreement issued to SMC Oil and Gas Inc. (Current Operator) located in Section 6, Block X, H.P. Hilliard Survey, City and County of Midland, Texas.

Recommended City Council Action:

Approve

Fiscal Impact:

There is no cost to the City to process this application.

Discussion:

A letter requesting transfer of permit and road repair agreement from SMC Oil and Gas Inc. and MCM Exploration Company, LLC has been received. MCM Exploration Company, LLC has provided the necessary instruments required for transfer of permits operated by SMC Oil and Gas Inc. and agrees to be bound by the terms and conditions of the current Oil and Gas

Well Permits and Road Repair Agreement.

Attachments: Letter MCM Exploration LLC/SMC Oil & Gas Request; Operating-identifying wells; Exhibit Map-Overview Well locations.

Robert Patrick

City Manager's Office

RESOLUTION NO. _____

RESOLUTION APPROVING THE TRANSFER OF FOUR OIL AND GAS WELL PERMITS FROM SMC OIL & GAS, INC. ("OPERATOR") TO MCM EXPLORATION COMPANY, LLC ("TRANSFEREE"); AND APPROVING THE TRANSFER OF THE ROAD REPAIR AGREEMENT REGARDING SAID OIL AND GAS WELL PERMITS FROM OPERATOR TO TRANSFEREE; SAID OIL AND GAS WELLS BEING LOCATED IN SECTION 6, BLOCK X, H.P. HILLIARD SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE EAST SIDE OF HOLIDAY HILL ROAD, SOUTH OF MOCKINGBIRD LANE)

WHEREAS, Operator has made a written request to the City of Midland that the transfer of certain oil and gas well permits to Transferee be approved by the City of Midland; and

WHEREAS, Operator has made a written request to the City of Midland that the transfer of the road repair agreement regarding said oil and gas well permits to Transferee be approved by the City of Midland; and

WHEREAS, the City Council finds it to be in the public interest to approve Operator's transfer of said oil and gas well permits to Transferee; and

WHEREAS, the City Council finds it to be in the public interest to approve Operator's transfer of said road repair agreement to Transferee;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That Operator's transfer to Transferee of the oil and gas well permits for the following wells is hereby approved: Barron No. 1; Barron No. 2; Barron No. 3; and Barron No. 4.

SECTION TWO. That all terms and conditions of said oil and gas well permits shall remain in full force and effect, and Transferee shall be bound by said terms and conditions.

SECTION THREE. That Operator's transfer of the road repair agreement regarding said oil and gas well permits to Transferee is hereby approved.

SECTION FOUR. That all terms and conditions of said road repair agreement shall remain in full force and effect, and Transferee shall be bound by said terms and conditions.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

MCM OPERATING

October 20, 2020

Mr. Ron Jenkins, Oil & Gas Compliance Officer
300 N. Loraine, Suite 310
Midland, Texas 79702

RE: Barron Lease, Midland County, NW/4 Section 6, Block X (the "Lands").

Dear Mr. Jenkins:

By the Assignment and Release dated effective May 1, 2020 (the "Assignment"), from SMC Oil and Gas Inc. ("SMC"), to MCM Exploration Company, LLC, SMC assigned all right, title, and interest in the wells located on the Lands to MCM Exploration Company, LLC.

Pursuant to the Assignment, SMC agreed to cease being the contract operator and transfer operatorship of the wells on the Lands to MCM Operating, LLC ("MCM Operating") which has been designated by MCM Exploration Company, LLC, as its affiliate, to take over as operator. MCM Operating, LLC, has all property bonding and insurance in place to operate within the City of Midland. Please find MCM Operating's certificate of insurance and letter of credit enclosed in this letter.

MCM Operating respectfully requests that the Midland City Council approve the proposed transfer of operations and permits for the wells and rights of way for the Barron Lease wells.

SMC has agreed to transfer all operations and permits (subject to the Council approval) to MCM Operating, and MCM Operating has agreed to assume (subject to Council approval) such operation and permits and all related obligations, as evidenced by SMC's joint execution of this letter below.

If you have any questions or need additional information, please do not hesitate to contact me.

Regards,

Matthew A. Chitwood, CPL
MCM Operating, LLC
223 W. Wall Street, Ste. 400
Midland, TX 79701
Office: 432-685-1790
Cell: 817-675-6680
Email: matt@mcmenergy.com

X _____

Jared Ivanhoe
SMC Oil & Gas Inc.
P.O. Box 50907
Midland, TX 79710
Office: 432-683-3835
Cell: 432-553-5494
jivanhoe@atlascorpusa.com

X _____

ACKNOWLEDGMENT

STATE OF TEXAS §
COUNTY OF MIDLAND §

Before me, the undersigned authority, on this day personally appeared Matt Chitwood, Operations Manager of MCM Operating, LLC, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given my hand and seal of office this 29 day of October, 2020.

John W Neely
My Commission Expires
06/19/2022
ID No. 129940796

Notary Public, State of Texas

STATE OF TEXAS §
COUNTY OF MIDLAND §

Before me, the undersigned authority, on this day personally appeared Jared Ivanhoe, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given my hand and seal of office this 29 day of October, 2020.

ADAM MURRAY BORGMAN
Notary Public, State of Texas
Comm. Expires 03-16-2022
Notary ID 128191650

Notary Public, State of Texas

MCM
OPERATING

COMPLIANCE ACKNOWLEDGEMENT OF DESIGNATED COMPLIANCE REPRESENTATIVES

1, My name is Matt Chitwood and I serve as the Operations Manager for MCM Operating, LLC. MCM Operating, LLC serves as the TX RRC listed operator for the Barron Lease in NW Midland, Texas.

2. MCM Operating, LLC is privately and wholly owned by Miles McPherren, and is a Texas limited liability company.

3. I understand and agree that I am responsible for ensuring compliance with all conditions of the Oil and Gas Well Permit for which Operator has herein applied, along with any applicable laws, regulations and ordinances by any and all employees, contractors or subcontractors of Operator at the oil and gas operations site.

4. I further understand that it is my sole obligation in the event I am relieved of these responsibilities, that the name, local address, and telephone number of my replacement will be provided to the City of Midland's Secretary.

COMPLIANCE AND EMERGENCY CONTACT REPRESENTATIVES

MCM Operating, LLC
223 W. Sall St, Ste. 400
Midland, Tx 79701
432-685-1790

Matt Chitwood	(817) 675 – 6680
Kevin Plaisted	(432) 853 – 3771
Miles McPherren	(806) 239 – 7433

MCM OPERATING, LLC

Matt Chitwood, Operations Manger

ACKNOWLEDGMENT

STATE OF TEXAS §

COUNTY OF MIDLAND §

Before me, the undersigned authority, on this day personally appeared Matt Chitwood, Operations Manager of MCM Operating, LLC, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given my hand and seal of office this 29 day of October, 2020.

John W Neely
My Commission Expires
08/18/2022
ID No. 129940796

Notary Public, State of Texas

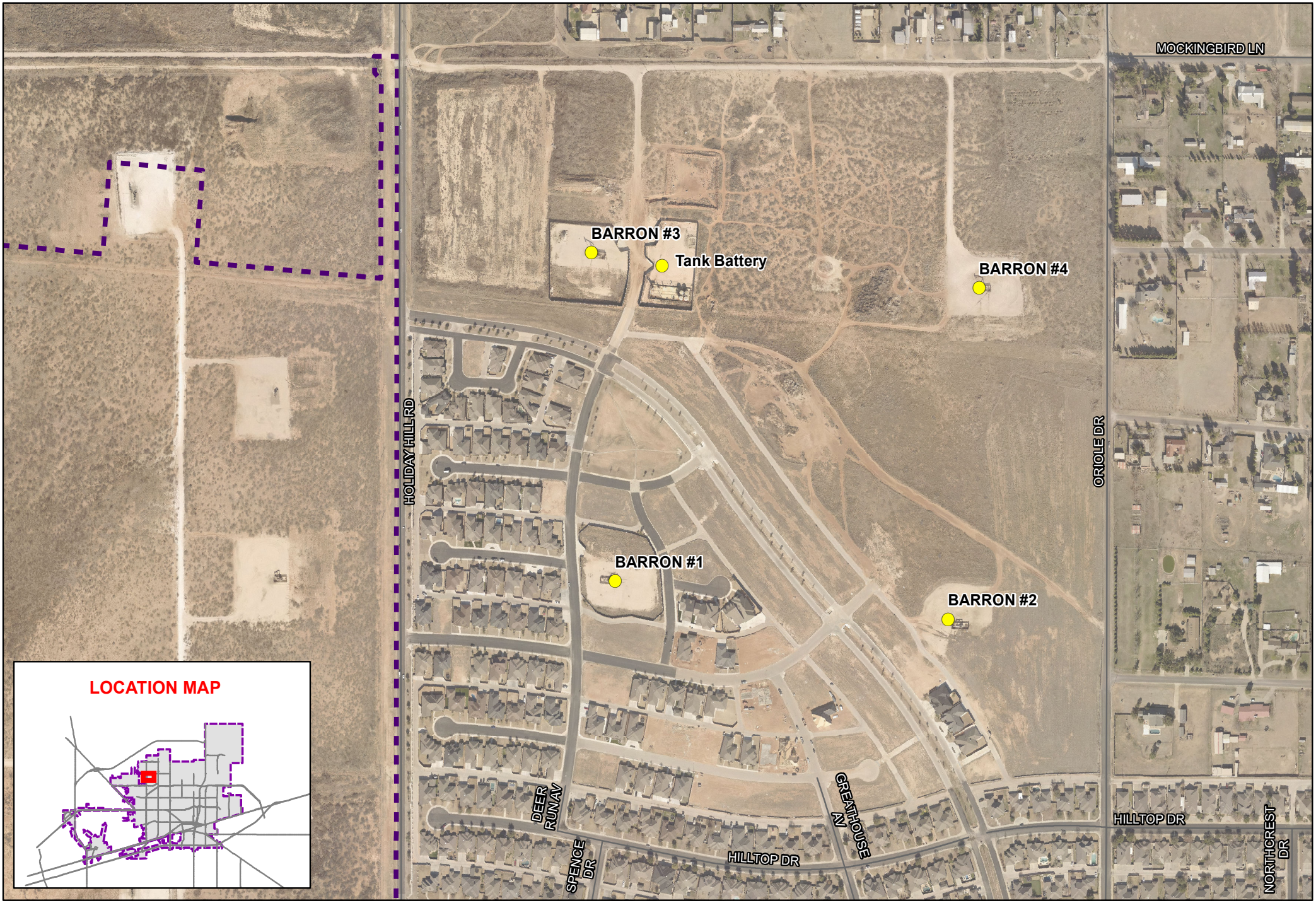
MCM OPERATING

ASSIGNMENTS:

LEASES MIDLAND COUNTY, TEXAS				
VNR LEASE NO	LESSOR	LESSEE	LEASE DATE	INSTRUMENT NO.
LEASE -001	JAMES E BARRON	MACK T RESOURCES LP	6/8/2009	NO 2009 - 13229
OGL AMEND - 001A	JAMES E BARRON	MACK T RESOURCES LP	4/26/2012	NO 2012 - 8660
OGL AMEND - 001B	JAMES E BARRON	MCM EXPLORATION COMPANY, LLC	9/23/2019	NO 2019 - 30291
LEASE - 002	POZO RICO PARTNERS LTD	MACK T RESOURCES LP	4/14/2010	NO 2010 - 7794
OGL AMEND - 002A	POZO RICO PARTNERS LTD	MCM EXPLORATION COMPANY, LLC	6/14/2019	NO 2019 - 18389
OGL AMEND – 002B	POZO RICO PARTNERS LTD	MCM EXPLORATION COMPANY, LLC	5/20/2020	NO 2020 - 14724

CONTRACTS			
CONTRACT	DATE	PARTY	COUNTERPARTY
SURFACE USE AND DAMAGES AGREEMENT	4/11/2012	LOS CONCHOS VENTURES LLC	VECTOR OIL AND GAS LP
SURFACE USE AND DAMAGES AGREEMENT AMEND	5/7/2020	LOS CONCHOS VENTURES LLC	MCM EXPLORATION COMPANY, LLC
GAS PURCHASE AGREEMENT	9/1/2012	MIDMAR GAS LLC	VECTOR OIL AND GAS LP
CRUDE OIL FIRST PURCHASER PURCHASE AGREEMENT	6/1/2020	RIO ENERGY INTERNATIONAL, INC.	MCM OPERATING, LLC
PROJECT MANAGEMENT AGREEMENT	5/1/2020	CAMBRIAN MANAGEMENT, LTD.	MCM ENERGY PARTNERS, LLC

WELLS MIDLAND COUNTY, TEXAS		
WELL NAME	OPERATORS NAME	API NUMBER
BARRON NO 1	SMC OIL AND GAS, INC.	42-329-37674
BARRON NO 2	SMC OIL AND GAS, INC.	42-329-37715
BARRON NO 3	SMC OIL AND GAS, INC.	42-329-37751
BARRON NO 4	SMC OIL AND GAS, INC.	42-329-38568



Date: 11/9/2020

Legend

- Transferred Well
- Street
- City Limits

PACKET 22.3112 December 15, 2020

SMC Oil and Gas Inc. Transferred Well & Tank Battery Locations

0 150 300 Feet

©THE CITY OF MIDLAND - 2020
THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY PRODUCT, NOR IS IT DESIGNED TO BE USED AS A PRIMARY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.
THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.

City Council Meeting

Item Number: 23

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Charles Harrington, Director

Subject: RESOLUTION AUTHORIZING THE CITY OF MIDLAND BUSINESS MICRO-GRANT ASSISTANCE PROGRAM; AUTHORIZING THE APPROPRIATION OF FUNDS IN THE AMOUNT OF $1,000,000.00 FROM THE CARES GRANT; AND AUTHORIZING THE EXECUTION A CONTRACT WITH MIDLAND COLLEGE TO PROVIDE PROGRAM ADMINISTRATIVE SERVICES AT A COST NOT TO EXCEED $37,000.00 (DEVELOPMENT SERVICES)

Purpose:

RESOLUTION AUTHORIZING THE EXECUTION OF THE CITY OF MIDLAND EMERGENCY AID, RELIEF, AND ECONOMIC SECURITY FUNDS CONTRACTS WITH MIDLAND COLLEGE BUSINESS & ECONOMIC DEVELOPMENT CENTER SOCIAL SERVICES PROGRAM; APPROVING FUNDS FOR SAID CONTRACTS IN THE AMOUNT OF $1,000,000.00.

Recommended City Council Action:

Directional/Informational

Fiscal Impact:

$1,000,000 shall be appropriated from the CARES GRANT are available in Fund 065-CARES GRANT for this purpose.

Discussion:

Per Councilman Jack Ladd, staff was asked to place a revised Agenda Item relative to the Midland Micro-grant Program. As Council will recall, in an effort to assist small local businesses impacted by COVID-19, the City of Midland and Midland College Business and Economic Development Center (BEDC) will collaborate to assist small business owners

through the City of Midland Micro-Grant Assistance Project (BMGAP). The program is available for business interruptions occurring on or after March 27, 2020, (date signed by President Trump) through the Corona Virus Aid Relief & Economic securities Act due to the COVID-19, which resulted in required closures, voluntary closures, to promote social distancing or decreased customer demand. It is now proposed that the program be expanded up to $1,000,000, with a maximum grant to a business of $10,000. This would provide funding for 96 businesses to assist them in their efforts to stay operational during the COVID-19 times. Midland College would receive $37,000 to administer the program.



City Manager's Office

RESOLUTION NO. _____

RESOLUTION AUTHORIZING THE CITY OF MIDLAND BUSINESS MICRO-GRANT ASSISTANCE PROGRAM; AUTHORIZING THE APPROPRIATION OF FUNDS IN THE AMOUNT OF $1,000,000.00 FROM THE CARES GRANT; AND AUTHORIZING THE EXECUTION A CONTRACT WITH MIDLAND COLLEGE TO PROVIDE PROGRAM ADMINISTRATIVE SERVICES AT A COST NOT TO EXCEED $37,000.00

WHEREAS, the Community Development Division of the Department of Development Services, in an effort to assist small businesses impacted by COVID-19, has developed the City of Midland Micro-Grant Assistance Program; and

WHEREAS, the program will be used to provide $10,000.00 micro-grants to qualifying businesses; and

WHEREAS, the City Council finds it to be in the public interest to authorize the City of Midland Business Micro-Grant Assistance Program; and

WHEREAS, the City Council finds it to be in the public interest to authorize the appropriation of funds in the amount of $1,000,000.00 from the CARES Grant available in Fund 065-CARES GRANT; and

WHEREAS, Midland College has agreed to perform administrative services for the City of Midland Business Micro-Grant Assistance Program at a cost not to exceed $37,000.00; and

WHEREAS, the City Council finds the amount proposed by Midland College to be fair and reasonable; and

WHEREAS, the City Council finds it to be in the public interest to award a contract to Midland College for the City of Midland Business Micro-Grant Assistance Program;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the City Council of the City of Midland, Texas, hereby authorizes the City of Midland Business Micro-Grant Assistance Program.

SECTION TWO. That the City Council hereby authorizes and approves the appropriation of funds in the amount of $1,000,000.00 from the CARES Grant available in Fund 065-CARES GRANT.

SECTION THREE. That the Interim City Manager and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland,

a contract with Midland College, for the City of Midland Business Micro-Grant Assistance Program for a total cost of $37,000.00. Said contract to be substantially in the form of that attached hereto as Exhibit "1" and made a part hereof for all legal purposes.

SECTION FOUR. That the City Comptroller is hereby authorized and directed to make payment to the Midland College pursuant to terms of the contract, not to exceed a total amount of $37,000.00, upon receipt of proper invoice or statement approved by the Interim City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

_____
Mark Mason, Director of Finance

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

AGREEMENT BETWEEN CITY OF MIDLAND, TEXAS AND MIDLAND COLLEGE, REGARDING THE CITY OF MIDLAND BUSINESS MICRO-GRANT ASSISTANCE PROGRAM

This Agreement made by and between the **CITY OF MIDLAND**, a Texas home rule municipal corporation, herein called "City", and **MIDLAND COLLEGE**, hereinafter called "College";

I. PURPOSE

The purpose of this Agreement is to state the terms and conditions by which College will carry out the City of Midland Business Micro-Grant Assistance Program utilizing City's Emergency Aid, Relief and Economic Security Fund as described in Exhibits "A" and "B", attached hereto and incorporated herein for all legal purposes. Any change in the performance schedule, purpose or the location of the operation must be approved in advance by the City.

II. PAYMENT

Upon and after the receipt of a notice to proceed from the City, College is authorized to incur costs against a total amount of THIRTY-SEVEN THOUSAND DOLLARS ($37,000.00). Payments shall be made on a reimbursement basis to College. All payments shall be made to College upon certification by College and approval by the Community Development Division of the City's Development Services Department and the City Manager. Final payment on the project must be at least ONE THOUSAND FIVE HUNDRED DOLLARS ($1,500.00), and will not be made until all final project reporting is completed.

III. PROCUREMENT STANDARDS

College will make project procurement in accordance with 24 CFR Part 84 and Part 85 and applicable Texas Statutes. At least ten (10) days before College seeks competitive bids on procurement of over TEN THOUSAND DOLLARS ($10,000.00) and for any work contracts of over TWO THOUSAND DOLLARS ($2,000.00) of the above described project, the plans and specifications and other bid documents shall be submitted to the City and reviewed by the City's Community Development Division for conformance with federal and City requirements.

IV. INDEMNITY

EACH PARTY WILL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE OTHER PARTY AND ALL OF THE OTHER PARTY'S OFFICERS, AGENTS

AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, ACCIDENTAL DEATHS, LOSSES, PROPERTY DAMAGE AND EXPENSES OF ANY CHARACTER WHATSOEVER, INCLUDING REASONABLE ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE PARTY, ITS AGENTS OR EMPLOYEES, OR ANY SUBCONTRACTOR, ARISING OUT OF, OR RESULTING FROM, THE PARTY'S USE OF, OR ACTIVITIES ON, THE AGREEMENT PREMISES, AND THE PARTY WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE OTHER PARTY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING REASONABLE ATTORNEY'S FEES.

EACH PARTY AGREES THAT IT WILL INDEMNIFY AND SAVE THE OTHER PARTY HARMLESS FROM ALL CLAIMS GROWING OUT OF ANY DEMANDS OF SUBCONTRACTORS, LABORERS, WORKMEN, MECHANICS, MATERIALMEN, AND SUPPLIERS OF MACHINERY AND PARTS THEREOF, EQUIPMENT, POWER TOOLS, ALL SUPPLIES, INCLUDING COMMISSARY INCURRED IN THE FURTHERANCE OF THE PERFORMANCE OF THIS AGREEMENT. WHEN THE OTHER PARTY SO DESIRES, EACH PARTY SHALL FURNISH SATISFACTORY EVIDENCE THAT ALL OBLIGATIONS OF THE NATURE HEREIN ABOVE DESIGNATED HAVE BEEN PAID, DISCHARGED OR WAIVED.

V. INTENTIONALLY OMITTED

VI. INDEPENDENT CONTRACTOR

It is expressly understood and agreed that College shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the City; that College shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents employees, contractors, and subcontractors; that the doctrine of respondent superior shall not apply as between City and College, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between City and College. No person performing any work hereunder shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this Agreement is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. College shall be an independent contractor under this

Agreement and shall assume all of the rights, obligations and liabilities applicable to it as such independent contractor hereunder. City does not have the power to direct the order in which the work is done. City shall not have the right to control the means, methods or details of College's work. College shall assume exclusive responsibility for the work. College is entirely free to do the work in its own way.

VII. APPLICABLE LAWS, ORDINANCES

College shall comply with all applicable laws, ordinances and codes of the United States, State of Texas and the City and shall require all contractors and subcontractors to comply with the same. College hereby agrees as follows:

A. College will comply with the policies, guidelines and requirements of 24 CFR Part 84 and 85 and OMB Circulars A-87 and A-122, as they relate to the application, acceptance and use of federal funds for this federally assisted program. College will also comply with the Single Audit provisions of OMB Circular A-133 and make the all audits for fiscal years in which funds are expended available to the City.

B. College will comply with Title VI of the Civil Rights Act of 1964 (Public Law 88-352), which provides that no person in the United States shall on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity for which the applicant received federal financial assistance.

C. College will comply with Section 109 of the Housing and Community Development Act of 1974, and the regulations issued pursuant thereto (24 CFR 570.602), which provides that no person in the United States shall, on the ground of race, color, national origin or sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under, any program or activity funded in whole or in part with Community Development Block Grant ("CDBG") funds. College will comply with said regulations regardless of whether any program or activity is funded in whole or in part with CDBG funds. Additionally, College will comply with regulations at 24 CFR 570.613 concerning eligibility restrictions for certain resident aliens.

D. College will comply with Title VIII of the Civil Rights Act of 1968 (Public Law 90-284), which provides that it is the policy of the United States to provide for fair housing throughout the United States. It prohibits particular discriminatory acts regarding housing if the discrimination is based on race, color, religion, sex, national origin, family status, or mental and physical disability.

E. College will comply with Section 3 of the Housing and Urban Development Act of

1968 (12 USC 1701u), as amended, and the regulations issued pursuant thereto (24 CFR Part 135) which provides that to the greatest extent feasible opportunities for employment and other economic opportunities be directed to low and very low income City residents and to business concerns which provide economic opportunity to low and very low income persons.

F. College will obtain and maintain documentation evidencing that program beneficiaries meet program income eligibility criteria, specifically as required by 24 CFR 570.208. College shall further comply with the retention of records provisions of 24 CFR 570.502.

G. College will insure that subcontractors for work or construction activity under this Agreement shall comply with the equal opportunity requirements of Executive Order 11246, as amended.

H. College will insure that subcontractors for work or construction activity under this Agreement shall comply with 24 CFR Part 84 and 85and Section 110 of the Housing and Community Development Act of 1974 and the regulations issued pursuant thereto (24 CFR 570.603), which provide for adherence to certain labor standards.

I. No officer, employee or board member of College shall have a financial interest, direct or indirect, in this Agreement or the monies transferred hereunder, or be financially interested, directly or indirectly in the sale to College of any land, materials, supplies or services purchased with any funds transferred hereunder, except on behalf of College as an officer, employee, member, or program participant. College shall further comply with the conflict of interest provisions of 24 CFR 570.611 and 24 CFR Part 84 and Part 85.

J. College will insure that funds will not be used to directly or indirectly employ, award contracts to or otherwise engage the services of or fund any subcontractor during any period of debarment, suspension, or placement in ineligibility status under the provisions of 24 CFR Part 24.

K. College shall follow the provisions of 24 CFR Part 84 and Part 85 concerning standards for financial management systems.

L. College will comply with the property management and disposition requirements of 24 CFR Part 84 and 85 including copyright provisions therein.

M. College certifies that:

No Federal appropriated funds have been paid or will be paid, by or on behalf of College, to any person for influencing or attempting to influence an officer or

employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

If any funds other than Federal appropriated funds have been paid or will be paid to any persons for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, College shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.

N. College shall comply with and shall ensure that its subcontractors comply with the provisions of the Drug-Free Workplace Act, 41 U.S.C, 701, et seq.

O. College shall follow the provisions of 24 CFR 570.614 Architectural Barriers Act and the Americans with Disabilities Act.

P. College shall make available to the City, as determined by the City information and/or data which document compliance, in all phases of its work, with the above paragraphs A through O. College shall fully cooperate with City when City monitors the services and work performed under this Agreement, which the City may do at any time during the term of this Agreement. College shall maintain accounts and records adequate to identify and account for all cost pertaining to the Agreement. Records are to be retained in accordance with 24 CFR Part 84 and Part 85.

VIII. PROGRAM INCOME

It is agreed and understood that except in the disposition of program acquired assets that there will be no program income generated as a result of this Agreement which requires compliance with 24 CFR 570.504.

IX. TRANSFER OF ASSETS

College shall upon termination or expiration of this Agreement transfer to the City all program funds and all loans and accounts receivable attributable to the use of program funds that College has on hand at the time of termination. If College ceases to use any asset acquired with program funds for the purposes described in this Agreement, College shall either pay to the City the fair market value of the asset or transfer control of the asset to the City.

X. RECOGNITION OF FUNDING

College shall provide recognition of funding in its procurement announcements. College shall post, in a publicly visible location where assisted activity is provided, an acknowledgment that City is contributing to the project. City's Community Development Office will determine if posting is adequate given the scale of the assisted activity.

XI. PROJECT REPORTS

Monthly status reports are to be prepared by College and submitted in a timely fashion to the City. A final performance report shall be prepared and submitted promptly after project completion. An inventory of program acquired assets shall be submitted to City, in a form suitable to City, on an annual basis and at the end of the Agreement.

XII. TERM OF AGREEMENT

The term of this Agreement shall begin November 4, 2020, and end September 30, 2021, unless an extension of time is granted by the City Council. If all program funds are expended prior to September 30, 2021, the Agreement shall end once a final performance report is accepted by City.

XIII. INTENTIONALLY OMITTED

XIV. ATTORNEY FEES

BY EXECUTING THIS AGREEMENT, COLLEGE AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT. COLLEGE SPECIFICALLY AGREES THAT IF COLLEGE BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET SEQ., AS AMENDED), OR CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, COLLEGE AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF

ATTORNEY'S FEES TO WHICH COLLEGE MIGHT OTHERWISE BE ENTITLED.

COLLEGE AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. COLLEGE ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. COLLEGE FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND COLLEGE. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

COLLEGE AND CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

XV. DEFAULT PROVISION

In the event that either College or the City fails to perform or is unable to perform substantially its obligations under the terms of this Agreement, the nondefaulting party shall notify the defaulting party in writing of such default. Within five (5) days after receipt of such notification, College and City shall meet to discuss the default, the reasons thereof and the methods to cure default. If the defaulting party has not substantially cured the default within ten (10) days after receipt of such notification, or the City and College have not agreed within such time upon a solution to the default, the nondefaulting party may, at its option, pursue any remedies at law or in equity.

In any event this Agreement may be terminated by the mutual consent of College and City in writing.

XVI. NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES

As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Agreement, College or its legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing (consisting of one original and seven copies of notice attached to a copy of this agreement) of such damages, duly verified, within one hundred and fifty (150) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which College will settle, the physical and mailing addresses of College at the time and date the claim was presented and

the physical and mailing addresses of College for the six months immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom College relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to College that its notice is insufficient. City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, College's failure to comply with the requirements herein shall perpetually bar College's claim for damages under Chapter 271 of the Texas Local Government Code, and Section 311.034 of the Texas Government Code, regardless if City has actual or constructive notice or knowledge of said claim or alleged damages. College agrees that the requirements of this entire agreement are reasonable.

XVII. SOVEREIGN IMMUNITY

By executing this Agreement, neither City nor College are waiving their right of sovereign immunity. Both City and College are retaining their immunity from suit. Neither City nor College are granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

XIII. THIRD-PARTY BENEFICIARY

The City's approval of this Agreement does not create a third party beneficiary. There is no third party beneficiary to this Agreement. No person or entity who is not a party to this Agreement shall have any third party beneficiary or other rights hereunder.

XIX. ASSIGNMENT

College shall not, either directly or indirectly, assign all or any part of this agreement or any interest, right or privilege herein, without the prior written consent of the City. The issue on whether or not to grant consent to an assignment is in the sole discretion of the City.

XX. TERMINATION WITHOUT CAUSE

The City shall have the right, at its sole option, to terminate this Agreement at any time, with or without cause, by giving 90 days written notice to College of City's election

to so terminate.

XXI. VENUE AND GOVERNING LAW

This agreement shall be governed by the laws of the State of Texas. All performance and payment made pursuant to this agreement shall be deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this agreement or the performance of this agreement shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this agreement shall be deemed to have occurred in Midland County, Texas. This agreement shall be governed by, interpreted, enforced and construed under the law of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties, including but not limited to tort claims and any and all contractual claims or disputes, arising from or relating in any way to the subject matter of this agreement, without regard to conflict of laws and rules that would direct application of the laws of another jurisdiction.

XXII. PROCUREMENT SUSPENSION AND DEBARMENT

The City has found that College has not been suspended or debarred from performing work on Federal contracts.

XXIII. FEDERAL WAGE REQUIREMENTS

If applicable, the Davis-Bacon Act, 29 CFR 5.5, and any related acts or regulations are hereby incorporated by reference and made a part of this Agreement, and all terms and requirements under said laws, by such inCollege, are made terms and requirements of this Agreement, to which the parties to this Agreement have agreed to be bound.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement this the _____ day of _____, 2020.

CITY OF MIDLAND, TEXAS	MIDLAND COLLEGE
By_____	By_____
Robert Patrick, Interim City Manager	Name_____
	Title_____

ATTEST:

_____
Amy M. Turner, City Secretary

THE STATE OF TEXAS §
§
COUNTY OF MIDLAND §

BEFORE ME, the undersigned authority, on this day personally appeared _____, an officer of MIDLAND COLLEGE, known to me to be the person and official whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same as the act and deed of said College, for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the _____ day of _____, 2020.

_____
Notary Public, State of Texas

EXHIBIT-A

City of Midland Business Micro-Grant Assistance Program

Program Description

In an effort to assist small local businesses impacted by COVID-19, the City of Midland and Midland College will collaborate to assist small business owners through the City of Midland Business Micro-Grant Assistance Program. The program is available for business interruptions occurring on or after March 27, 2020 (date as signed by President Trump through the Corona Virus Aid Relief & Economic securities Act) due to the COVID-19, which resulted in required closures, voluntary closures to promote social distancing, or decreased customer demand.

The City of Midland received funding from the CARES Act and intends to distribute $963,000.00 of those funds in the form of grants to eligible Midland small businesses directly impacted by COVID-19. Grants of $10,00.00 will be made to eligible businesses. Grant applications will be accepted at Midland College Business and Economic Development Center at 201 W Florida. Grant applications will be processed by Midland College. The City of Midland will make grant award decisions. All required documentation must be submitted with the grant application. However, the City of Midland and Midland College are available to assist any eligible business in completing the application and producing the required supporting documentation.

The City of Midland's Community Development Office's will administer the project and be the fiscal agent for this $1,000,000.00 project. The City will make all material project management decisions and fund each micro grant via direct deposit or a check. If for some reason an award must be clawed back from a business, the City of Midland will perform this action.

Midland College Scope of Service

As related to the City of Midland Business Micro-Grant Assistance Program, College shall:

- assist in development of the application process
- respond to applicant inquiries
- accept applications
- process applications
- transport completed applicant files to the City for resolution
- collect receipts from business owners
- generate reports
- generate invoices
- market the program

In processing applications, Midland College shall check for program eligibility as defined in **Exhibit "B"**.

Exhibit B

City of Midland
Business Micro-Grant Assistance Project

In an effort to assist small local businesses impacted by COVID-19, the City of Midland and Midland College Business and Economic Development Center (BEDC) will collaborate to assist small business owners through the City of Midland Business Micro-Grant Assistance Project (BMGAP). The program is available for business interruptions occurring on or After March 27, 2020 (date as signed by President Trump through the **(Corona Virus Aid Relief & Economic securities Act)** due to the COVID-19, which resulted in required closures, voluntary closures to promote social distancing, or decreased customer demand.

The City of Midland received funding COVID-19 funding and intends to distribute $1,000,000.00 of those funds in the form of grants to eligible Midland small businesses directly impacted by COVID-19.

Grants of $10,000.00 will be made to eligible businesses. Grants will be awarded on a first-come first-serve basis. Due to limited funding, meeting all eligibility criteria does not guarantee and award.

All required documentation must be submitted with your grant application. However, the City of Midland and the BEDC are available to assist any eligible business in completing the application and producing the required supporting documentation.

ELIGIBILITY

Grant funds are open to businesses meeting the following criteria:

- Is located within the city limits of the City of Midland, Texas
- Is registered with the Texas Comptroller's Office and is currently in good standing
- Is current on City of Midland fees, property taxes, State and City sales tax
- Has been in operation since March 27, 2019
- Neither the business nor any of its owners have declared bankruptcy in the last 12 months.
- Is not a nonprofit organization
- Is not a sexually oriented business, as defined by Texas Local Government Code §243.002, or a gambling establishment, as defined by Texas Penal Code 47.02
- Employs twenty (20) or fewer employees
- Has experienced business interruptions occurring on or after March 27, 2020 due to COVID-19
- Can document a loss of business revenue due to COVID-19 pandemic
- Has an annual gross revenue equal to or below $1,000,000.00
- Does not have conflicts of interest with the City, City Council or Midland College.
    - City of Midland elected officials and their immediate family members, City staff and Midland College staff are not eligible for assistance
- Can provide 2018 or 2019 business tax forms
- Has not received other COVID-19 economic assistance through other Federal or local government agencies [examples include: Economic Injury Disaster Loans (EIDL Loans), Paycheck Protection

Program (PPP) loans or Federal Emergency Management Agency (FEMA) funding]. Businesses may not receive federally subsidized assistance that duplicates any part of their disaster loss covered by insurance or another source. It is the City's sole discretion to determine if funds received induce an eligibility.

- Must use funding for designated fixed assets, services, or marketing
- Must be willing to provide receipts documenting how funds were spent
- Must provide a written summary of business interruption and document loss experienced

Duplication of Benefits

Businesses may not receive BMGAP funds if they have already received federally subsidized disaster assistance such as Economic Injury Disaster Loans (EIDL Loans), Paycheck Protection Program (PPP) loans or Federal Emergency Management Agency (FEMA) funding. Grant applicants for BMGAP funds must disclose any funds applied for and/or received from these sources or other federal assistance programs.

If a duplication of benefits is determined to have occurred after BMGAP funds have been disbursed, the amount of funds determined to be duplicative must be repaid to the City of Midland by no later than a date determined by City of Midland management.

Eligible Uses

BMGAP funds can be used to reimburse the expenses incurred by the eligible Midland businesses on or after March 27, 2020 for business interruptions due to COVID-19 which resulted in required closures, voluntary closures to promote social distancing, or decreased customer demand. Examples of expenses include, but are not limited to:

Fixed Assets:

- Equipment/Machinery (must be directly related to COVID-19)
- Personal Protection Equipment (PPE)
- Technology (Online order and payment systems)
- Contactless payment devices
- Business software (QuickBooks, etc.)

Services:

- Working Capital
- Payroll Expenses
- Health care benefits
- Supplier payments
- Rent, lease or mortgage payments for real property used for business purposes. (A storefront or warehouse. Does not include personal residence.)
- Rent, lease or purchase payment for business property (Delivery vehicle, food truck, kitchen equipment, technology payment, and communications systems/equipment.)

Marketing:

- Website design
- Website improvements and redesign
- Cost of digital marketing

Funds can be used for one or all of the costs above. Businesses receiving grant funding may be required to document how the funds are used and submit receipts of all funds are utilized.

Required Documents

The grant application will require verification of pertinent documentation. Any applicants that are unable to provide the required documents may still submit a grant application for review and consideration. The BMGAP is available to assist any eligible Midland business in completing the application and producing the required supporting documentation.

Business owners must complete their BMGAP application and include a minimum of one or more of the documents below, year to date 2020:

- Income statement(s)
- Business operating bank statements
- Sales tax report(s)

Business owners must also submit the below documents along with their application:

- 2018 or 2019 business tax returns
- Valid personal identification
- Proof of business location inside the city limits of Midland
- Form W9
- Direct Deposit Form

Application Processing

Applications will be reviewed in the order of receipt. If applicants are unable to secure the required documentation or need technical assistance in submitting the grant application, BEDC staff will be available to provide guidance.

Grant applications will be processed by the BEDC and a final decision will be made by the City of Midland.

ATTACHMENT 1
Application Cover Sheet

ORGANIZATION NAME:	Midland College Business and Economic Development Center (BEDC)		
PROJECT TITLE:	City of Midland Business Micro-Grant Assistance Project		
Total Project Costs:	$500,000	Amount of Emergency Fund Request	$25,000
Type of Project:	_X_ Operational _Capital/Equipment _Special		
Project Address:	BEDC 201 W. Florida Midland, TX. 79701		
Project Summary (50 words or less):	$475,000 in micro-grants will be awarded to City of Midland businesses. The BEDC will receive $25,000 to process micro-grant applications and present applications to the City for resolution. The City of Midland's Community Development Office (CDO) will administer the project and be the fiscal agent for this $500,000 project.		
Organization's Mailing Address:	Midland College 3600 N. Garfield Midland, TX 79705		
Application Contact Person:	Alfredo Chaparro		
Title of Contact Person	BEDC Director		
Phone No:	432-684-4309	Fax No.:	432-684-4821
Email Address:	achaparro@midland.edu		

ATTACHMENT 2
Attachments Checklist Sheet

The following is a list of attachments that **must** be submitted with an application for CARES funding. Applications without the required attachments will not be scored and will be returned to the applicant.

Attachment Number	Description	
1	Application cover sheet	Attached
2	Attachments Checklist Sheet	Attached
3	Resolution from governing board authorizing the submission of the application and the use of City funds for activities requested and naming the person who will be signing contracts and other documents on behalf of the agency.	Attached
4	Copy of self-scoring sheet	Attached
5	Narrative	Attached
6	Schedule/Beneficiaries/Budget Worksheet	Attached
7	Map of project location or service area	Attached
8	Site plans, specifications (for construction projects only)	Not Applicable
9	Program income guidelines and forms	Attached
10	List of staff involved in project	Attached
11	Resumes and job descriptions of key staff	Attached
12	Letters from CFO	Waived
13	Recent financial statement	Waived
14	Most recently filed Form 990	Waived
15	Most current audit	Attached
16	Letters from funders as evidence of additional funding	Attached
17	Board Member Roster Submission Form	Attached
18	Preliminary Statement of Workforce Needs	Not Applicable
The below are not required if CD Office has current documents on file		
19	Articles of Incorporation and By-laws.	Waived
20	IRS evidence of non-profit status.	Waived
21	Agency procurement policy	Not Applicable

Midland College

Office of the President

September 25, 2020

City of Midland
Community Development Office
300 N. Loraine, 4th floor
PO Box 1152
Midland, TX 79702

Re: City of Midland Emergency Aid, Relief, and Economic Security Funds, 2020 Application Packet

In lieu of a resolution from the Midland College Board of Trustees, on behalf of Midland College, I authorize the Business and Economic Development Center (BEDC) to submit an application for the 2020/2021 City of Midland Business Micro-Grant Assistance Project. Unfortunately, the Board of Trustees already met on September 15, 2020. The next board meeting is slated for October 20, 2020, too late for this application.

Please be informed that Dr. Damon Kennedy, Rick Bender, or I can sign contracts and other documents for Midland College.

In addition, note that Midland College will allocate resources to this project, including in-kind resources, of $25,000. This will match the support being provided by the City of Midland. The makeup of this amount is the time and effort of two BEDC staff funded by Midland College. In addition, Midland College funds all BEDC staff computers, copier, office space, utilities and support from other departments at the college.

Before this possible collaboration begins, I request to review the contract before it goes to city council for approval. I need to make sure Midland College's obligations are appropriate.

Thank you for approaching Midland College to help out with this much needed and worthy project.

Sincerely,

Steve Thomas, Ph.D.
President

3600 N. Garfield • Midland, Texas 79705-6399 • (432) 685-4520 • Fax (432) 685-4522 • www.midland.edu

MIDLAND COLLEGE IS AN EQUAL OPPORTUNITY EMPLOYER/EDUCATOR
Midland College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award certificates and associate and baccalaureate degrees
Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Midland College

ATTACHMENT 4
Copy of Self Scoring Sheet

Scoring factor	1	0	-1	Score
Beneficiaries	100% L/M income Clients/Business			0
Location	Situated in low Income Census Tract		Located outside low Income Census Tract	1
Project Funding	Has 100%+ of other funds		Proposes 100%+ City funding	0
Capacity			No recent audit or has had a recent audit/monitoring Finding	1
Project Type	Capital Project		Repeat Operational	1
				3

Beneficiaries – any project that will only serve clients whose incomes are below the low and moderate-income guideline will get a point. All other types of projects or programs will score a zero. *The project will serve businesses that make under $850,000 per year.*

Location - any project that will be located and primarily administered within a low-income census tract will get a point. All other types of projects or programs will score a negative one. *The Midland College Cogdell Learning Center, where the BEDC is located, is in census tract 14, the neediest census tract in Midland.*

Project Funding – a project or program that has a complete budget that will be funded by 100%+ dollars from other sources as from City of Midland will get a point. All others will score zero. *Midland College will pay 50% of the cost of the proposed services. See attachment 16 page 1 of 2.*

Capacity – Any agency that has not had a recent financial audit, or has had a recent audit/monitoring Finding will get a negative point on its proposal. All others will get a zero. *Audit was conducted and no findings were found. See attachment 15.*

Project Type – Any proposal that consist solely of a capital project (a one-time expenditure for bricks and mortar or significant long-life equipment) will get a zero. A proposal requesting funding for operational purposes (program delivery, personnel) will get a one point. All others will get a zero. *The proposed project is operational.*

ATTACHMENT 5
Narrative

1. PROJECT DESCRIPTION

As related to the City of Midland Business Micro-Grant Assistance Program (COMBMGAP), the BEDC will 1) develop the application process, in collaboration with City, 2) respond to applicant inquiries, 3) accept applications, 4) process applications, 5) transport completed applicant files to the City for resolution, 6) collect receipts from business owners, 7) generate reports, and 8) generate invoices. The City of Midland's Community Development Office's (CDO) will administer the project and be the fiscal agent for this $500,000 project. The City will make all material project management decisions and fund each micro grant via direct deposit or a check. If for some reason an award must be clawed back from a business, the City of Midland will perform this action.

The BEDC will develop the application form and all necessary supporting documents. See **appendix 1** to see a draft of the application. The City of Midland Community Development Office (CD) will provide final approval of all project forms. The BEDC's phone number will be on the application for application related questions.

The BEDC will also respond to applicant inquiries from interested business owners via the 684-4309 or bedc@midland.edu address. This phone number rings on the desk of all four staff and the e-mail address is checked by two staff. The phone system has caller ID, lists missed calls, and records voice mail messages.

The Applications will be accepted at the BEDC's office location at the Midland College Cogdell Learning Center located at 201 W. Florida, or via the bedc@midland.edu e-mail address. Business owners will be able to drop of applications during non-business hours via a drop box located by the west side main entrance.

The BEDC will process applications. Two BEDC business counselors will process applications. The process will consist of making sure applications are complete, applicants are eligible, and packaging the application for presentation to the City's CDO. The four stages an individual applying may have during the life of the project are: prospect, applicant, candidate, and awardee. See **appendix 2** for the project spreadsheet that will be used to manage the project. See **appendix 3** for a draft of the packing form to be presented to the City's CDO office for each application presented. Completed applications will be presented to the CDO by the next business day.

After a file is transported to the CDO office, some candidates will become awardees. For awardees, the BEDC will make three attempts to collect receipts from business owners to document they purchased what they said they would. After three attempts, this duty will be transfer to the City of Midland.

The BEDC will report to the Community Development Office in the three ways. First, we

will provide a weekly report that provides the number of project prospects, applicants, candidates, and awardees. Second, we will provide a monthly report. This report will report everything in the weekly report, but on a monthly basis. Third, the BEDC will generate a final report that will add the number of people benefitting from the project. This number will be a sum of the owner and employees. See each of these reports at **appendix 4, 5, 6**, respectively. The weekly report will be submitted on Monday's for the preceding week. The monthly report will be submitted on the Monday after the week having the last business day for the preceding month. The final report will be provided a month after the project's conclusion.

The BEDC will submit invoices to the City of Midland on a monthly basis. Invoices will be based on the number of awards made during the month in question.

The BEDC will keep all prospect, applicant, candidate and awardee information confidential. After the project ends, the BEDC will not maintain any records related to the project. Records will be transferred to the City of Midland, or destroyed. However, it is possible that some COMBMGAP prospects or clients may receive additional services from the BEDC. If this occurs, they will complete a BEDC business client intake form. These individuals/businesses would remain in the BEDC database.

This application assumes the BEDC will be paid $25,000 for services rendered to the COMBMGAP. This amount is equal to the 5% indirect funds (500,000). As BEDC staff will not be employed by the City of Midland and no supplies, travel, or construction will occur for this project, it is our assumption that no federal regulations or guidelines must be followed by the BEDC.

2. IMPLEMENTATION AND SCHEDULE

September 30, 2020:	Applications due for project
October 2:	City's deadline for negotiating contract with BEDC.
October 20:	Estimated date City Council approves BEDC's **application**
October 20:	Estimated date City Council approves BEDC's **contract**
October 21:	Estimated date City provides **notice to proceed**
October 26:	BEDC participates in the City's promotional media event. Application is placed on BEDC website.
October 26:	Date we can start accepting applications.
February 26, 2021:	Estimated latest day the project will conclude

3. FINANCIAL

The City of Midland, through the CDO, will fund $475,000 in COMBMGAP grants. This amount will fund 63.33 grants. The BEDC will be reimbursed for services rendered to the COMBMGAP by the City of Midland. The BEDC will be reimbursed $395, per funded applicant, for the first 63 applicants. The 64th funded applicant will be funded for $115. The total fees paid to the BEDC for services rendered is $25,000. This amount is 5 percent of the $500,000 invested in this project.

ATTACHMENT 6
Schedule/Beneficiaries/Budget Worksheet

Agency:	MC BEDC	Project:	City of Midland Micro-Grant Assistance Project

PROJECT DURATION	Anticipated Start Date	Mid-Point Date and Expected Status	Estimated Completion Date
	October 14, 2020		February 26, 2021

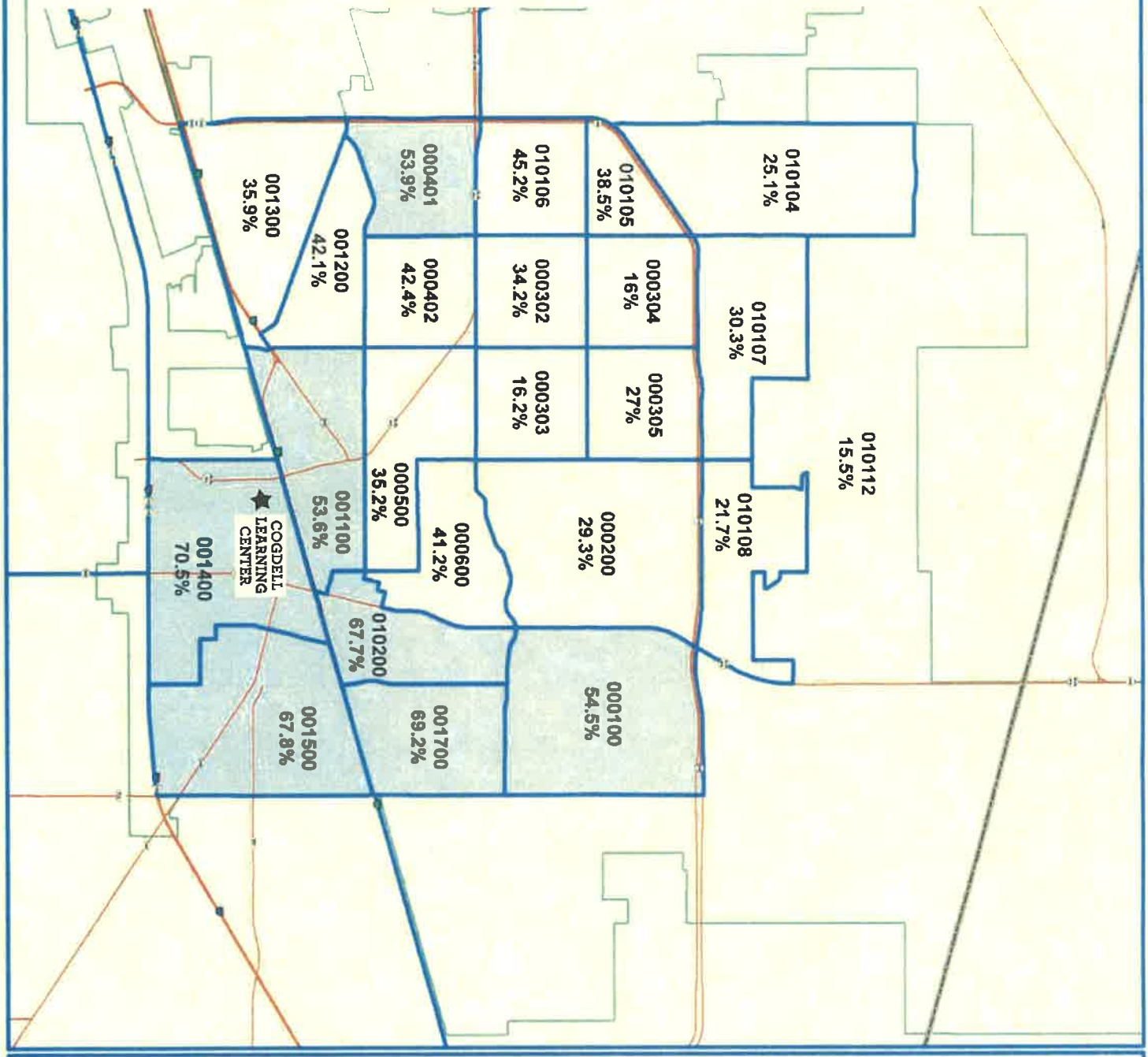
PERFORMANCE MEASUREMENTS	Previous FY Actual	Current FY Projected	Proposed FY
Number of Beneficiaries –	200	200	200
% Low/Mod Income Beneficiaries	150	150	150
Outcome 1: 64 business owners that have			
experienced a financial crisis will receive			
a business micro-grant.			

BUDGET

EXPENSE CATEGORY	Previous FY Actual	Current FY Projected	Proposed FY	CDBG Amount Requested
1. Indirect Services	0	0	$50,000	$25,000
Program/Project Subtotal	0	0	0	0
Other (Explain)	0	0	0	0
TOTAL EXPENSES	0	0	$50,000	$25,000
FUNDING SOURCES* **				
Midland College $25,000 for time and effort for MC staff, space, equipment and supplies. See attachment 16 page 1 of 2.				
TOTAL REVENUE / FUNDING	$ 0	$ 0	$50,000	$25,000

ATTACHMENT 7
Map of Project Location or Service Area

The project location will be the City of Midland. An effort will be made to promote the project in census tracts with over a 50% needy population, by income. These census tracts are shaded in blue. Please note the Cogdell Learning Center is centrally located in these census tracts.



ATTACHMENT 8

Site Plans, Specifications (for construction projects only)

There is no construction involved with Midland College BEDC's role in this project. This attachment is not applicable.

ATTACHMENT 9
Program Income Guidelines and Forms

The only income guideline for the City of Midland Business Micro-Grant Assistance Project is the application eligibility criteria of having an annual gross income of $850,000, or less, per year. This amount was determined by the City of Midland Community Development Office.

ATTACHMENT 10
List of staff involved in project

Agency : MC Business & Economic Development Center (BEDC)

Name	Title	Race	√ if Hispanic
Alfredo Chaparro	Comm Serv Dir & BEDC	White	√
Paul McCord	Business/Housing Counselor	White	
Victoria Santiago	Credit/Housing Counselor	White	√
Letticia Martinez	Project Assistant	White	√

Race – W = White B = Black. A = American Indian/Alaskan Native S = Asian
O = Native Hawaiian /Other Pacific Islander, T = two or more races

Alfredo Chaparro

PROFESSIONAL EXPERIENCE, *as related to City of Midland Business Micro-Grant Assistance Project:*

MIDLAND COLLEGE, Midland, Texas
Director of Community Services, October 2013 – present

- Administratively responsible for the Business and Economic Development Center (BEDC) and Cogdell Learning Center (CLC) departments.
    - The mission of the BEDC is to help people increase their credit score, get mortgage ready, and start or expand a small business.

Hispanic Serving Institutions Assisting Communities "Savings for Independence" grant Project Director, October 2006 - September 2010

- Via the BEDC, Midland College becomes the first community college in the nation to administer an Individual Development Account (IDA) program. IDA's are matched savings programs. Collaborated with Community National Bank.
- BEDC provides financial assistance to 22 entrepreneurs to purchase small-business assets.
- BEDC invests over $300K to help IDA participants purchase small-business assets or a first-time home.

Hispanic Serving Institutions Assisting Communities "Juntos Sí Podemos/Together We Can" grant Project Director, October 2002 - September 2005

- BEDC implemented the Business Survival Skills training program for entrepreneurs and 142 individuals participated and 30 individuals earned a Business Survival Skills program certificate by attending five of seven classes.

Education

Texas Tech University, Texas
B.B.A. in Accounting, Dec 1990

Texas Tech University, Texas
M.S. in Accounting, May 1993

Additional Information

- Midland Chamber of Commerce Board of Directors September 2020 to present
- Member of the Midland Hispanic Chamber of Commerce Incubator Oversight Committee 2003 to 2017
- Midland Hispanic Chamber of Commerce Board of Directors 2003 to 2006

LETTICIA MARTINEZ

PROFESSIONAL SUMMARY

Professional and business-minded individual specializing in credit counseling, homebuyer education, and business start-up. Has over 30 years in broadcast television experience. Public relations/marketing professional with digital, traditional and non-traditional media aptitude. Administrative and interpersonal skills in managing work performance accuracy and efficiency.

WORK HISTORY

Project Assistant, 10/2019 to Present **Midland College BEDC – Midland, TX**

- **Provide one-on-one counseling to individuals for credit, homebuyer education and business start-ups**
- **Work directly with Non-profit case managers in Midland and their clients with credit counseling.**
- **Prepare monthly use of funds report to City of Midland for the BEDC program.**
- **Worked on the social media promotional educational vignettes to educate businesses and individuals on the EIDL, PPP and Mortgage Foreclosure programs available through the CARES act.**

Senior Vice President, 08/2002 to July 2019 **Entravision Communications Corp** – Midland, TX

- Implemented tools and utilization reports for maximizing of television inventory revenue.
- Presented digital and traditional marketing initiatives to small and medium-sized businesses.
- Prepared revenue projections and expense financials.

EDUCATION

BBA: Business, 1984 University of Texas at Austin – Austin, TX
Associate Degree: Business Administration, 1981 **South Plains College** - Levelland, TX

ADDITIONAL INFORMATION

Board Member, Advertising Committee for the Complete Count Committee for Census 2020

Board Member, Secretary for the Hispanic Cultural Center of Midland

Fundraising Committee Member, Greenwood Catholic Community, St. Rita Parish

Board Member, Salvation Army of Odessa

Paul M McCord

4404 Ward St.
Midland, TX 79705
432-684-4309
pmccord@midland.edu

Work History:

Business and Mortgage Counselor
Midland College Midland, TX 2009-Present
Counsel prospective business owners on various aspects of business ownership and developing business and financial plans. Have worked with over 500 new and established owners. Services included developing business and marketing plans; putting together financial packages to present to potential lenders; evaluating potential purchases of existing businesses, as well as expansions of existing businesses. Developed videos to promote the Cares Act PPP and EIDL programs to local entrepreneurs and businesses. Worked with local non-profits to help local businesses, including as a member of the Hispanic Chamber Incubator Oversight Committee.

Sales Training Consultant/Owner
McCord and Associates 2005-2012
Developed sales training programs for outside business-to-business sales teams. Presented sales training programs to corporate clients in the software, travel, retail, investment, and construction industries. Major clients included Microsoft; Travel Leaders; Stifel Financial; Johnson & Johnson; IBM; Capital One Bank; Weyerhauser Company.

Capital One Mortgage Houston, TX 2002-2007
Ran the Texas mortgage operations for Capital One Mortgage, a subsidiary of Capital One Bank.

President/Owner
Basin Mortgage Midland, TX 1992-2002
Retail mortgage lending for both residential and commercial real estate properties in the Midland/Odessa area.

Owner
Hospital News of Dallas/Ft. Worth Dallas, TX 1987-1992
Opened a specialty newspaper for the staff of Dallas/Ft. Worth area hospitals. Monthly distribution of 65,000.

Regional Sales Manager
Heritage Capital Corporation Dallas, TX 1979-1987
Wholesaled investment products to retail investment and financial planning companies.

Education:

Texas A&M University, Commerce, TX B.A.

MARIA VICTORIA SANTIAGO

6982 King Ranch Road. Odessa, TX 79765 | 4324383923 | victoriasantiago@gmail.com

Professional Profile

Over fourteen years of management and leadership experience in Education, Consultancy, Human Resources, Finance & Administration. Excellent interpersonal and communication skills. Ability to motivate students and coworkers to learn at optimum levels, maintaining a positive environment while keeping a clear perspective of goals to be accomplished. Self-confident and poised during interactions across all business hierarchies. A persuasive and assertive communicator. Coached, developed and lead high performance work teams. Bilingual English/Spanish. Certified Business Coach.

Education

MASTER of GLOBAL MANAGEMENT | May 2009 | A.B. Freeman School of business. tulane university. new orleans, united states of america

MASTER IN BUSINESS ADMINISTRATION | july 2008 | instituto de estudios superiores de administracion. caracas, venezuela

b.s. in economics | december 2002 | universidad central de venezuela. caracas, venezuela

Professional Experience

counselor & Instructor | midland college | September 2017 – present

Business and Economic Development Center. Midland, Texas

- Designed and instructed courses in Entrepreneurship, Personal Finances and Credit Report, Homebuying Education (Spanish), Job Seeking Skills for Professionals, Certified Nurse Assistant Test Preparation, English as a Second Language and Test of English as a Foreign Language (TOEFL) Preparation.

senior consultant | valor humano | march 2012 – june 2013

Talent management and strategy consulting firm. Panama City, Panama

- Identified, developed and retained a profitable client portfolio of over 50 companies (most of them Fortune 500) from diverse industries such as: consumer goods, banking, insurance, real estate developers, mining, oil and gas.
- Executive Coach. Consultant for HR Strategy Development, Talent Solutions (hiring, retention and development), Organizational Transitions (Merge & Acquisitions, Regional Centers, etc.) and Headhunting for executive positions in The Americas.
- Coordinated and supported negotiations for coverage of commodities (Hedging). Provided effective financial expertise and guidance to the CFO and executive team regarding identified strategic positioning opportunities for the organization.
- Managed due diligence, valuation, structuring and negotiation of financial transactions. Evaluated contracts and assisted in financial negotiations.
- Responsible for the annual strategic planning, budgeting and forecasting process, providing forward looking growth plans in areas related to revenue, operating expense, and headcount. Responsible for the control, follow up and update of all budgets.

ATTACHMENT 11
Resumes and Job Descriptions (Page 5 of 5)

BEDC Director

- Communicate with the Community Development Office consistently
- Submit weekly, monthly, and end of project reports
- Manage the day to day decisions of the project
- Adjust the processing of applications as necessary, with approval from the Community Development Office

BEDC Project Assistant

- Data entry into the project spreadsheet
- Promote the project within the community
- Market the project via the BEDC's Facebook page
- After the project concludes, all project records will be destroyed or sent to the City of Midland
- Call business owners to collect receipts of their expenditures

BEDC Counselors (2)

- Process applications
- Assist business owners with the development of financials, if required
- Answer to in person, phone call, and e-mail inquiries
- Promote the project within the community
- Process monthly invoices and submit to the City of Midland Community Development Office
- Package applications for delivery to the City of Midland Community Development Office

Cogdell Learning Center Front Counter Assistant

- Deliver BEDC mail to BEDC department every business day
- Deliver items dropped off in the Cogdell Learning Center's drop box to the BEDC every business day
- Greet building visitors interested in the micro-grant project

ATTACHMENT 12
Letters from CFO

The City of Midland Community Development Office has waived this attachment.

ATTACHMENT 13
Recent Financial Statement

The City of Midland Community Development Office has waived this attachment as the BEDC is already funded by the City of Midland via the 1% General Revenue Fund.

ATTACHMENT 14
Most Recently Filed Form 990

The City of Midland Community Development Office has waived this attachment as the BEDC is already funded by the City of Midland via the 1% General Revenue Fund.

Note: Midland College is a not a 501c3. It is a political subdivision of Texas.

JOHNSON MILLER & CO., CPA's PC
Certified Public Accountants *A Professional Corporation*
An Independent Member of BDO Alliance USA

Independent Auditors' Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

The Board of Trustees
Midland College District
Midland, Texas

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of Midland College District (the "District"), as of and for the year ended August 31, 2019, and the related notes to the financial statements, which collectively comprise the District's basic financial statements, and have issued our report thereon December 12, 2019.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the District's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control. Accordingly, we do not express an opinion on the effectiveness of the District's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that were not identified. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

2626 JBS Parkway
Suite A-200
Odessa, Texas 79761
(432) 362-3800

Two Fasken Center
550 West Texas Avenue
Midland, Texas 79701
(432) 683-1835

225 East Bender Boulevard
P. O. Drawer 220
Hobbs, New Mexico 88241
(575) 393-2171

www.jmcpa.com

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the District's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Compliance with the Texas Public Funds Investment Act

We have performed tests designed to verify the District's compliance with the requirements of the Texas Public Funds Investment Act. During the year ended August 31, 2019, no instances of noncompliance were noted.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

This report is intended solely for the information and use of management, the District's trustees, audit committee, and federal awarding agencies and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties.

Johnson, Miller & Co., CPA's PC

Midland, Texas
December 12, 2019

JOHNSON MILLER & CO., CPA's PC
Certified Public Accountants *A Professional Corporation*
An Independent Member of BDO Alliance USA

Independent Auditors' Report on Compliance for Each Major Program and Internal Control Over Compliance Required by the Uniform Guidance *and the Provisions of the State of Texas Single Audit Circular*

The Board of Trustees
Midland College District
Midland, Texas

Report on Compliance for Each Major Federal Program

We have audited Midland College District's (the "District") compliance with the types of compliance requirements described in the *OMB Compliance Supplement and the Provisions of the State of Texas Single Audit Circular* that could have a direct and material effect on each of the District's major federal and state programs for the year ended August 31, 2019. The District's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations, and the terms and conditions of its federal and state awards applicable to its federal programs.

Auditor's Responsibility

Our responsibility is to express an opinion on compliance for each of the District's major federal and state programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) *and the Provisions of the State of Texas Single Audit Circular.* Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the District's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the District's compliance.

2626 JBS Parkway
Suite A-200
Odessa, Texas 79761
(432) 362-3800

Two Fasken Center
550 West Texas Avenue
Midland, Texas 79701
(432) 683-1835

225 East Bender Boulevard
P. O. Drawer 220
Hobbs, New Mexico 88241
(575) 393-2171

www.jmcpa.com

Opinion on Each Major Federal and State Program

In our opinion, the District complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal and state programs for the year ended August 31, 2019.

Report on Internal Control over Compliance

Management of the District is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the District's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the District's internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance and the Provisions the State of Texas Single Audit Circular. Accordingly, this report is not suitable for any other purpose.

Johnson, Miller & Co., CPA's PC

Midland, Texas
December 12, 2019

Midland College District

SCHEDULE OF FINDINGS AND QUESTIONED COSTS

August 31, 2019

The Board of Trustees
Midland College District
Midland, Texas

SECTION I - SUMMARY OF AUDITORS' RESULTS

Type of Auditor's Report issued	Unmodified
Internal control over financial reporting:	
Material Weaknesses Identified?	No
Significant Deficiencies Identified that are not considered to be material weaknesses?	None reported
Noncompliance material to financial statements noted?	No
Federal and State Awards	
Internal control over major programs:	
Material Weaknesses Identified?	No
Significant Deficiencies Identified that are not considered to be material weaknesses?	None reported
Type of Auditor's Report issued on compliance for major programs	Unmodified
Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516 (a) or Provisions the State of Texas Single Audit Circular	No
Any questioned costs?	No

Midland College District

SCHEDULE OF FINDINGS AND QUESTIONED COSTS (CONTINUED)

August 31, 2019

Identification of Major Programs:

CFDA Numbers	Name of Federal Program or Cluster
	Student Financial Aid Cluster:
84.007	Federal Supplemental Education Opportunity Grant
84.033	Federal College Work-Study Program
84.063	Federal Pell Grant Program
84.268	Federal Direct Student Loans
Grant /Contract Number	**Name of State Program**
FY 19 State	Area Health Education Center
N/A	Texas Education Opportunity Grant
16616	Nursing Shortage Reduction FY 2016
Dollar threshold used to distinguish between type A and type B programs:	Federal programs threshold $750,000;
	State programs threshold $300,000
Auditee qualified as low-risk auditee?	Federal -- Yes
	State -- No, due to not meeting expenditure threshold to require state single audit in the prior two years
SECTION II – FINANCIAL STATEMENT FINDINGS	No matters were reported.
SECTION III – FEDERAL OR STATE AWARDS FINDINGS AND QUESTIONED COSTS	No matters were reported.
August 31, 2019	No matters were reported.
August 31, 2018	No matters were reported.

Midland College

Office of the President

September 25, 2020

City of Midland
Community Development Office
300 N. Loraine, 4th floor
PO Box 1152
Midland, TX 79702

Re: City of Midland Emergency Aid, Relief, and Economic Security Funds, 2020 Application Packet

In lieu of a resolution from the Midland College Board of Trustees, on behalf of Midland College, I authorize the Business and Economic Development Center (BEDC) to submit an application for the 2020/2021 City of Midland Business Micro-Grant Assistance Project. Unfortunately, the Board of Trustees already met on September 15, 2020. The next board meeting is slated for October 20, 2020, too late for this application.

Please be informed that Dr. Damon Kennedy, Rick Bender, or I can sign contracts and other documents for Midland College.

In addition, note that Midland College will allocate resources to this project, including in-kind resources, of $25,000. This will match the support being provided by the City of Midland. The makeup of this amount is the time and effort of two BEDC staff funded by Midland College. In addition, Midland College funds all BEDC staff computers, copier, office space, utilities and support from other departments at the college.

Before this possible collaboration begins, I request to review the contract before it goes to city council for approval. I need to make sure Midland College's obligations are appropriate.

Thank you for approaching Midland College to help out with this much needed and worthy project.

Sincerely,

Steve Thomas, Ph.D.
President

MIDLAND COLLEGE IS AN EQUAL OPPORTUNITY EMPLOYER/EDUCATOR
Midland College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award certificates and associate and baccalaureate degrees.
Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Midland College

ATTACHMENT 16
Letters from Funders as Evidence of Additional Funding (Page 2 of 2)

MIDLAND
City Secretary's Office

September 25, 2020

To Whom It May Concern:

The City of Midland has entered into an agreement with Midland College to fund the Business and Economic Development Center (BEDC) in the amount of $111 ,600 from October 1, 2020 to September 30, 2021. The agreement with the City of Midland states the BEDC will provide "small business technical assistance", and other services.

If you have any questions, please do not hesitate to contact me at (432) 685-7432.

Sincerely,

Amy M. Turner, TRMC, MMC
City Secretary

MidlandTexas.gov
300 N. Loraine, P.O. Box 1 1 52, Midland TX 79702-1152 • 432-685-7430 • fax 432-685-7433

Board Member Roster Submission Form

Stephen N. Castle
Cowboys Resources Corp.
415 W. Wall, Ste. 1800
Midland, TX 79702
432-686-7797
steve@cowboyresources.com
*2024 (2006)

Linda J. Cowden (Chair President)
Rancher/Owner of Oil/Gas Properties
#5 Lakes Drive
Midland, TX 79705
432-682-5659
linda.cowden@att.net
*2022 (2010)

Willard R. Green
Green Energy Resources
2801 Racquet Club Drive
Midland, TX 79705
432-685-0102
wgreen@midland.edu
*2020 (1996)

Scott M. Kidwell
Concho Resources
600 W. Illinois
Midland, TX 79701
432-221-0457
skidwell@concho.com
*2020 (2020)

Steven C. Kiser
Lynch, Chappell, & Alsup PC
300 North Marienfeld, Ste. 700
Midland, TX 79701
432-683-3351
skiser@lcalawfirm.com
*2022 (1986)

G. Larry Lawrence
Natural Gas Services Group
6900 Paradise Lane
Midland, TX 79707
432-218-7032
glarry22@gmail.com
*2022 (2008)

Charlene R. McBride
CMR Publishing
2301 Apperson
Midland, TX 79705
432-570-4186
charlene@crmpublishing.com
*2024 (1990)

Paul L. Morris (Vice Chair President)
Elk River Resources, LLC
P.O. Box 52070
Midland, TX 79710
432-218-2252
pmorris@elk-river.com
*2024 (2016)

Ralph L. Way (Secretary)
Independent Oil
306 W. Wall, Ste. 410
Midland, TX 79701
432-682-3448
ralph@rlway.net
*2020 (1978)

Dr. Steve Thomas
President, Midland College
3600 N. Garfield
Midland, TX 79705
432-685-4520
steve@midland.edu

*Term Expires
(Board Member Since)

ATTACHMENT 18
Preliminary Statement of Workforce Needs)

There is no construction involved with Midland College BEDC's role in this project.

ATTACHMENT 19
Articles of Incorporation and By-laws

The City of Midland Community Development Office has waived this attachment as the BEDC is already funded by the City of Midland via the 1% General Revenue Fund.

ATTACHMENT 20
IRS Evidence of Non-Profit Status

The City of Midland Community Development Office has waived this attachment as the BEDC is already funded by the City of Midland via the 1% General Revenue fund. Please note that Midland College is not a 501c3. It is a political subdivision of Texas.

ATTACHMENT 21
Agency Procurement Policy

There will be no procurement of any kind under this project. If the BEDC needs to procure any supplies, equipment, marketing costs, or other, it will be handled via other available funding.

APPENDIX 1
City of Midland Business Micro-Grant Assistance Program
Application

Business Information

Business Name: _____

Business Address: _____

Date Business was established: _____

Sole Proprietorship ◯ Corporation ◯ Limited Liability Partnership ◯

Other ◯ Please specify: _____

Does this Business function as an Independent Contractor? Yes ◯ No ◯

Applicant Information

Name: _____

Address: _____

Telephone: _____

Email: _____

1. Is your business located within the city limits of the City of Midland?
☐ Yes
☐ No – If no, your business is not eligible for this program.

2. Is your business registered to do business in the State of Texas
☐ Yes
☐ No – If no, your business is not eligible for this program.

3. Is your business current on City of Midland fees, property taxes, State and City sales tax?
☐ Yes
☐ No – If no, your business is not eligible for this program.

4. Has your business been in operation since March 1, 2019?
☐ Yes
☐ No – If no, your business is not eligible for this program.

5. Is your business or any of its owners currently in bankruptcy or declared bankruptcy in the last 12 months?
☐ Yes - If yes, your business is not eligible for this program.
☐ No

6. Is the business a nonprofit organization?
☐ Yes – If yes, your business is not eligible for this program.
☐ No

7. Is your business one of the following: businesses that are sexually oriented and/or a gambling establishment?
☐ Yes – If yes, your business is not eligible for this program.
☐ No

8. Does your business employ five or less employees?

☐ Yes - How many employees does the business have? _____

☐ No – If no, your business is not eligible for this program

9. Did your business experience business interruptions occurring on or after March 18, 2020 due to COVID-19, which resulted in required closures, voluntary closures to promote social distancing, or decreased customer demand?

☐ Yes
☐ No – If no, your business is not eligible for this program.

10. Are you able to show documented loss of business revenue due to the COVID-19 pandemic?
☐ Yes
☐ No – If no, your business is not eligible for this program.

11. Does your business have an Annual Gross Revenue equal to or below $850,000.00?
☐ Yes
☐ No – If no, your business is not eligible for this program.

12. Are you, or any person acting as an agent for the business, related (by blood or marriage) to an employee of the City of Midland, or an elected official of the City of Midland?
☐ Yes – Please list name(s) and affiliation(s):_____
☐ No

13. Does an employee of the City of Midland, or an elected official of the City of Midland, have a financial interest in this business?
☐ Yes – Please list name(s) and explain interest: _____
☐ No

14. Are you, or a person acting as an agent for the business, related (by blood or marriage) to a Midland College Board of Trustee, or an employee at Midland College?
☐ Yes – Please list name(s) and affiliation(s) explain interest: _____
☐ No

15. Does a member of the Midland College Board of Trustees or an employee of Midland College have a financial interest in this business?

☐ Yes – Please list name(s) and explain interest: _____

☐ No

16. Are you able to provide at least one of the following documents: 1) Income Statement; 2) business operating bank statements from the last year OR check register detailing business expenses; 3) 2019 Business Tax Returns; or 4) Sales Tax Report? If necessary, the City of Midland has the right to request additional documentation.

☐ Yes

☐ No – If no, your business is not eligible for this program

17. Have you applied and received other COVID-19 economic assistance through other Federal or local government agencies [examples include: Economic Injury Disaster Loans (EIDL Loans), Paycheck Protection Program (PPP) loans or Federal Emergency Management Agency (FEMA) funding]. Businesses may not receive federally subsidized assistance that duplicates any part of their disaster loss covered by insurance or another source. It is the City's sole discretion to determine if funds received induce an eligibility.

☐ Yes - If yes, your business is not eligible for this program.

☐ No

18. These grant funds can be used to reimburse expenses incurred for business interruptions occurring on or after March 18, 2020 due to COVID-19, which resulted in required closures, voluntary closures to promote social distancing or decreased customer demand. Please select the below options of intended expenses. (please select all that apply)

☐ **Fixed Assets**: [which can include equipment/machinery, personal protective equipment (PPE), technology, Contactless payment devices, business software]

☐ **Services:** [which can include; working capital, payroll expenses, healthcare benefits, supplier payments, rent, lease or mortgage payments for real property used for business purposes (does not include personal residence), rent, lease or purchase payment for business property (ex: delivery vehicle, food truck, kitchen equipment, technology payment and communications system/equipment]

☐ **Marketing:** [which can include website design, website improvements, redesign, and cost of digital marketing]

19. Are you willing to provide receipts to document the purchase of items you committed in question 18?

☐ Yes

☐ No - - If no, your business is not eligible for this program.

20. Please provide a brief explanation of what business interruption and documented loss of business revenue COVID-19 had on the operations of your business and hardship(s) that your business has experienced. **Please attach a written statement to meet this requirement.**

By signing below, you make the following representations, authorizations and certifications:

I represent that:

- I understand and have answered the above questions honestly and to the best of my ability.
- I certify that at the time of submitting this application, that I have not applied for and received any other federally subsidized disaster assistance including the EIDL loan, PPP loan or FEMA funding.
- All grant proceeds will be used only for business related purposes as specified in the application.
- I will comply with all requirements listed in application and submit all required documents listed on this page.
- I acknowledge that the City of Odessa Small Business Program Advisory Board will calculate the eligible grant award using tax documents I have submitted. I affirm that these tax documents are correct.

_____ _____

Name of Authorized Applicant of Business Date

_____

Applicant Signature

Required Documents to submit with application:

- ☐ Completed Application
- ☐ Valid Personal Identification
- ☐ Proof of Business location within City of Midland limits
- ☐ Form W9
- ☐ Direct Deposit Form
- ☐ One of the following:
  - ☐ Income Statement
  - ☐ Business operating bank statements from the last year OR check register detailing business expenses
  - ☐ 2019 Business tax returns
  - ☐ Sales Tax Report

If you need assistance or have additional questions regarding this application, please contact the Midland College Business and Economic Development Center (BEDC) at 432-684-4309 or bedc@midland.edu. The BEDC has been contracted to process applications. Micro-grant award decisions will be made by City of Midland Community Development Office.

Completed Applications and supporting documents can be emailed to bedc@midland.edu or hand delivered to Midland College Cogdell Learning Center, 201. W. Florida Ave. Midland, TX

APPENDIX 2
Project Spreadsheet

The project spreadsheet is 33 columns. To simplify the viewing of the spreadsheet by the reader, we cut and paste the columns below. Much of the information in the spreadsheet would come for the project application completed by the business owner. An sample business entry is made in the spreadsheet columns below.

Columns 1-5

Date Contacted Us	Name	Phone Number	E-mail Address	Application Date
09 27 20	Stacey Matus	432-528-0337	smatus@midlandisd.net	10/6/2020

Columns 6-10

Business Name	Business Address	Personal Address	Date Established	Business Type
Lil Czech Bakery	4602 Tanforan	4602 Tanforan	6/10/2015	None

Columns 11-16

City Limits	Current on Taxes	In Optn 3/1/19	Bankruptcy	Sex/Gambling	5 Emp. or less
Yes	Yes	Yes	No	No	Yes

Columns 17-22

Bus. Intrrptn	Doc. loss	AGR ≤ $850K	Rltd to COM	Fin Int by COM	Rltd to MC
Yes	Yes	Yes	No	No	No

Columns 23-28

Able to Provide:	PPP, EIDL, etc.	Will Submit Receipts	Fixed Assets	Services	Marketing
Yes	No	Yes	Yes	No	No

Columns 29-33

Application Signed	Date sent to COM	Date declined	Date Awarded	Comments
Yes	10 15 20	10 18 20	Never	Hobby business

APPENDIX 3
City of Midland Business Micro-Grant Assistance Program
File Transfer Cover Sheet

Business Name: _____

Business Address: _____

Independent Contractor: Yes _____ No: _____

Applicant Name: _____

Applicant Address: _____

Applicant Telephone: _____

Applicant Email: _____

Eligibility Criteria

There should be a check under each "Met" field below. Please note the comments, if any, under each criteria.

Met	Eligibility Criteria
	1. Is your business located within the city limits of the City of Midland?
Comments:	

Met	Eligibility Criteria
	2. Is your business registered to do business in the State of Texas?
Comments:	

Met	Eligibility Criteria
	3. Is your business current on City of Midland fees, property taxes, State and City sales tax?
Comments:	

Met	Eligibility Criteria
	4. Has your business been in operation since March 1, 2019?
Comments:	

Met	Eligibility Criteria
	5. Is your business or any of its owners currently in bankruptcy or declared bankruptcy in the last 12 months?
Comments:	

Met	Eligibility Criteria
	6. Is the business a non-profit organization?
Comments:	

Met	Eligibility Criteria
	7. Is your business one of the following: businesses that are sexually oriented and/or a gambling establishment?
Comments:	

Met	Eligibility Criteria
	8. Does your business employ 5 or less employees?
Comments:	

Met	Eligibility Criteria
	9. Did your business experience business interruptions occurring on or after March 18, 2020 due to COVID-19, which resulted in required closures, voluntary closures to promote social distancing, or decreased customer demand?
Comments:	

Met	Eligibility Criteria
	10. Are you able to show documented loss of business revenue due to the COVID-19 pandemic?
Comments:	

Met	Eligibility Criteria
	11. Does your business have an Annual Gross Revenue below $850,000.00?
Comments:	

Met	Eligibility Criteria
	12. Are you, or any person acting as an agent for the business, related (by blood or marriage) to an employee of the City of Midland or an elected official of the City of Midland? If yes, please list name(s) and affiliation(s):_____
Comments:	

Met	Eligibility Criteria
	13. Does an employee of the City of Midland or an elected official of the City of Midland have a financial interest in this business? If Yes – Please list name(s) and explain interest: _____
Comments:	

Met	Eligibility Criteria
	14. Are you, or any person acting as an agent for the business, related (by blood or marriage) to an employee of Midland College or a Midland College Board Trustee? If yes, please list name(s) and affiliation(s):_____
Comments:	

Met	Eligibility Criteria
	15. Does an employee of the Midland College or a Midland College Board Trustee have a financial interest in this business? If Yes – Please list name(s) and explain interest: _____
Comments:	

Met	Eligibility Criteria
	16. Are you able to provide at least one of the following documents: Financial Statements, Business operating bank statements from the last year OR check register detailing business expenses; 2019 Business Tax Returns; or Sales Tax Report?
Comments:	

Met	Eligibility Criteria
	17. Have you applied and received other COVID-19 economic assistance through other Federal or local government agencies [examples include: Economic Injury Disaster Loans (EIDL Loans), Paycheck Protection Program (PPP) loans or Federal Emergency Management Agency (FEMA) funding]. Businesses may not receive federally subsidized assistance that duplicates any part of their disaster loss covered by insurance or another source. It is the City's sole discretion to determine if funds received induce an eligibility.
Comments:	

Met	Eligibility Criteria
	18. These grant funds can be used to reimburse expenses incurred for business interruptions occurring on or after March 18, 2020 due to COVID-19, which resulted in required closures, voluntary closures to promote social distancing or decreased customer demand. Please select the below options of intended expenses. (please select all that apply) Fixed Assets _____ Services _____ Marketing _____
Comments:	

Met	Eligibility Criteria
	19. Are you willing to provide receipts to document the purchase of items you committed in question 18?
Comments:	

Met	Eligibility Criteria
	20. Provide a brief explanation of what business interruption and documented loss of business revenue COVID-19 had on the operations of your business and hardship(s) that your business has experienced. **Please attach a written statement to meet this requirement.**
Comments:	

Other issues:

Signed application _____

Provided direct deposit form: _____

Provided W-9 form: _____

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Prepared by: _____ Verified by: _____

Date: _____ Date: _____

APPENDIX 4
City of Midland Business Micro-Grant Assistance Program
Weekly Report for the Week

/ / to: / /

Total number of **Prospects*** (includes carryovers from previous weekly reports, if applicable): _____

New **Prospects** during this week: _____

Total number of **Applicants**** (includes carryovers from previous weekly reports, if applicable): _____

New **Applicants** during this week: _____

New **Applicants** during this week named:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Total number of **Candidates***** (includes carryovers from previous weekly reports, if applicable): _____

Of the total number, # awarded: _____ # not awarded: _____ #pending decision: _____

New Candidates This Week:

Name _____ Date Transferred to City: _____

Name _____ Date Transferred to City: _____

Name _____ Date Transferred to City: _____

Name _____ Date Transferred to City: _____

Name _____ Date Transferred to City: _____

Name _____ Date Transferred to City: _____

Name _____ Date Transferred to City: _____

Name _____ Date Transferred to City: _____

Name _____ Date Transferred to City: _____

Total Number of **Awardees****** (includes carryovers from previous weekly reports, if applicable): _____

New **Awardees** during this week:

Name _____ Amount: _____ Date They Got Approved by City: _____

Name _____ Amount: _____ Date They Got Approved by City: _____

Name _____ Amount: _____ Date They Got Approved by City: _____

Name _____ Amount: _____ Date They Got Approved by City: _____

Name _____ Amount: _____ Date They Got Approved by City: _____

Name _____ Amount: _____ Date They Got Approved by City: _____

Name _____ Amount: _____ Date They Got Approved by City: _____

Name _____ Amount: _____ Date They Got Approved by City: _____

Name _____ Amount: _____ Date They Got Approved by City: _____

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Report Completed by: _____ Report Verified by _____

** Prospects are individuals have inquired about the program and provided the BEDC with their contact information.*

*** Applicants are individuals who have submitted a completed application.*

**** Candidates are individuals whose applications have been processed and the BEDC is recommending an award*

***** Awardees are candidates that the City of Midland decided to award.*

APPENDIX 5
City of Midland Business Micro-Grant Assistance Program
Monthly Report

Total number of **Prospects*** : _____

Total number of **Applicants**** : _____

Total number of **Candidates***** : _____

Total Number of **Awardees****** : _____

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Report Completed by: _____ Report Verified by _____

** Prospects are individuals have inquired about the program and provided the BEDC with their contact information.*
*** Applicants are individuals who have submitted a completed application.*
**** Candidates are individuals whose applications have been processed and the BEDC is recommending an award.*
***** Awardees are candidates that the City of Midland decided to award.*

APPENDIX 6
City of Midland Business Micro-Grant Assistance Program
Final Report

Total number of **Prospects*** : _____ % That Applied: _____ % That Did Not Apply: _____

Total number of **Applicants**** : _____ % That Became Cand.: _____ % Not Become Cand.: _____

Total number of **Candidates***** : _____ % That Became Awrdee.: _____ % Not Become Awrdee.: _____

Total Number of **Awardees****** : _____

Total Number of **Persons Impacted**: _____ (owner + number of employees designated in application)

Comments:

Report Completed by: _____ Report Verified by _____

** Prospects are individuals have inquired about the program and provided the BEDC with their contact information.*
*** Applicants are individuals who have submitted a completed application.*
**** Candidates are individuals whose applications have been processed and the BEDC is recommending an award.*
***** Awardees are candidates that the City of Midland decides to award.*

City of Midland Business Micro-Grant Assistance Project Application

Business Information

Business Name: _____

Business Address: _____

Date Business Established: _____ Full-Time Business ◯ Part-Time Business ◯

Sole Proprietorship ◯ Partnership ◯ LLC ◯ S-Corp ◯ C-Corp ◯

Other ◯ Please specify: _____

Provide a Short Summary of What Business Sells: _____

_____

_____

Applicant Information

Name: _____

Race: White ◯ Black ◯ Asian ◯ American Indian/Alaskan Native ◯ Native Hawaiian/other Pacific Islander ◯

Ethnicity: Hispanic or Latino ◯ Not Hispanic or Latino ◯

Address: _____

Telephone: _____ Email: _____

1. Is your business located within the city limits of the City of Midland, Texas?

☐ Yes
☐ No – If no, your business is not eligible for this program.

2. Is your business registered with the Texas Comptroller's Office and is currently in good standing?

☐ Yes
☐ No – If no, your business is not eligible for this program.

3. Is your business current on City of Midland fees, property taxes, State and City sales tax?

☐ Yes

☐ No – If no, your business is not eligible for this program.

4. Has your business been in operation since March 27, 2019?

☐ Yes

☐ No – If no, your business is not eligible for this program.

5. Is your business or any of its owners currently in bankruptcy or declared bankruptcy in the last 12 months?

☐ Yes - If yes, your business is not eligible for this program.

☐ No

6. Is the business a nonprofit organization?

☐ Yes – If yes, your business is not eligible for this program.

☐ No

7. Is your business a sexually oriented business, as defined by Texas Local Government Code §243.002, or a gambling establishment, as defined by Texas Penal Code 47.02?

☐ Yes – If yes, your business is not eligible for this program.

☐ No

8. Does your business employ 20 or fewer employees?

☐ Yes - How many employees does the business have? _____

☐ No – If no, your business is not eligible for this program

9. Did your business experience business interruptions occurring on or after March 27, 2020 due to COVID-19, which resulted in required closures, voluntary closures to promote social distancing, or decreased customer demand?

☐ Yes

☐ No – If no, your business is not eligible for this program.

10. Are you able to show documented loss of business revenue due to the COVID-19 pandemic?

☐ Yes

☐ No – If no, your business is not eligible for this program.

11. Does your business have an Annual Gross Revenue equal to or below $850,000.00?

☐ Yes

☐ No – If no, your business is not eligible for this program.

12. Are you, or any person acting as an agent for the business, related (by blood or marriage) to an employee of the City of Midland, Midland College, or an elected official of the City of Midland (city council or mayor)?

☐ Yes – Please list name(s) and affiliation(s):_____

☐ No

13. Does an employee of the City of Midland, Midland College, or an elected official of the City of Midland (city council or mayor) have a financial interest in this business?

☐ Yes – Please list name(s) and explain interest: _____

☐ No

14. I will submit the business's 2018 or 2019 tax returns?

☐ Yes

☐ No – If no, your business is not eligible for this program.

15. Have you applied and received other COVID-19 economic assistance through other Federal or local government agencies [examples include: Economic Injury Disaster Loans (EIDL), Paycheck Protection Program (PPP) loan or Federal Emergency Management Agency (FEMA) funding]. Businesses may not receive federally subsidized assistance that duplicates any part of their disaster loss covered by insurance or another source. It is the City's sole discretion to determine if funds received induce an eligibility.

☐ Yes - If yes, your business is not eligible for this program.

☐ No

16. These grant funds can be used to reimburse expenses incurred for business interruptions occurring on or after March 18, 2020 due to COVID-19, which resulted in required closures, voluntary closures to promote social distancing or decreased customer demand. Please select the below options of intended expenses. (please select all that apply)

☐ **Fixed Assets**: [which can include equipment/machinery, personal protective equipment (PPE), technology, Contactless payment devices, business software]

☐ **Services:** [which can include; working capital, payroll expenses, healthcare benefits, supplier payments, rent, lease or mortgage payments for real property used for business purposes (does not include personal residence), rent, lease or purchase payment for business property (ex: delivery vehicle, food truck, kitchen equipment, technology payment and communications system/equipment]

☐ **Marketing:** [which can include website design, website improvements, redesign, and cost of digital marketing]

17. I will provide, if requested, receipts to document the purchase of items you committed in question 17?

☐ Yes

☐ No - - If no, your business is not eligible for this program.

18. Please provide a brief explanation of what business interruption and documented loss of business revenue COVID-19 had on the operations of your business and hardship(s) that your business has experienced. **Please attach a written statement to meet this requirement**.

By signing below, you make the following representations, authorizations and certifications:

I represent that:

- I understand and have answered the above questions honestly and to the best of my ability.
- I certify that at the time of submitting this application, that I have not applied for and received any other federally subsidized disaster assistance including EIDL, PPP loan or FEMA funding.
- All grant proceeds will be used only for business related purposes as specified in the application.
- I will comply with all requirements listed in application and submit all required documents listed below.
- I understand the I may be asked for additional documents/information to support my application.

Name of Authorized Applicant of Business _____ Date _____

Applicant Signature _____

Required Documents to Submit with Application:

- ☐ Completed Application
- ☐ Valid Personal Identification
- ☐ Proof of Business location within City of Midland limits
- ☐ Form W9
- ☐ Direct Deposit Form
- ☐ 2018 or 2019 Business tax returns
- ☐ The following are optional, year to date 2020:
  - ☐ Income Statement
  - ☐ Business operating bank statements
  - ☐ Sales Tax Report(s)

If you need assistance or have additional questions regarding this application, please contact the Midland College Business and Economic Development Center (BEDC) at 432-684-4309 or bedc@midland.edu or Isaac Garnett, City of Midland Community Development Officer, at 432-685-7408. The BEDC has been contracted to process applications. Micro-grant award decisions will be made by City of Midland Community Development Office.

Completed applications and supporting documents can be emailed to bedc@midland.edu or hand delivered to Midland College Cogdell Learning Center, 201. W. Florida Ave. Midland, TX. The building's business hours are Monday to Friday 8:00 a.m. to 1:00 p.m. and 2:00 to 5:00 p.m. The west side visitor entrance has a drop box you can use to drop off items during non-business hours. Please note that the Cogdell Learning Center will be closed the week of Monday December 21st.

City Council Meeting

Item Number: 24

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Michael Pacelli, City Traffic Engineer

Subject: RESOLUTION AUTHORIZING THE EXECUTION OF A CAPITAL IMPROVEMENTS DEVELOPMENT AGREEMENT WITH MIDLAND STONEBRIDGE PROPERTIES, LP FOR THE CONSTRUCTION OF CERTAIN CAPITAL IMPROVEMENTS RELATED TO THE DEVELOPMENT OF STONEBRIDGE ADDITION, PHASE 3B, CITY AND COUNTY OF MIDLAND, TEXAS; AND APPROPRIATING FUNDS IN THE AMOUNT OF $356,832.00; SAID AGREEMENT BEING AUTHORIZED BY CHAPTER 212, SUBCHAPTER C AND CHAPTER 395, SUBCHAPTER B OF THE TEXAS LOCAL GOVERNMENT CODE (ENGINEERING SERVICES)

Purpose:

To authorize adoption of a Capital Improvements Development Agreement with Midland Stonebridge Properties, LP, to provide cost share in the amount of $356,832.00 related to construction of a new traffic signal at Loop 250 / Lamesa Rd / Stonebridge Dr, along with related roadway improvements, and appropriating funds.

Recommended City Council Action:

Approve

Fiscal Impact:

Funding in the amount of $356,832 from the General Fund Reserves is appropriated to the capital accounts in the Engineering Department's Budget.

Discussion:

The developer of Stonebridge Addition, Phase 3B, on the north side of Loop 250 at Lamesa Road, is obligated by City Code to construct certain public roadway improvements. These

improvements include the construction of Stonebridge Drive, which will be the north leg of the Lamesa Road interchange on Loop 250.

As part of a traffic analysis and extensive negotiations between the Developer, City, and Texas Department of Transportation in the 2016-2017 timeframe, it was determined that installation of a traffic signal would be required at the existing Lamesa Road interchange in order to allow for the construction of the fourth leg. However, this traffic signal is outside of the typical public improvements required by City Code with platting and was also warranted separately based on existing traffic volumes, even without the development of the Stonebridge Addition.

Additionally, City staff believes that this traffic signal will serve a regional traffic benefit and would have been required in the near future regardless of the Developer's participation. The Developer's extension of Stonebridge Dr north of Loop 250 will also complete the final link in a street connection to Mockingbird Ln, providing an alternate path to Big Spring St for travel to and from the neighborhoods east of Big Spring St and north of Loop 250. See attached map.

At the time of the initial project discussions, the City agreed to fund the design of the traffic signal, which has since been completed. The Developer agreed to contribute $400,000 towards the traffic signal and the City was to cover the rest of the cost.

This project has since moved ahead and the Developer recently provided documentation from their contractor showing their costs to be $756,832 for the construction of the traffic signal, which also includes some related roadwork on the south side of the interchange (opposite from the Stonebridge project). Therefore, after adjusting for the $400,000 Developer contribution, the City's share for the signal portion of the work is $356,832.

Note that the Developer is currently building the roadway improvements required by their development and has agreed to include the traffic signal and other signal-related roadway improvements as part of a single project. City staff supports having the Developer build all the work as one project because this facilitates better coordination between their roadway contractor and the traffic signal subcontractor, and also shifts responsibility for project management to the Developer. The Developer's total cost for that overall project is $2,692,513, so the City's $356,832 contribution towards the total project amounts to a 13.25% cost share.

If the City does not participate with partial funding of the signal-related work at this time, then construction of the signal will not be included as part of the Developer's project. In this case, the City will ultimately be responsible for 100% of the future cost of signalizing this interchange. This cost would be at least as much as the full current cost of more than $750,000 (and likely higher as costs continue to escalate with time).

Therefore, the proposed development agreement reimburses the Developer $356,832 upon completion and acceptance of the improvements by the City. Since there is no established project funding for this traffic signal, which had been progressing slowly with no clear timeline for many years, Staff recommends funding this cost share from General Fund Reserves.

Staff recommends approval of the agreement.



City Manager's Office

RESOLUTION NO. _____

RESOLUTION AUTHORIZING THE EXECUTION OF A CAPITAL IMPROVEMENTS DEVELOPMENT AGREEMENT WITH MIDLAND STONEBRIDGE PROPERTIES, LP FOR THE CONSTRUCTION OF CERTAIN CAPITAL IMPROVEMENTS RELATED TO THE DEVELOPMENT OF STONEBRIDGE ADDITION, PHASE 3B, CITY AND COUNTY OF MIDLAND, TEXAS; AND APPROPRIATING FUNDS IN THE AMOUNT OF $356,832.00; SAID AGREEMENT BEING AUTHORIZED BY CHAPTER 212, SUBCHAPTER C AND CHAPTER 395, SUBCHAPTER B OF THE TEXAS LOCAL GOVERNMENT CODE

WHEREAS, the developer of Stonebridge Addition, Phase 3B, City and County of Midland, Texas (the "Property"), Midland Stonebridge Properties, LP (the "Developer"), has requested City participation in the construction of certain capital improvements related to the development of the Property; and

WHEREAS, said capital improvements are public improvements; and

WHEREAS, the City Code allows City participation; and

WHEREAS, the City Council finds it to be in the public interest to execute a development agreement with the Developer that sets forth the extent of the City's participation in the construction of capital improvements related to the development of the Property, and to appropriate funds therefor, said agreement being authorized by Chapter 212, Subchapter C and Chapter 395, Subchapter B of the Texas Local Government Code;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Mayor and City Secretary are hereby authorized and directed to execute and attest, respectively, on behalf of the City of Midland, Texas, a Capital Improvements Development Agreement with the Developer. Said agreement shall be in a form substantially similar to that attached hereto as Exhibit "A" and incorporated herein for all purposes.

SECTION TWO. That the sum of $356,832.00 is hereby appropriated from the

General Fund Reserves to the capital accounts in the Engineering Services Department's budget.

SECTION THREE. That the City Comptroller is hereby authorized and directed to pay for said agreement, in an amount not to exceed $356,832.00, out of funds appropriated herein upon receipt of proper invoice or statement therefor approved by the City Manager.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

_____
Mark Mason, Director of Finance

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Jose Ortiz, Engineering Services Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

CAPITAL IMPROVEMENTS DEVELOPMENT AGREEMENT BETWEEN MIDLAND STONEBRIDGE PROPERTIES, LP AND THE CITY OF MIDLAND, TEXAS

THIS CAPITAL IMPROVEMENTS DEVELOPMENT AGREEMENT (the "Agreement") is made and effective this _____ day of _____, 20_____, by and between **MIDLAND STONEBRIDGE PROPERTIES, LP** ("Developer") and the **CITY OF MIDLAND, TEXAS** (the "City"), a home rule municipal corporation.

W I T N E S S E T H:

WHEREAS, Developer owns a new development and desires to construct the capital improvements or facility expansions described herein (the "Improvements"); and

WHEREAS, the City and Developer find it to be to their mutual advantage to enter into this Agreement under which (i) Developer may construct the Improvements and (ii) the City will credit Developer's costs incurred for such construction against the related impact fees otherwise due from Developer's new development;

NOW, THEREFORE, in consideration of the covenants, conditions, and promises contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Developer does hereby agree to the terms set forth in this Agreement:

1. Developer's new development is described as Stonebridge Addition, Phase 3B (the "Property"). The City and Developer expressly agree that, in the absence of credits provided in this Agreement, Developer shall pay the applicable impact fees attributable to the development of the Property in accordance with Title XI, Chapter 14 of the City Code. Such Improvements are more particularly described in specifications and contract documents

related to the construction of the Improvements prepared by Parkhill, Smith & Cooper, Inc. (hereafter collectively called "the Specifications"). The Specifications are incorporated herein by reference and made a part hereof for all purposes, and Developer shall comply with the Specifications in the performance of all work pursuant to this Agreement. No amendment to the Specifications may be made without the written approval of the City Manager.

2. The Improvements to be constructed by Developer pursuant to this Agreement shall be generally described as follows:

See Exhibit "A", attached hereto and incorporated herein by reference.

3. Developer shall submit any bids it receives for the proposed Improvements to the City for approval prior to engaging any contractor or subcontractor in such work, which approval shall not be unreasonably withheld. If the City fails to object within ten (10) days (excluding weekends and City holidays) after receipt from Developer of the bid tabulations and written notification of whom Developer intends to award the contract, the bid which Developer indicated it is accepting shall be deemed to have been accepted by the City. The City reserves the right to reject any and all bids for work that involves City participation. In rejecting any bid pursuant to the provisions of this Paragraph 3, the City shall issue a notice of rejection in writing to Developer stating each and every ground or reason relied upon by the City for such rejection.

4. Upon completion of the Improvements called for in Paragraph 2, Developer shall notify the City's Director of Engineering Services for inspection. Project inspection for

the Improvements will be done by the City during the construction phase. The City's Director of Engineering Services shall cause such work to be inspected within five (5) days, excluding weekends and holidays, of being notified by Developer. Notwithstanding anything herein to the contrary, project inspection must be completed prior to water or sewer systems being backfilled. If the Director of Engineering Services determines that all work has been completed in conformance with the Specifications, then the Director of Engineering Services shall give his approval for that improvement work.

5. After completion and acceptance of all work, Developer shall furnish to the City an affidavit of all bills paid with respect to the completed work and any other records requested by the City Manager documenting Developer's costs incurred in constructing the Improvements.

6. In consideration of the obligations incurred by Developer pursuant to this Agreement, the City agrees to participate in the funding of the construction of the Improvements, said amount to be no more than $356,832.00. In no case shall the City's contribution to the Improvements exceed 30 percent of the actual cost of the Improvements without Developer complying with the applicable competitive sealed bid procedures set forth in state law and the ordinances and regulations of the City of Midland, Texas. If the City's contribution for the Improvements exceeds 30 percent of the total cost of the Improvements and such Improvements were constructed without complying with said applicable competitive sealed bid procedures, then the City's maximum contribution under this Agreement shall not exceed 30 percent of the actual cost of the Improvements.

Provided, however, that Developer shall not have to comply with said applicable competitive sealed bid procedures where the City's contribution exceeds 30 percent of the total cost of Improvements if the City's participation is for the oversizing of such Improvements in accordance with Section 212.072 of the Texas Local Government Code.

The City further agrees to credit Developer's costs incurred in constructing the portion(s) of the Improvements described in Exhibit "B", which is attached hereto and incorporated herein by reference (the "Plan Improvements"), against the impact fee(s) described in Paragraph 1 otherwise due; provided, however, (i) that the City Manager, in the City Manager's sole discretion, shall determine Developer's costs incurred in constructing the Plan Improvements for the purpose of granting the credit, which shall not include the amount of funds provided by the City pursuant to this Agreement (e.g., if the total cost of constructing the Plan Improvements were to be $1,000,000.00 and the City were to participate by funding $300,000.00 of the Plan Improvements, Developer would not be entitled to receive a credit for costs exceeding $700,000.00), (ii) that to the extent the Plan Improvements are not capital improvements associated with a certain impact fee, Developer shall not receive credit against such impact fee for Developer's costs incurred (e.g., Developer's costs incurred for roadway construction will be credited against the roadway impact fee but will not be credited against water or wastewater impact fees), and (iii) that Developer shall not be entitled to receive reimbursement from the City of Developer's costs incurred in constructing the Plan Improvements that exceed the amount of the impact fee(s) owed.

7. Developer will indemnify and hold harmless and defend the City and all of the City's officers, agents and employees from all suits, actions, claims, damages, personal injuries, including accidental death, losses, property damage and expenses of any character whatsoever, including attorney's fees, brought for or on account of any injuries or damages received or sustained by any person or persons or property, on account of any negligent act of Developer, its agents or employees, or any subcontractor, in the execution, supervision and operations growing out of or in any way connected with the performance of this Agreement, and Developer will be required to pay any judgment with costs which may be obtained against the City or any of its officers, agents or employees, including attorney's fees.

DEVELOPER SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE CITY AND ALL OF THE CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, INCLUDING ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSE OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE CITY, THE CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH DEVELOPER OR DEVELOPER'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF

OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS AGREEMENT AND DEVELOPER WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8. Developer agrees to indemnify and save the City harmless from all claims growing out of any demands of subcontractors, laborers, workmen, mechanics, materialmen, and suppliers of machinery and parts thereof, equipment, power tools, all supplies, including commissary incurred in the furtherance of the performance of this contract. When the City so desires, Developer shall furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged or waived.

9. Developer shall obtain and maintain continuously in effect at all times during the construction of the Improvements at Developer's sole expense, at least the following minimum insurance with a carrier or carriers licensed to do business in the State of Texas and satisfactory to the City.

A. The following requirements shall be met in regard to workers' compensation insurance coverage: Definitions:

Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the contractor's/persons's work on the project has been completed and accepted by the governmental entity.

Persons providing services on the project ("subcontractor" in §406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

B. Developer shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of Developer providing services on the project, for the duration of the project.

C. Developer must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

D. If the coverage period shown on Developer's current certificate of coverage ends during the duration of the project, Developer must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

E. Developer shall obtain from each person providing services on a project, and provide to the governmental entity:

(1) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

(2) no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

F. Developer shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

G. Developer shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after Developer knew or should have known, of any change that materially affects the provision of coverage of any person providing

services on the project.

H. Developer shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

I. Developer shall contractually require each person with whom it contracts to provide services on a project, to:

(1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;

(2) provide to Developer, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

(3) provide Developer, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(4) obtain from each other person with whom it contracts, and provide to Developer:

(a) a certificate of coverage, prior to the other person beginning work on the project; and

(b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

(6) notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person

providing services on the project; and

(7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom whey are providing services.

J. By signing this contract or providing or causing to be provided a certificate of coverage, Developer is representing to the governmental entity that all employees of Developer who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

K. Developer's failure to comply with any of these provisions is a breach of contract by Developer which entitles the governmental entity to declare the contract void if Developer does not remedy the breach within 10 days after receipt of notice of breach from the governmental entity.

Developer shall also comply with the following:

L. Comprehensive General Liability Insurance against claims for bodily injury, death, or property damage occurring on, in or about the Property, in at least the amount of $250,000.00 per individual, $1,000,000.00 per occurrence and $100,000.00 with respect to property damage; said insurance shall name the City as an additional insured and shall waive all rights of subrogation against the City.

M. Automobile Liability Coverage on all motor vehicles owned, leased and/or operated by Developer or its employees in amounts of not less than $1,000,000.00 combined single limit or equivalent, provided, however, separate automobile coverage shall not be required if such coverage is provided under Developer's comprehensive general liability policy. The insurance shall name the City as an additonal insured and waive all rights of subrogation against the City.

All insurance herein required shall apply as primary and not in excess of or contributing with other insurance which Developer may carry.

10. **All insurance required pursuant to Paragraph 9, except worker's**

compensation, shall name the City as an additional insured. The comprehensive general liability policy shall provide contractual liability coverage sufficiently broad so as to include the liability assumed by Developer in the indemnity and hold harmless provisions included in this Agreement. Developer's insurance as required by this Agreement shall not be subject to cancellation or material alteration until at least thirty (30) days written notice has been provided to the City. Developer shall furnish to the City a certificate of insurance showing the City as an additional insured and evidencing that all of the herein stated requirements have been met. **All insurance coverage required pursuant to Paragraph 9 shall include in its provisions a waiver of any rights of subrogation against the City.**

DEVELOPER SHALL CONTRACTUALLY REQUIRE ALL CONTRACTORS, SUBCONTRACTORS, AND SUB-SUBCONTRACTORS THAT WORK ON ANY PORTION OF THE WORK THAT IS THE SUBJECT OF THIS CAPITAL IMPROVEMENT DEVELOPMENT AGREEMENT TO OBTAIN INSURANCE COVERAGE THAT MEETS OR EXCEEDS THE MINIMUM AMOUNTS SPECIFIED HEREIN. ALL CONTRACTORS, SUBCONTRACTORS, AND SUB-SUBCONTRACTORS SHALL OBTAIN INSURANCE POLICIES THAT PROVIDE BLANKET WAIVERS OF SUBROGATION IN FAVOR OF THE CITY OF MIDLAND AND POLICIES THAT NAME THE CITY OF MIDLAND AS AN ADDITIONAL INSURED (EXCEPT WORKERS COMPENSATION).

11. Insurance must be approved by the City Attorney's office prior to this Agreement being executed.

12. This Agreement may be modified or amended only by the mutual consent of the parties hereto.

13. This Agreement contains the complete and entire agreement between the parties respecting the matters addressed herein, and supersedes all prior negotiations, agreements, representations and understandings, if any, between the parties respecting such matters.

14. Except as may be otherwise specifically provided in this Agreement, all notices required or permitted hereunder shall be in writing as follows:

If to Developer:

Midland Stonebridge Properties, LP
1603 Idlewilde Dr.
Midland, Texas 79703
Attn: Mark Payne

If to the City:

City of Midland
P.O. Box 1152
Midland, Texas 79702
Attn: City Engineer

15. Any clause, sentence, provision, paragraph or article of this Agreement held by a court of competent jurisdiction to be invalid, illegal or ineffective shall not impair, invalidate or nullify the remainder of this Agreement, but the effect thereof shall be confined to the clause, sentence, provision, paragraph or article so held to be invalid, illegal or ineffective.

16. All performance and payment made pursuant to this Agreement shall be

deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Agreement or the performance of this Agreement shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Agreement shall be deemed to have been performed in Midland County, Texas. This Agreement shall be construed under the laws of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties arising from or relating in any way to the subject matter of this Agreement, without regard to conflict of laws and rules that would direct application of the laws of another jurisdiction.

17. In the event of any conflict between the parties hereto such that either party brings or commences any legal action or proceeding related to this Agreement, including but not limited to any action pursuant to the provisions of the Texas Uniform Declaratory Judgments Act (TEX. CIV. PRAC. & REM. CODE §37.001 et seq., as amended), the parties hereto agree to waive any and all rights to recovery of attorneys fees to which the prevailing party might otherwise be entitled.

BY EXECUTING THIS AGREEMENT, DEVELOPER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT.

DEVELOPER SPECIFICALLY AGREES THAT IF DEVELOPER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, OR CHAPTER 395 OF THE TEXAS LOCAL GOVERNMENT CODE, DEVELOPER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH DEVELOPER MIGHT OTHERWISE BE ENTITLED.

DEVELOPER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. DEVELOPER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. DEVELOPER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND DEVELOPER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

DEVELOPER AND THE CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

18. It is expressly understood and agreed that Developer shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the City; that Developer shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between the City and Developer, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between the City and Developer. No person performing any of the work and services described hereunder by Developer shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Developer shall be an independent contractor under this contract and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The City does not have the power to direct the order in which the work is done. The City shall not have the right to control the means, methods or details of Developer's work. Developer shall assume exclusive responsibility for the work. Developer is entirely free to do the work in its own way.

19. RELEASE: DEVELOPER HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES THE CITY, THE CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS,

DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER ARISING UNDER OR ASSOCIATED WITH THIS AGREEMENT WHICH DEVELOPER HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO QUANTUM MERUIT, DUE PROCESS AND TAKINGS CLAUSES UNDER THE TEXAS AND UNITED STATES CONSTITUTION, TORT CLAIMS OR THE CITY'S NEGLIGENCE, OR CLAIMS UNDER CHAPTER 395 OF THE TEXAS LOCAL GOVERNMENT CODE.

20. By executing this Agreement the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

21. **NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES**

As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Agreement, Developer or its legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing (consisting of one (1) original and seven (7) copies of notice attached to a copy of this Agreement) of such damages, duly verified, within one hundred twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Developer will settle, the physical and mailing addresses of Developer at the time and date the claim was presented and the physical and mailing addresses of Developer for the six (6) months

immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Developer relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Developer that Developer's notice is insufficient. The City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Developer's failure to comply with the requirements herein shall perpetually bar Developer's claim for damages under Chapter 271 of the Texas Local Government Code and Section 311.034 of the Texas Government Code, regardless if the City has actual or constructive notice or knowledge of said claim or alleged damages. Developer agrees that the requirements of this entire agreement are reasonable.

22. This agreement is made under the authority of Section 395.019 of the Texas Local Government Code and the laws of the State of Texas and Ordinances and the Charter of the City of Midland.

23. Notwithstanding any other provision hereof, the City shall not be obligated to provide payment to Developer under this Agreement or to provide credit(s) against the impact fee(s) under this Agreement until Developer has met all requirements of this Agreement, including, but not limited to, the City's approval of the improvement work as set

forth in Paragraph 4 and the City's determination that Developer has furnished satisfactory evidence that all obligations described in Paragraph 8 have been paid, discharged or waived. Determination of whether Developer has furnished satisfactory evidence that all such obligations have been paid, discharged or waived shall be in the sole discretion of the City.

24. Developer agrees that it shall comply with Texas Government Code Section 2252.908, as amended. Developer agrees that it shall comply with Texas Local Government Code Section 176.006, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006, please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

EXECUTED in duplicate the day and year first above written.

CITY OF MIDLAND, TEXAS

By:_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Jose Ortiz, Engineering Services Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

MIDLAND STONEBRIDGE PROPERTIES, LP

By:_____

Printed Name:_____

Title:_____

THE STATE OF TEXAS §
§
COUNTY OF MIDLAND §

BEFORE ME, the undersigned authority, on this day personally appeared _____, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he executed and delivered the foregoing instrument for the purposes and consideration therein expressed on behalf of MIDLAND STONEBRIDGE PROPERTIES, LP, in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this _____ day of _____, 20____.

_____
Notary Public, State of Texas

EXHIBIT A - TOTAL PROJECT COSTS

Stonebridge Addition Phase 3B Development Agreement
Loop 250 at Lamesa Rd / Stonebridge Dr
Traffic Signal and Related Public Improvements

TOTAL PROJECT -- CONSTRUCTION COST SUMMARY		
EARTHWORK	$	446,656.30
PAVING IMPROVEMENTS	$	1,254,456.30
MISCELLANEOUS IMPROVEMENTS	$	48,979.40
WESTBOUND FRONTAGE ROAD IMPROVEMENTS	$	185,589.00
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - DEMOLITION	$	41,005.60
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SITEWORK	$	98,558.10
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - MISCELLANEOUS	$	65,265.30
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SIGNALIZATION	$	647,003.00
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - CONTRACTOR EQUIPMENT CREDIT	$	(95,000.00)
ALL IMPROVEMENTS - TOTAL CONTRACT VALUE	**$**	**2,692,513.00**

CITY COST SHARE	**$**	**356,832.00**
DEVELOPER COST SHARE	**$**	**2,335,681.00**
CITY COST SHARE - PERCENTAGE OF TOTAL (not to exceed 30%)		**13.25%**

PARKHILL
1700 W. WALL STREET SUITE 100, MIDLAND, TX 79701
(432) 697-1447

STONEBRIDGE ADDITION PHASE 3B

EARTHWORK

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Clearing, Stripping, and Grubbing, complete in place as shown in plans	7.2	AC	$1,385.00	$9,972.00
2	Unclassified Street Excavation, complete in place as shown in plans	5,450	CY	$21.30	$116,085.00
3	North Channel Excavation, complete in place as shown in plans	1,960	CY	$11.90	$23,324.00
4	Mobilization	1	SL	$297,275.30	$297,275.30
TOTAL EARTHWORK					**$446,656.30**

PAVING IMPROVEMENTS

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Subgrade Preparation Including Excavation, Fill, Shaping and Compaction, Complete in place as shown in plans	25,267	SY	$1.15	$29,057.05
2	8" Flexible Caliche Base, Complete in place as shown in plans	25,267	SY	$8.90	$224,876.30
3	Prime Coat, Complete in place as shown in plans	20,568	SY	$1.20	$24,681.60
4	2" Type "D" HMAC Pavement, Complete in place as shown in plans	12,260	SY	$15.90	$194,934.00
5	2.25" Type "D" HMAC Pavement, Complete in place as shown in plans	8,208	SY	$17.90	$146,923.20
6	6" Thick Concrete Pavement, Complete in place as shown in plans	916	SY	$99.60	$91,233.60
7	Deceleration Lane - Subgrade Preparation Including Excavation, Fill, Shaping and Compaction, Complete in place as shown in plans	687	SY	$13.50	$9,274.50
8	Deceleration Lane - 8" Flexible Caliche Base, Complete in place as shown in plans	687	SY	$11.25	$7,728.75
9	Deceleration Lane - Prime Coat, Complete in place as shown in plans	426	SY	$1.85	$788.10
10	Deceleration Lane - 2.25" Type "D" HMAC Pavement, Complete in place as shown in plans	426	SY	$29.30	$12,481.80
11	Concrete Valley Gutters & Fillets, Complete in place as shown in plans	640	SY	$97.45	$62,368.00
12	Concrete Driveway & Approach, Complete in place as shown in plans	68	SY	$99.05	$6,735.40
13	5' Sidewalk, Complete in place as shown in plans	10,190	SF	$8.45	$86,105.50
14	6" Concrete Curb and Gutter, Complete in place as shown in plans	9,380	LF	$23.45	$219,961.00
15	ADA Ramps, Complete in place as shown in plans	14	EA	$2,100.00	$29,400.00
16	Sawcut, Remove and Dispose of Existing Asphalt, Complete in place as shown in plans	320	SY	$6.40	$2,048.00
17	Asphalt Trench Repair, Complete in place as shown in plans	15	SY	$199.00	$2,985.00
18	Adjust Water Valves to Grade, Complete in place as shown in plans	35	EA	$455.00	$15,925.00
19	Adjust Sanitary Sewer Manholes to Grade, Complete in place as shown in plans	9	EA	$1,040.00	$9,360.00
20	Adjust Storm Sewer Manholes to Grade, Complete in place as shown in plans	5	EA	$1,100.00	$5,500.00
21	13.5' (F-F) Concrete Flume with Steel Plate Crossing, Complete in place as shown in plans	10	LF	$895.00	$8,950.00
22	17' (F-F) Concrete Flume with Steel Plate Crossing, Complete in place as shown in plans	11	LF	$915.00	$10,065.00
23	Median Island at Stonebridge Drive & Frontage Road, Complete in place as shown in plans	1	LS	$49,430.00	$49,430.00
24	Install TXDOT Type III End of Road Barricade	37	LF	$98.50	$3,644.50
TOTAL PAVING IMPROVEMENTS					**$1,254,456.30**

PARKHILL
1700 W. WALL STREET SUITE 100, MIDLAND, TX 79701
(432) 697-1447

STONEBRIDGE ADDITION PHASE 3B

MISCELLANEOUS IMPROVEMENTS

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Traffic Control Plan, Complete in place as shown in plans	1	LS	$10,530.00	$10,530.00
2	SWPP Permits, Complete in place as shown in plans	1	LS	$4,475.00	$4,475.00
3	Silt Fence, Complete in place as shown in plans	1,198	LF	$4.15	$4,971.70
4	Construction Entrance, Complete in place as shown in plans	167	SY	$43.10	$7,197.70
5	Pavement Markings, Complete in place as shown in plans	1	LS	$21,805.00	$21,805.00
TOTAL MISCELLANEOUS IMPROVEMENTS					**$48,979.40**

WESTBOUND FRONTAGE ROAD IMPROVEMENTS

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Pavement Striping within TXDOT ROW, Complete in place as shown in plans	1	LS	$27,795.00	$27,795.00
2	Removal of Existing Pavement Striping & Traffic Signs with Poles, Complete in place as shown in plans	1	LS	$26,145.00	$26,145.00
3	Traffic Signs with Poles, Complete in place as shown in plans	8	EA	$880.00	$7,040.00
4	Traffic Signals, Complete in place as shown in plans	1	LS	N/A	N/A
5	Traffic Control Plan, Complete in place as shown in plans	1	LS	$34,805.00	$34,805.00
6	5' Sidewalk, Complete in place as shown in plans	4,980	SF	$8.60	$42,828.00
7	Pedestrian Sidewalk Handrail, Complete in place as shown in plans	85	LF	$150.00	$12,750.00
8	Remove & Replace MBGF	150	LF	$30.80	$4,620.00
9	Remove & Patch Curb & Gutter	640	LF	$39.90	$25,536.00
10	Traffic Signs (without poles), Complete in place as shown in plans	2	EA	$110.00	$220.00
11	Removal of Existing Light pole, Complete in place as shown in plans	1	EA	$3,850.00	$3,850.00
TOTAL WESTBOUND FRONTAGE ROAD IMPROVEMENTS					**$185,589.00**

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - DEMOLITION

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Demo Existing Striping	1	LS	$8,465.00	$8,465.00
2	Demo Existing Asphalt (Island Area)	76	SY	$12.35	$938.60
3	Demo Existing C&G	326	LF	$14.00	$4,564.00
4	Demo Existing ADA Ramp	1	EA	$530.00	$530.00
5	Removal of Existing Raised Pavement Markers	1	LS	$435.00	$435.00
6	Removal of Existing Traffic Sign & Pole	1	EA	$113.00	$113.00
7	Relocation of Existing Traffic Signs	7	EA	$880.00	$6,160.00
8	Relocation of Existing Light Poles	2	EA	$9,900.00	$19,800.00
TOTAL EASTBOUND FRONTAGE ROAD IMPROVEMENTS - DEMOLITION					**$41,005.60**

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SITEWORK

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	2.25" Asphaltic Concrete Pavement	331	SY	$42.70	$14,133.70
2	8" Caliche Base	252	SY	$20.95	$5,279.40
3	6" Compacted Subgrade	252	SY	$35.30	$8,895.60
4	TXDOT Type II-a Curb & Gutter	440	LF	$34.05	$14,982.00
5	Concrete Flatwork / Sidewalk	288	SF	$13.55	$3,902.40
6	ADA Truncated Dome Landing (Type 7)	5	EA	$3,525.00	$17,625.00
7	ADA Curb Ramp - Perpendicular (Type 1)	1	EA	$3,375.00	$3,375.00
8	ADA Curb Ramp - Directional (Type 22)	3	EA	$4,485.00	$13,455.00
9	48"x30" R3-8 LMS Sign	2	EA	$110.00	$220.00
10	Pavement Striping (includes crosswalks)	1	LS	$16,690.00	$16,690.00
TOTAL EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SITEWORK					**$98,558.10**

PARKHILL
1700 W. WALL STREET SUITE 100, MIDLAND, TX 79701
(432) 697-1447

STONEBRIDGE ADDITION PHASE 3B

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - MISCELLANEOUS

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Erosion Control	1	LS	$5,205.00	$5,205.00
2	Traffic Control Measures	1	LS	$12,515.00	$12,515.00
3	Mobilization	1	LS	$47,545.30	$47,545.30
TOTAL EASTBOUND FRONTAGE ROAD IMPROVEMENTS - MISCELLANEOUS					**$65,265.30**

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SIGNALIZATION

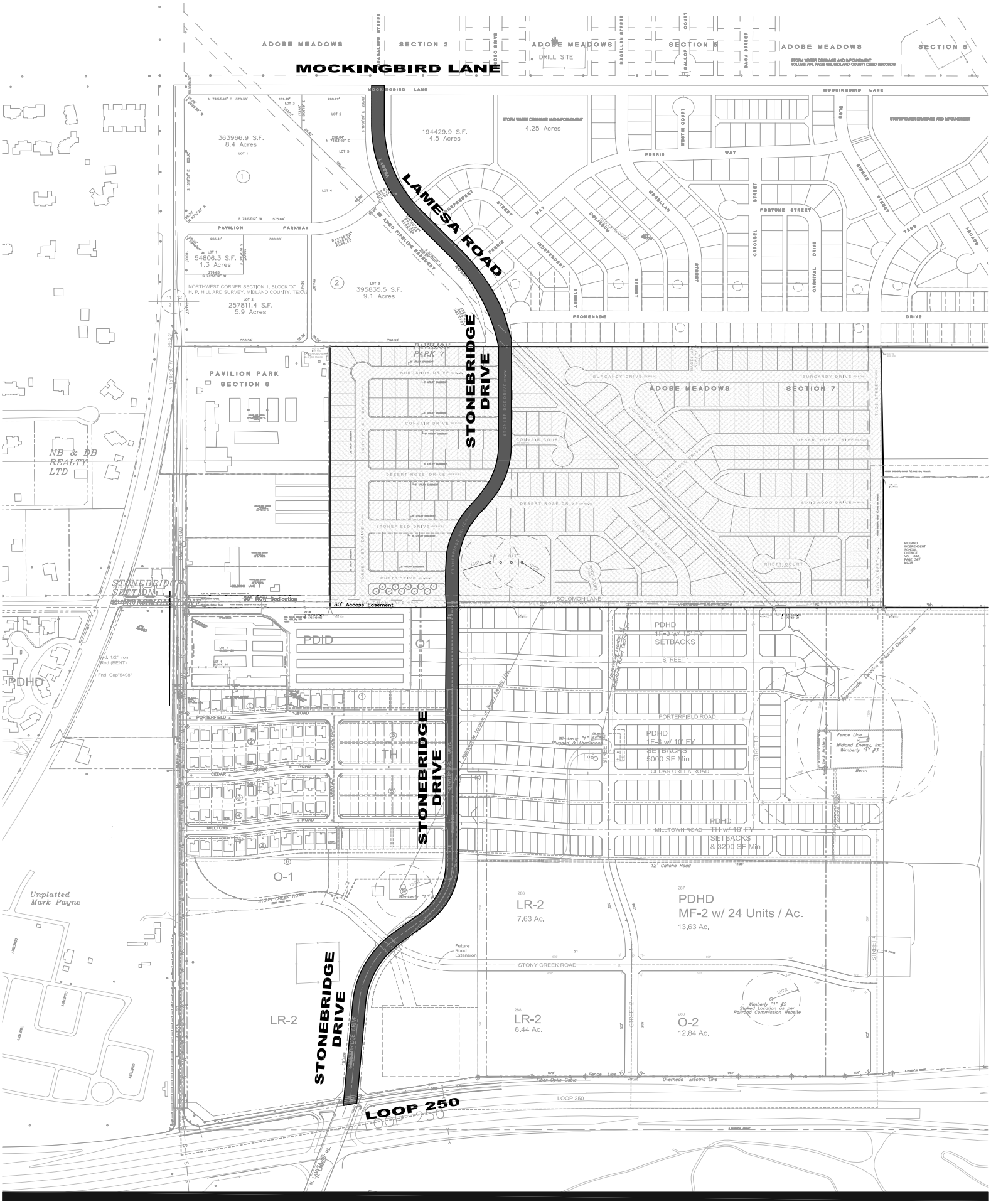
Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Removing Concrete (medians)	56	SY	$39.80	$2,228.80
2	Drill Shaft (Traffic Signal Pole) (24")	24	LF	$236.25	$5,670.00
3	Drill Shaft (Traffic Signal Pole) (36")	65	LF	$378.00	$24,570.00
4	Drill Shaft (Traffic Signal Pole) (48")	22	LF	$577.50	$12,705.00
5	Mobilization	1	LS	$79,710.50	$79,710.50
6	Barricades, Signs and Traffic Handling	2	MO	$25,780.00	$51,560.00
7	Remove & Relay Pavers	56	SY	$196.35	$10,995.60
8	Curb Ramp (Type 7)	1	EA	$3,525.00	$3,525.00
9	Conduit (PVC) (Sch. 40) (2")	25	LF	$10.50	$262.50
10	Conduit (PVC) (Sch. 40) (2") (Bore)	225	LF	$63.00	$14,175.00
11	Conduit (PVC) (Sch. 40) (3")	160	LF	$26.25	$4,200.00
12	Conduit (PVC) (Sch. 40) (4")	30	LF	$36.75	$1,102.50
13	Conduit (PVC) (Sch. 40) (4") (Bore)	530	LF	$68.25	$36,172.50
14	Electric Conductor (No. 12) Insulated	300	LF	$0.79	$237.00
15	Electric Conductor (No. 8) Insulated	3,000	LF	$1.32	$3,960.00
16	Electric Conductor (No. 6) Bare	1,410	LF	$1.32	$1,861.20
17	Electric Conductor (No. 6) Insulated	670	LF	$1.84	$1,232.80
18	Ground Box Type C (162911) w/Apron	8	EA	$1,417.50	$11,340.00
19	Ground Box Type D (162922) w/Apron	1	EA	$1,575.00	$1,575.00
20	Remove Ground Box	9	EA	$210.00	$1,890.00
21	Electric Service Type D 120/240 100(NS)SS(E)SP(O)	1	EA	$8,925.00	$8,925.00
22	IN SM RD SN SUP&AM	4	EA	$892.50	$3,570.00
23	Remove SM RD SN SUP&AM	2	EA	$113.00	$226.00
24	Reflective Pavement Marker Type I (W) 24" (Solid) 100 mil	50	LF	$8.65	$432.50
25	Pavement Sealer 24"	50	LF	$2.80	$140.00
26	Pavement Surface Prep for Marker (24")	50	LF	$1.30	$65.00
27	Install Highway Traffic Signal (Isolated)	1	EA	$42,000.00	$42,000.00
28	VEH SIG SEC (12") LED(GRN)	15	EA	$257.25	$3,858.75
29	VEH SIG SEC (12") LED(GRN ARW)	8	EA	$257.25	$2,058.00
30	VEH SIG SEC (12") LED(YEL)	21	EA	$257.25	$5,402.25
31	VEH SIG SEC (12") LED(YEL ARW)	2	EA	$257.25	$514.50
32	VEH SIG SEC (12") LED(RED)	21	EA	$257.25	$5,402.25
33	PED SIG SEC (LED)(COUNTDOWN)	12	EA	$630.00	$7,560.00
34	Traffic Signal Cable (Type A)(14 AWG)(5 CONDR)	820	LF	$1.58	$1,295.60
35	Traffic Signal Cable (Type A)(14 AWG)(7 CONDR)	130	LF	$1.68	$218.40
36	Traffic Signal Cable (Type A)(14 AWG)(12 CONDR)	830	LF	$4.20	$3,486.00
37	Traffic Signal Cable (Type A)(14 AWG)(20 CONDR)	1,385	LF	$6.30	$8,725.50
38	Traffic Signal Cable (Type C)(12 AWG)(2 CONDR)	60	LF	$2.63	$157.80
39	INS TRF SIG PL AM(S)1 ARM(44')LUM&ILSN	5	EA	$25,725.00	$128,625.00
40	INS TRF SIG PL AM(S)1 ARM(55')LUM&ILSN	1	EA	$30,975.00	$30,975.00
41	Pedestrian Pole Assembly	4	EA	$1,207.50	$4,830.00
42	Pedestrian Detect Push Button (APS)	12	EA	$735.00	$8,820.00
43	Pedestrian Detect Controller Unit	1	EA	$3,675.00	$3,675.00
44	BBU System (External Batt Cabinet)	1	EA	$9,975.00	$9,975.00
45	Install Radar Vehicle Detection System	1	EA	$26,250.00	$26,250.00
46	Install Underpass Luminaire (LED)	8	EA	$682.50	$5,460.00
47	Install Luminaire Fixture (LED)	6	EA	$682.50	$4,095.00
48	Radar Presence Detector	4	EA	$11,025.00	$44,100.00
49	Radar Presence Detector Comm Cable	985	LF	$2.63	$2,590.55
50	Conduit (Prepare)	450	LF	$1.05	$472.50
51	CAT 5 Cable	300	LF	$1.58	$474.00
52	Opticom System with Cable	1	LS	$13,650.00	$13,650.00
TOTAL EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SIGNALIZATION					**$647,003.00**

EXHIBIT B - CAPITAL PLAN (INTERSECTION) COSTS

Stonebridge Addition Phase 3B Development Agreement
Loop 250 at Lamesa Rd / Stonebridge Dr
Traffic Signal and Related Public Improvements

CAPITAL PLAN (INTERSECTION) -- CONSTRUCTION COST SUMMARY		
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SIGNALIZATION	$	647,003.00
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - CONTRACTOR EQUIPMENT CREDIT	$	(95,000.00)
ALL IMPROVEMENTS - TOTAL CONTRACT VALUE	**$**	**552,003.00**

CITY COST SHARE	**$**	**73,155.57**
DEVELOPER COST SHARE (IMPACT FEE CREDIT AMOUNT)	**$**	**478,847.43**
CITY COST SHARE - PERCENTAGE OF TOTAL (not to exceed 30%)		**13.25%**



PACKET 24.3212 December 15, 2020

STONE BRIDGE / LAMESA ROAD

FROM LOOP 250 TO MOCKINGBIRD LANE

CAPITAL IMPROVEMENTS DEVELOPMENT AGREEMENT BETWEEN MIDLAND STONEBRIDGE PROPERTIES, LP AND THE CITY OF MIDLAND, TEXAS

THIS CAPITAL IMPROVEMENTS DEVELOPMENT AGREEMENT (the "Agreement") is made and effective this _____ day of _____, 20_____, by and between **MIDLAND STONEBRIDGE PROPERTIES, LP** ("Developer") and the **CITY OF MIDLAND, TEXAS** (the "City"), a home rule municipal corporation.

W I T N E S S E T H:

WHEREAS, Developer owns a new development and desires to construct the capital improvements or facility expansions described herein (the "Improvements"); and

WHEREAS, the City and Developer find it to be to their mutual advantage to enter into this Agreement under which (i) Developer may construct the Improvements and (ii) the City will credit Developer's costs incurred for such construction against the related impact fees otherwise due from Developer's new development;

NOW, THEREFORE, in consideration of the covenants, conditions, and promises contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Developer does hereby agree to the terms set forth in this Agreement:

1. Developer's new development is described as Stonebridge Addition, Phase 3B (the "Property"). The City and Developer expressly agree that, in the absence of credits provided in this Agreement, Developer shall pay the applicable impact fees attributable to the development of the Property in accordance with Title XI, Chapter 14 of the City Code. Such Improvements are more particularly described in specifications and contract documents

related to the construction of the Improvements prepared by Parkhill, Smith & Cooper, Inc. (hereafter collectively called "the Specifications"). The Specifications are incorporated herein by reference and made a part hereof for all purposes, and Developer shall comply with the Specifications in the performance of all work pursuant to this Agreement. No amendment to the Specifications may be made without the written approval of the City Manager.

2. The Improvements to be constructed by Developer pursuant to this Agreement shall be generally described as follows:

See Exhibit "A", attached hereto and incorporated herein by reference.

3. Developer shall submit any bids it receives for the proposed Improvements to the City for approval prior to engaging any contractor or subcontractor in such work, which approval shall not be unreasonably withheld. If the City fails to object within ten (10) days (excluding weekends and City holidays) after receipt from Developer of the bid tabulations and written notification of whom Developer intends to award the contract, the bid which Developer indicated it is accepting shall be deemed to have been accepted by the City. The City reserves the right to reject any and all bids for work that involves City participation. In rejecting any bid pursuant to the provisions of this Paragraph 3, the City shall issue a notice of rejection in writing to Developer stating each and every ground or reason relied upon by the City for such rejection.

4. Upon completion of the Improvements called for in Paragraph 2, Developer shall notify the City's Director of Engineering Services for inspection. Project inspection for

the Improvements will be done by the City during the construction phase. The City's Director of Engineering Services shall cause such work to be inspected within five (5) days, excluding weekends and holidays, of being notified by Developer. Notwithstanding anything herein to the contrary, project inspection must be completed prior to water or sewer systems being backfilled. If the Director of Engineering Services determines that all work has been completed in conformance with the Specifications, then the Director of Engineering Services shall give his approval for that improvement work.

5. After completion and acceptance of all work, Developer shall furnish to the City an affidavit of all bills paid with respect to the completed work and any other records requested by the City Manager documenting Developer's costs incurred in constructing the Improvements.

6. In consideration of the obligations incurred by Developer pursuant to this Agreement, the City agrees to participate in the funding of the construction of the Improvements, said amount to be no more than $356,832.00. In no case shall the City's contribution to the Improvements exceed 30 percent of the actual cost of the Improvements without Developer complying with the applicable competitive sealed bid procedures set forth in state law and the ordinances and regulations of the City of Midland, Texas. If the City's contribution for the Improvements exceeds 30 percent of the total cost of the Improvements and such Improvements were constructed without complying with said applicable competitive sealed bid procedures, then the City's maximum contribution under this Agreement shall not exceed 30 percent of the actual cost of the Improvements.

Provided, however, that Developer shall not have to comply with said applicable competitive sealed bid procedures where the City's contribution exceeds 30 percent of the total cost of Improvements if the City's participation is for the oversizing of such Improvements in accordance with Section 212.072 of the Texas Local Government Code.

The City further agrees to credit Developer's costs incurred in constructing the portion(s) of the Improvements described in Exhibit "B", which is attached hereto and incorporated herein by reference (the "Plan Improvements"), against the impact fee(s) described in Paragraph 1 otherwise due; provided, however, (i) that the City Manager, in the City Manager's sole discretion, shall determine Developer's costs incurred in constructing the Plan Improvements for the purpose of granting the credit, which shall not include the amount of funds provided by the City pursuant to this Agreement (e.g., if the total cost of constructing the Plan Improvements were to be $1,000,000.00 and the City were to participate by funding $300,000.00 of the Plan Improvements, Developer would not be entitled to receive a credit for costs exceeding $700,000.00), (ii) that to the extent the Plan Improvements are not capital improvements associated with a certain impact fee, Developer shall not receive credit against such impact fee for Developer's costs incurred (e.g., Developer's costs incurred for roadway construction will be credited against the roadway impact fee but will not be credited against water or wastewater impact fees), and (iii) that Developer shall not be entitled to receive reimbursement from the City of Developer's costs incurred in constructing the Plan Improvements that exceed the amount of the impact fee(s) owed.

7. Developer will indemnify and hold harmless and defend the City and all of the City's officers, agents and employees from all suits, actions, claims, damages, personal injuries, including accidental death, losses, property damage and expenses of any character whatsoever, including attorney's fees, brought for or on account of any injuries or damages received or sustained by any person or persons or property, on account of any negligent act of Developer, its agents or employees, or any subcontractor, in the execution, supervision and operations growing out of or in any way connected with the performance of this Agreement, and Developer will be required to pay any judgment with costs which may be obtained against the City or any of its officers, agents or employees, including attorney's fees.

DEVELOPER SHALL INDEMNIFY AND HOLD HARMLESS AND DEFEND THE CITY AND ALL OF THE CITY'S OFFICERS, AGENTS AND EMPLOYEES FROM ALL SUITS, ACTIONS, CLAIMS, DAMAGES, PERSONAL INJURIES, INCLUDING ACCIDENTAL DEATH, PROPERTY DAMAGE, LOSSES, AND EXPENSE OF ANY CHARACTER WHATSOEVER INCLUDING ATTORNEY'S FEES, BROUGHT FOR OR ON ACCOUNT OF ANY INJURIES OR DAMAGES RECEIVED OR SUSTAINED BY ANY PERSON OR PERSONS OR PROPERTY, ON ACCOUNT OF ANY NEGLIGENT ACT OF THE CITY, THE CITY'S OFFICERS, AGENTS AND EMPLOYEES, WHETHER SUCH NEGLIGENT ACT WAS THE SOLE PROXIMATE CAUSE OF THE INJURY OR DAMAGE OR A PROXIMATE CAUSE JOINTLY AND CONCURRENTLY WITH DEVELOPER OR DEVELOPER'S EMPLOYEES, AGENTS OR SUBCONTRACTORS NEGLIGENCE, IN THE EXECUTION, SUPERVISION AND OPERATIONS GROWING OUT OF

OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF THIS AGREEMENT AND DEVELOPER WILL BE REQUIRED TO PAY ANY JUDGMENT WITH COSTS WHICH MAY BE OBTAINED AGAINST THE CITY OR ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES, INCLUDING ATTORNEY'S FEES.

8. Developer agrees to indemnify and save the City harmless from all claims growing out of any demands of subcontractors, laborers, workmen, mechanics, materialmen, and suppliers of machinery and parts thereof, equipment, power tools, all supplies, including commissary incurred in the furtherance of the performance of this contract. When the City so desires, Developer shall furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged or waived.

9. Developer shall obtain and maintain continuously in effect at all times during the construction of the Improvements at Developer's sole expense, at least the following minimum insurance with a carrier or carriers licensed to do business in the State of Texas and satisfactory to the City.

A. The following requirements shall be met in regard to workers' compensation insurance coverage: Definitions:

Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the contractor's/persons's work on the project has been completed and accepted by the governmental entity.

Persons providing services on the project ("subcontractor" in §406.096) - includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

B. Developer shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of Developer providing services on the project, for the duration of the project.

C. Developer must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

D. If the coverage period shown on Developer's current certificate of coverage ends during the duration of the project, Developer must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

E. Developer shall obtain from each person providing services on a project, and provide to the governmental entity:

(1) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

(2) no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

F. Developer shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

G. Developer shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after Developer knew or should have known, of any change that materially affects the provision of coverage of any person providing

services on the project.

H. Developer shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

I. Developer shall contractually require each person with whom it contracts to provide services on a project, to:

(1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;

(2) provide to Developer, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

(3) provide Developer, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(4) obtain from each other person with whom it contracts, and provide to Developer:

(a) a certificate of coverage, prior to the other person beginning work on the project; and

(b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

(5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

(6) notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person

providing services on the project; and

(7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom whey are providing services.

J. By signing this contract or providing or causing to be provided a certificate of coverage, Developer is representing to the governmental entity that all employees of Developer who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

K. Developer's failure to comply with any of these provisions is a breach of contract by Developer which entitles the governmental entity to declare the contract void if Developer does not remedy the breach within 10 days after receipt of notice of breach from the governmental entity.

Developer shall also comply with the following:

L. Comprehensive General Liability Insurance against claims for bodily injury, death, or property damage occurring on, in or about the Property, in at least the amount of $250,000.00 per individual, $1,000,000.00 per occurrence and $100,000.00 with respect to property damage; said insurance shall name the City as an additional insured and shall waive all rights of subrogation against the City.

M. Automobile Liability Coverage on all motor vehicles owned, leased and/or operated by Developer or its employees in amounts of not less than $1,000,000.00 combined single limit or equivalent, provided, however, separate automobile coverage shall not be required if such coverage is provided under Developer's comprehensive general liability policy. The insurance shall name the City as an additonal insured and waive all rights of subrogation against the City.

All insurance herein required shall apply as primary and not in excess of or contributing with other insurance which Developer may carry.

10. **All insurance required pursuant to Paragraph 9, except worker's**

compensation, shall name the City as an additional insured. The comprehensive general liability policy shall provide contractual liability coverage sufficiently broad so as to include the liability assumed by Developer in the indemnity and hold harmless provisions included in this Agreement. Developer's insurance as required by this Agreement shall not be subject to cancellation or material alteration until at least thirty (30) days written notice has been provided to the City. Developer shall furnish to the City a certificate of insurance showing the City as an additional insured and evidencing that all of the herein stated requirements have been met. **All insurance coverage required pursuant to Paragraph 9 shall include in its provisions a waiver of any rights of subrogation against the City.**

DEVELOPER SHALL CONTRACTUALLY REQUIRE ALL CONTRACTORS, SUBCONTRACTORS, AND SUB-SUBCONTRACTORS THAT WORK ON ANY PORTION OF THE WORK THAT IS THE SUBJECT OF THIS CAPITAL IMPROVEMENT DEVELOPMENT AGREEMENT TO OBTAIN INSURANCE COVERAGE THAT MEETS OR EXCEEDS THE MINIMUM AMOUNTS SPECIFIED HEREIN. ALL CONTRACTORS, SUBCONTRACTORS, AND SUB-SUBCONTRACTORS SHALL OBTAIN INSURANCE POLICIES THAT PROVIDE BLANKET WAIVERS OF SUBROGATION IN FAVOR OF THE CITY OF MIDLAND AND POLICIES THAT NAME THE CITY OF MIDLAND AS AN ADDITIONAL INSURED (EXCEPT WORKERS COMPENSATION).

11. Insurance must be approved by the City Attorney's office prior to this Agreement being executed.

12. This Agreement may be modified or amended only by the mutual consent of the parties hereto.

13. This Agreement contains the complete and entire agreement between the parties respecting the matters addressed herein, and supersedes all prior negotiations, agreements, representations and understandings, if any, between the parties respecting such matters.

14. Except as may be otherwise specifically provided in this Agreement, all notices required or permitted hereunder shall be in writing as follows:

If to Developer:

Midland Stonebridge Properties, LP
1603 Idlewilde Dr.
Midland, Texas 79703
Attn: Mark Payne

If to the City:

City of Midland
P.O. Box 1152
Midland, Texas 79702
Attn: City Engineer

15. Any clause, sentence, provision, paragraph or article of this Agreement held by a court of competent jurisdiction to be invalid, illegal or ineffective shall not impair, invalidate or nullify the remainder of this Agreement, but the effect thereof shall be confined to the clause, sentence, provision, paragraph or article so held to be invalid, illegal or ineffective.

16. All performance and payment made pursuant to this Agreement shall be

deemed to have occurred in Midland County, Texas. Exclusive venue for any claims, suits or any other action arising from or connected in any way to this Agreement or the performance of this Agreement shall be in Midland County, Texas. The obligations and undertakings of each of the parties to this Agreement shall be deemed to have been performed in Midland County, Texas. This Agreement shall be construed under the laws of the State of Texas. The laws of the State of Texas shall govern, construe and enforce all the rights and duties of the parties arising from or relating in any way to the subject matter of this Agreement, without regard to conflict of laws and rules that would direct application of the laws of another jurisdiction.

17. In the event of any conflict between the parties hereto such that either party brings or commences any legal action or proceeding related to this Agreement, including but not limited to any action pursuant to the provisions of the Texas Uniform Declaratory Judgments Act (TEX. CIV. PRAC. & REM. CODE §37.001 et seq., as amended), the parties hereto agree to waive any and all rights to recovery of attorneys fees to which the prevailing party might otherwise be entitled.

BY EXECUTING THIS AGREEMENT, DEVELOPER AGREES TO WAIVE AND DOES HEREBY KNOWINGLY, CONCLUSIVELY, VOLUNTARILY AND INTENTIONALLY WAIVE ANY CLAIM IT HAS OR MAY HAVE IN THE FUTURE AGAINST THE CITY, REGARDING THE AWARD OF ATTORNEY'S FEES, WHICH ARE IN ANY WAY RELATED TO THE AGREEMENT, OR THE CONSTRUCTION, INTERPRETATION OR BREACH OF THE AGREEMENT.

DEVELOPER SPECIFICALLY AGREES THAT IF DEVELOPER BRINGS OR COMMENCES ANY LEGAL ACTION OR PROCEEDING RELATED TO THIS AGREEMENT, THE CONSTRUCTION, INTERPRETATION, VALIDITY OR BREACH OF THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY ACTION PURSUANT TO THE PROVISIONS OF THE TEXAS UNIFORM DECLARATORY JUDGMENTS ACT (TEXAS CIVIL PRACTICE AND REMEDIES CODE SECTION 37.001, ET. SEQ., AS AMENDED), CHAPTER 271 OF THE TEXAS LOCAL GOVERNMENT CODE, OR CHAPTER 395 OF THE TEXAS LOCAL GOVERNMENT CODE, DEVELOPER AGREES TO ABANDON, WAIVE AND RELINQUISH ANY AND ALL RIGHTS TO THE RECOVERY OF ATTORNEY'S FEES TO WHICH DEVELOPER MIGHT OTHERWISE BE ENTITLED.

DEVELOPER AGREES THAT THIS IS THE VOLUNTARY AND INTENTIONAL RELINQUISHMENT AND ABANDONMENT OF A PRESENTLY EXISTING KNOWN RIGHT. DEVELOPER ACKNOWLEDGES THAT IT UNDERSTANDS ALL TERMS AND CONDITIONS OF THE AGREEMENT. DEVELOPER FURTHER ACKNOWLEDGES AND AGREES THAT THERE WAS AND IS NO DISPARITY OF BARGAINING POWER BETWEEN THE CITY AND DEVELOPER. THIS SECTION SHALL NOT BE CONSTRUED OR INTERPRETED AS A WAIVER OF SOVEREIGN IMMUNITY.

DEVELOPER AND THE CITY ARE RELYING ON THEIR OWN JUDGMENT. EACH PARTY HAD THE OPPORTUNITY TO DISCUSS THIS AGREEMENT WITH LEGAL COUNSEL PRIOR TO ITS EXECUTION.

18. It is expressly understood and agreed that Developer shall perform all work and services described herein as an independent contractor and not as an officer, agent, servant or employee of the City; that Developer shall have exclusive control of and the exclusive right to control the details of the services and work performed hereunder, and all persons performing the same; and shall be solely responsible for the acts and omissions of its officers, agents, employees, contractors and subcontractors; that the doctrine of respondeat superior shall not apply as between the City and Developer, its officers, agents, employees, contractors and subcontractors; and that nothing herein shall be construed as creating a partnership or joint enterprise between the City and Developer. No person performing any of the work and services described hereunder by Developer shall be considered an officer, agent, servant or employee of the City. Further, it is specifically understood and agreed that nothing in this contract is intended or shall be construed as creating a "Community of Pecuniary Interest" or "An Equal Right of Control" which would give rise to vicarious liability. Developer shall be an independent contractor under this contract and shall assume all of the rights, obligations and liabilities, applicable to it as such independent contractor hereunder. The City does not have the power to direct the order in which the work is done. The City shall not have the right to control the means, methods or details of Developer's work. Developer shall assume exclusive responsibility for the work. Developer is entirely free to do the work in its own way.

19. RELEASE: DEVELOPER HEREBY RELEASES, ACQUITS, RELINQUISHES AND FOREVER DISCHARGES THE CITY, THE CITY'S EMPLOYEES AND OFFICERS, FROM ANY AND ALL DEMANDS, CLAIMS,

DAMAGES OR CAUSES OF ACTION OF ANY KIND WHATSOEVER ARISING UNDER OR ASSOCIATED WITH THIS AGREEMENT WHICH DEVELOPER HAS OR MIGHT HAVE IN THE FUTURE, INCLUDING BUT NOT LIMITED TO QUANTUM MERUIT, DUE PROCESS AND TAKINGS CLAUSES UNDER THE TEXAS AND UNITED STATES CONSTITUTION, TORT CLAIMS OR THE CITY'S NEGLIGENCE, OR CLAIMS UNDER CHAPTER 395 OF THE TEXAS LOCAL GOVERNMENT CODE.

20. By executing this Agreement the City is not waiving its right of sovereign immunity. The City is retaining its immunity from suit. The City is not granting consent to be sued by legislative resolution or action.

THERE IS NO WAIVER OF SOVEREIGN IMMUNITY.

21. **NOTICE OF ALLEGED BREACH; STATUTORY PREREQUISITES**

As a condition precedent to filing suit for alleged damages incurred by an alleged breach of an express or implied provision of this Agreement, Developer or its legal representative, shall give the City Manager, or any other reasonable official of the City, notice in writing (consisting of one (1) original and seven (7) copies of notice attached to a copy of this Agreement) of such damages, duly verified, within one hundred twenty (120) days after the same has been sustained. The discovery rule does not apply to the giving of this notice. The notice shall include when, where and how the damages occurred, the apparent extent thereof, the amount of damages sustained, the amount for which Developer will settle, the physical and mailing addresses of Developer at the time and date the claim was presented and the physical and mailing addresses of Developer for the six (6) months

immediately preceding the occurrence of such damages, and the names and addresses of the witnesses upon whom Developer relies to establish its claim; and a failure to so notify the City Manager within the time and manner provided herein shall exonerate, excuse and except the City from any liability whatsoever. The City is under no obligation to provide notice to Developer that Developer's notice is insufficient. The City reserves the right to request reasonable additional information regarding the claim. Said additional information shall be supplied within thirty (30) days after receipt of notice.

The statutory prerequisites outlined herein constitute jurisdictional requirements pursuant to Section 271.154 of the Texas Local Government Code and Section 311.034 of the Texas Government Code. Notwithstanding any other provision, Developer's failure to comply with the requirements herein shall perpetually bar Developer's claim for damages under Chapter 271 of the Texas Local Government Code and Section 311.034 of the Texas Government Code, regardless if the City has actual or constructive notice or knowledge of said claim or alleged damages. Developer agrees that the requirements of this entire agreement are reasonable.

22. This agreement is made under the authority of Section 395.019 of the Texas Local Government Code and the laws of the State of Texas and Ordinances and the Charter of the City of Midland.

23. Notwithstanding any other provision hereof, the City shall not be obligated to provide payment to Developer under this Agreement or to provide credit(s) against the impact fee(s) under this Agreement until Developer has met all requirements of this Agreement, including, but not limited to, the City's approval of the improvement work as set

forth in Paragraph 4 and the City's determination that Developer has furnished satisfactory evidence that all obligations described in Paragraph 8 have been paid, discharged or waived. Determination of whether Developer has furnished satisfactory evidence that all such obligations have been paid, discharged or waived shall be in the sole discretion of the City.

24. Developer agrees that it shall comply with Texas Government Code Section 2252.908, as amended. Developer agrees that it shall comply with Texas Local Government Code Section 176.006, as amended. For further instructions on how to comply with Texas Government Code Section 2252.908 and Texas Local Government Code Section 176.006, please go to https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and https://www.ethics.state.tx.us/filinginfo/conflict_forms.htm.

EXECUTED in duplicate the day and year first above written.

CITY OF MIDLAND, TEXAS

By:_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Jose Ortiz, Engineering Services Director

APPROVED ONLY AS TO FORM:

_____

John Ohnemiller, City Attorney

MIDLAND STONEBRIDGE PROPERTIES, LP

Andrew Investment Management Company

Its: General Partner

By: Mark Payne

Printed Name: Mark Payne

Title: President

THE STATE OF TEXAS §
§
COUNTY OF MIDLAND §

BEFORE ME, the undersigned authority, on this day personally appeared Mark Payne, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged that he executed and delivered the foregoing instrument for the purposes and consideration therein expressed on behalf of MIDLAND STONEBRIDGE PROPERTIES, LP, in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 1st day of December, 2020.

JENNIFER RAMSEY
Notary Public, State of Texas
Comm. Expires 02-18-2021
Notary ID 129310556

Notary Public, State of Texas

S:\Contracts\Engineering\Development Agmt\2020\Midland Stonebridge Properties, LP - Stonebridge Addn, Phase 3B - Traffic Signal (Impact Fee Credit).wpd

MIDLAND Engineering Services

EXHIBIT A - TOTAL PROJECT COSTS

Stonebridge Addition Phase 3B Development Agreement
Loop 250 at Lamesa Rd / Stonebridge Dr
Traffic Signal and Related Public Improvements

TOTAL PROJECT -- CONSTRUCTION COST SUMMARY

EARTHWORK	$	446,656.30
PAVING IMPROVEMENTS	$	1,254,456.30
MISCELLANEOUS IMPROVEMENTS	$	48,979.40
WESTBOUND FRONTAGE ROAD IMPROVEMENTS	$	185,589.00
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - DEMOLITION	$	41,005.60
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SITEWORK	$	98,558.10
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - MISCELLANEOUS	$	65,265.30
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SIGNALIZATION	$	647,003.00
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - CONTRACTOR EQUIPMENT CREDIT	$	(95,000.00)
ALL IMPROVEMENTS - TOTAL CONTRACT VALUE	**$**	**2,692,513.00**

CITY COST SHARE	**$**	**356,832.00**
DEVELOPER COST SHARE	**$**	**2,335,681.00**
CITY COST SHARE - PERCENTAGE OF TOTAL (not to exceed 30%)		**13.25%**

PARKHILL
1700 W. WALL STREET SUITE 100, MIDLAND, TX 79701
(432) 697-1447

STONEBRIDGE ADDITION PHASE 3B

EARTHWORK

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Clearing, Stripping, and Grubbing, complete in place as shown in plans	7.2	AC	$1,385.00	$9,972.00
2	Unclassified Street Excavation, complete in place as shown in plans	5,450	CY	$21.30	$116,085.00
3	North Channel Excavation, complete in place as shown in plans	1,960	CY	$11.90	$23,324.00
4	Mobilization	1	SL	$297,275.30	$297,275.30
TOTAL EARTHWORK					**$446,656.30**

PAVING IMPROVEMENTS

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Subgrade Preparation Including Excavation, Fill, Shaping and Compaction, Complete in place as shown in plans	25,267	SY	$1.15	$29,057.05
2	8" Flexible Caliche Base, Complete in place as shown in plans	25,267	SY	$8.90	$224,876.30
3	Prime Coat, Complete in place as shown in plans	20,568	SY	$1.20	$24,681.60
4	2" Type "D" HMAC Pavement, Complete in place as shown in plans	12,260	SY	$15.90	$194,934.00
5	2.25" Type "D" HMAC Pavement, Complete in place as shown in plans	8,208	SY	$17.90	$146,923.20
6	6" Thick Concrete Pavement, Complete in place as shown in plans	916	SY	$99.60	$91,233.60
7	Deceleration Lane - Subgrade Preparation Including Excavation, Fill, Shaping and Compaction, Complete in place as shown in plans	687	SY	$13.50	$9,274.50
8	Deceleration Lane - 8" Flexible Caliche Base, Complete in place as shown in plans	687	SY	$11.25	$7,728.75
9	Deceleration Lane - Prime Coat, Complete in place as shown in plans	426	SY	$1.85	$788.10
10	Deceleration Lane - 2.25" Type "D" HMAC Pavement, Complete in place as shown in plans	426	SY	$29.30	$12,481.80
11	Concrete Valley Gutters & Fillets, Complete in place as shown in plans	640	SY	$97.45	$62,368.00
12	Concrete Driveway & Approach, Complete in place as shown in plans	68	SY	$99.05	$6,735.40
13	5' Sidewalk, Complete in place as shown in plans	10,190	SF	$8.45	$86,105.50
14	6" Concrete Curb and Gutter, Complete in place as shown in plans	9,380	LF	$23.45	$219,961.00
15	ADA Ramps, Complete in place as shown in plans	14	EA	$2,100.00	$29,400.00
16	Sawcut, Remove and Dispose of Existing Asphalt, Complete in place as shown in plans	320	SY	$6.40	$2,048.00
17	Asphalt Trench Repair, Complete in place as shown in plans	15	SY	$199.00	$2,985.00
18	Adjust Water Valves to Grade, Complete in place as shown in plans	35	EA	$455.00	$15,925.00
19	Adjust Sanitary Sewer Manholes to Grade, Complete in place as shown in plans	9	EA	$1,040.00	$9,360.00
20	Adjust Storm Sewer Manholes to Grade, Complete in place as shown in plans	5	EA	$1,100.00	$5,500.00
21	13.5' (F-F) Concrete Flume with Steel Plate Crossing, Complete in place as shown in plans	10	LF	$895.00	$8,950.00
22	17' (F-F) Concrete Flume with Steel Plate Crossing, Complete in place as shown in plans	11	LF	$915.00	$10,065.00
23	Median Island at Stonebridge Drive & Frontage Road, Complete in place as shown in plans	1	LS	$49,430.00	$49,430.00
24	Install TXDOT Type III End of Road Barricade	37	LF	$98.50	$3,644.50
TOTAL PAVING IMPROVEMENTS					**$1,254,456.30**

PARKHILL
1700 W. WALL STREET SUITE 100, MIDLAND, TX 79701
(432) 697-1447

STONEBRIDGE ADDITION PHASE 3B

MISCELLANEOUS IMPROVEMENTS

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Traffic Control Plan, Complete in place as shown in plans	1	LS	$10,530.00	$10,530.00
2	SWPP Permits, Complete in place as shown in plans	1	LS	$4,475.00	$4,475.00
3	Silt Fence, Complete in place as shown in plans	1,198	LF	$4.15	$4,971.70
4	Construction Entrance, Complete in place as shown in plans	167	SY	$43.10	$7,197.70
5	Pavement Markings, Complete in place as shown in plans	1	LS	$21,805.00	$21,805.00
TOTAL MISCELLANEOUS IMPROVEMENTS					**$48,979.40**

WESTBOUND FRONTAGE ROAD IMPROVEMENTS

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Pavement Striping within TXDOT ROW, Complete in place as shown in plans	1	LS	$27,795.00	$27,795.00
2	Removal of Existing Pavement Striping & Traffic Signs with Poles, Complete in place as shown in plans	1	LS	$26,145.00	$26,145.00
3	Traffic Signs with Poles, Complete in place as shown in plans	8	EA	$880.00	$7,040.00
4	Traffic Signals, Complete in place as shown in plans	1	LS	N/A	N/A
5	Traffic Control Plan, Complete in place as shown in plans	1	LS	$34,805.00	$34,805.00
6	5' Sidewalk, Complete in place as shown in plans	4,980	SF	$8.60	$42,828.00
7	Pedestrian Sidewalk Handrail, Complete in place as shown in plans	85	LF	$150.00	$12,750.00
8	Remove & Replace MBGF	150	LF	$30.80	$4,620.00
9	Remove & Patch Curb & Gutter	640	LF	$39.90	$25,536.00
10	Traffic Signs (without poles), Complete in place as shown in plans	2	EA	$110.00	$220.00
11	Removal of Existing Light pole, Complete in place as shown in plans	1	EA	$3,850.00	$3,850.00
TOTAL WESTBOUND FRONTAGE ROAD IMPROVEMENTS					**$185,589.00**

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - DEMOLITION

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Demo Existing Striping	1	LS	$8,465.00	$8,465.00
2	Demo Existing Asphalt (Island Area)	76	SY	$12.35	$938.60
3	Demo Existing C&G	326	LF	$14.00	$4,564.00
4	Demo Existing ADA Ramp	1	EA	$530.00	$530.00
5	Removal of Existing Raised Pavement Markers	1	LS	$435.00	$435.00
6	Removal of Existing Traffic Sign & Pole	1	EA	$113.00	$113.00
7	Relocation of Existing Traffic Signs	7	EA	$880.00	$6,160.00
8	Relocation of Existing Light Poles	2	EA	$9,900.00	$19,800.00
TOTAL EASTBOUND FRONTAGE ROAD IMPROVEMENTS - DEMOLITION					**$41,005.60**

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SITEWORK

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	2.25" Asphaltic Concrete Pavement	331	SY	$42.70	$14,133.70
2	8" Caliche Base	252	SY	$20.95	$5,279.40
3	6" Compacted Subgrade	252	SY	$35.30	$8,895.60
4	TXDOT Type II-a Curb & Gutter	440	LF	$34.05	$14,982.00
5	Concrete Flatwork / Sidewalk	288	SF	$13.55	$3,902.40
6	ADA Truncated Dome Landing (Type 7)	5	EA	$3,525.00	$17,625.00
7	ADA Curb Ramp - Perpendicular (Type 1)	1	EA	$3,375.00	$3,375.00
8	ADA Curb Ramp - Directional (Type 22)	3	EA	$4,485.00	$13,455.00
9	48"x30" R3-8 LMS Sign	2	EA	$110.00	$220.00
10	Pavement Striping (includes crosswalks)	1	LS	$16,690.00	$16,690.00
TOTAL EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SITEWORK					**$98,558.10**

PARKHILL
1700 W. WALL STREET SUITE 100, MIDLAND, TX 79701
(432) 697-1447

STONEBRIDGE ADDITION PHASE 3B

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - MISCELLANEOUS

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Erosion Control	1	LS	$5,205.00	$5,205.00
2	Traffic Control Measures	1	LS	$12,515.00	$12,515.00
3	Mobilization	1	LS	$47,545.30	$47,545.30
TOTAL EASTBOUND FRONTAGE ROAD IMPROVEMENTS - MISCELLANEOUS					**$65,265.30**

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SIGNALIZATION

Item No.	Description	Quantity	Unit	Unit Price	Amount
1	Removing Concrete (medians)	56	SY	$39.80	$2,228.80
2	Drill Shaft (Traffic Signal Pole) (24")	24	LF	$236.25	$5,670.00
3	Drill Shaft (Traffic Signal Pole) (36")	65	LF	$378.00	$24,570.00
4	Drill Shaft (Traffic Signal Pole) (48")	22	LF	$577.50	$12,705.00
5	Mobilization	1	LS	$79,710.50	$79,710.50
6	Barricades, Signs and Traffic Handling	2	MO	$25,780.00	$51,560.00
7	Remove & Relay Pavers	56	SY	$196.35	$10,995.60
8	Curb Ramp (Type 7)	1	EA	$3,525.00	$3,525.00
9	Conduit (PVC) (Sch. 40) (2")	25	LF	$10.50	$262.50
10	Conduit (PVC) (Sch. 40) (2") (Bore)	225	LF	$63.00	$14,175.00
11	Conduit (PVC) (Sch. 40) (3")	160	LF	$26.25	$4,200.00
12	Conduit (PVC) (Sch. 40) (4")	30	LF	$36.75	$1,102.50
13	Conduit (PVC) (Sch. 40) (4") (Bore)	530	LF	$68.25	$36,172.50
14	Electric Conductor (No. 12) Insulated	300	LF	$0.79	$237.00
15	Electric Conductor (No. 8) Insulated	3,000	LF	$1.32	$3,960.00
16	Electric Conductor (No. 6) Bare	1,410	LF	$1.32	$1,861.20
17	Electric Conductor (No. 6) Insulated	670	LF	$1.84	$1,232.80
18	Ground Box Type C (162911) w/Apron	8	EA	$1,417.50	$11,340.00
19	Ground Box Type D (162922) w/Apron	1	EA	$1,575.00	$1,575.00
20	Remove Ground Box	9	EA	$210.00	$1,890.00
21	Electric Service Type D 120/240 100(NS)SS(E)SP(O)	1	EA	$8,925.00	$8,925.00
22	IN SM RD SN SUP&AM	4	EA	$892.50	$3,570.00
23	Remove SM RD SN SUP&AM	2	EA	$113.00	$226.00
24	Reflective Pavement Marker Type I (W) 24" (Solid) 100 mil	50	LF	$8.65	$432.50
25	Pavement Sealer 24"	50	LF	$2.80	$140.00
26	Pavement Surface Prep for Marker (24")	50	LF	$1.30	$65.00
27	Install Highway Traffic Signal (Isolated)	1	EA	$42,000.00	$42,000.00
28	VEH SIG SEC (12") LED(GRN)	15	EA	$257.25	$3,858.75
29	VEH SIG SEC (12") LED(GRN ARW)	8	EA	$257.25	$2,058.00
30	VEH SIG SEC (12") LED(YEL)	21	EA	$257.25	$5,402.25
31	VEH SIG SEC (12") LED(YEL ARW)	2	EA	$257.25	$514.50
32	VEH SIG SEC (12") LED(RED)	21	EA	$257.25	$5,402.25
33	PED SIG SEC (LED)(COUNTDOWN)	12	EA	$630.00	$7,560.00
34	Traffic Signal Cable (Type A)(14 AWG)(5 CONDR)	820	LF	$1.58	$1,295.60
35	Traffic Signal Cable (Type A)(14 AWG)(7 CONDR)	130	LF	$1.68	$218.40
36	Traffic Signal Cable (Type A)(14 AWG)(12 CONDR)	830	LF	$4.20	$3,486.00
37	Traffic Signal Cable (Type A)(14 AWG)(20 CONDR)	1,385	LF	$6.30	$8,725.50
38	Traffic Signal Cable (Type C)(12 AWG)(2 CONDR)	60	LF	$2.63	$157.80
39	INS TRF SIG PL AM(S)1 ARM(44')LUM&ILSN	5	EA	$25,725.00	$128,625.00
40	INS TRF SIG PL AM(S)1 ARM(55')LUM&ILSN	1	EA	$30,975.00	$30,975.00
41	Pedestrian Pole Assembly	4	EA	$1,207.50	$4,830.00
42	Pedestrian Detect Push Button (APS)	12	EA	$735.00	$8,820.00
43	Pedestrian Detect Controller Unit	1	EA	$3,675.00	$3,675.00
44	BBU System (External Batt Cabinet)	1	EA	$9,975.00	$9,975.00
45	Install Radar Vehicle Detection System	1	EA	$26,250.00	$26,250.00
46	Install Underpass Luminaire (LED)	8	EA	$682.50	$5,460.00
47	Install Luminaire Fixture (LED)	6	EA	$682.50	$4,095.00
48	Radar Presence Detector	4	EA	$11,025.00	$44,100.00
49	Radar Presence Detector Comm Cable	985	LF	$2.63	$2,590.55
50	Conduit (Prepare)	450	LF	$1.05	$472.50
51	CAT 5 Cable	300	LF	$1.58	$474.00
52	Opticom System with Cable	1	LS	$13,650.00	$13,650.00
TOTAL EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SIGNALIZATION					**$647,003.00**

MIDLAND Engineering Services

EXHIBIT B - CAPITAL PLAN (INTERSECTION) COSTS

Stonebridge Addition Phase 3B Development Agreement
Loop 250 at Lamesa Rd / Stonebridge Dr
Traffic Signal and Related Public Improvements

CAPITAL PLAN (INTERSECTION) -- CONSTRUCTION COST SUMMARY

EASTBOUND FRONTAGE ROAD IMPROVEMENTS - SIGNALIZATION	$	647,003.00
EASTBOUND FRONTAGE ROAD IMPROVEMENTS - CONTRACTOR EQUIPMENT CREDIT	$	(95,000.00)
ALL IMPROVEMENTS - TOTAL CONTRACT VALUE	**$**	**552,003.00**

CITY COST SHARE	**$**	**73,155.57**
DEVELOPER COST SHARE (IMPACT FEE CREDIT AMOUNT)	**$**	**478,847.43**
CITY COST SHARE - PERCENTAGE OF TOTAL (not to exceed 30%)		**13.25%**

City Council Meeting

Item Number: 25
Meeting Date: December 15, 2020
To: City Council / City Manager
From: Kayci LaDuke,
Subject: ***Motion accepting a grant award of $26,352.00 from the Fiscal Year 2020 Justice Assistance Grant Program; and authorizing the appropriation of said funds to the Police Justice Grant Fund (074)*** **(POLICE)**

Purpose:

Consider a motion to accept and appropriate funds for the FY2020 Justice Assistance Grant (JAG) Program

Recommended City Council Action:

Approve

Fiscal Impact:

JAG 20 County Portion Project (700304-074) $10,541.00 The FY2020 Justice Assistance Grant (JAG) Grant in the amount of $26,352 is received, accepted and appropriated in the Police Justice Grant Fund (074).

Discussion:

The City of Midland Police Department has received notice that we, in conjunction with Midland County, have been awarded $26,352.00 through the 2020 Justice Assistance Grant. The Attorney General of Texas has determined that Texas counties are responsible for more than 50% of the costs incurred for the prosecution and incarceration of Part 1 crimes. The effect of the Attorney General's certification is that cities and counties must file a joint application with the Bureau of Justice Assistance, with the cities and counties agreeing to the funding allocations among them. The end result is that the City of Midland will receive $15,811.00 (60%) and Midland County will receive $10,541.00 (40%).

City Manager's Office

City Council Meeting

Item Number: 26

Meeting Date: December 15, 2020

To: City Council / City Manager

From: John Simmons, Manager, Right-of-Way

Subject: MOTION AUTHORIZING THE EXECUTION OF A SURFACE USE AGREEMENT WITH CROWNQUEST OPERATING, LLC REGARDING CITY-OWNED PROPERTY DESCRIBED AS SECTIONS 2, 4, 9, 10, 11, 13, 14, 16, 19, 20, 21 AND 24, BLOCK 37, TOWNSHIP 3 SOUTH AND SECTION 30, BLOCK 36, TOWNSHIP 3 SOUTH, T&P RR CO. SURVEY, MIDLAND COUNTY, TEXAS. (UTILITIES)

Purpose:

Motion authorizing the execution of Surface use Agreement with CrownQuest Operating, LLC regarding city-owned property described as Sections 2, 4, 9, 10, 11, 13, 14, 16,19,20,21,24, Block 37, Township 3 South, & Section 30, Block 36, Township 3 South T&P RR Co. Survey, Midland County, Texas.

Recommended City Council Action:

Approve

Fiscal Impact:

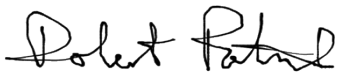
Annual Fee Collected: $47,532.00
One-time License Fee: $21,798.00
One-time surface damage Fee: $21,986.10

Discussion:

This agreement will give the operator the non-exclusive right of use to the surface premise to drill, complete, construct, install, operate, produce, repair, maintain, replace, abandon and/or remove certain wells, equipment, fixtures, improvements, roads, pipelines, electric lines, and/or other facilities.

Certificates of Insurance are on file

City Secretary to record all documents



City Manager's Office

MEMORANDUM OF FIRST AMENDMENT TO RIGHT OF WAY LICENSE

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

This Memorandum of First Amendment to Right of Way License (this "Memorandum") is made and entered into by and between the **CITY OF MIDLAND, TEXAS**, a home rule municipal corporation, whose address is 300 N. Loraine, Midland, Texas 79701, Attention: Right of Way Manager (herein "Licensor") and **CROWNQUEST OPERATING, LLC**, a Texas limited liability company, whose address is 18 Desta Drive, Midland, Texas 79705, Attention: Land Manager (herein "Licensee").

WITNESSETH:

Licensor and Licensee are parties to that certain Right of Way License dated effective as of June 9, 2020, recorded by Memorandum of Right of Way License as Instrument No. 18205 in the Official Public Records of Midland County, Texas (the "Right of Way License").

Licensor and Licensee have entered into that certain First Amendment to Right of Way License dated on or about _____, 2020, but effective as of June 9, 2020 (the "First Amendment") under which Licensor and Licensee amended certain terms and provisions contained in the Right of Way License. Without limiting the foregoing, under the terms of the First Amendment, Exhibit A to the Right of Way License was amended and replaced in its entirety with Exhibit A attached to the First Amendment. A copy of Exhibit A to the First Amendment is attached hereto as Exhibit A and is made a part hereof for all purposes.

Under the terms of the Right of Way License, as amended by the First Amendment, Licensor granted unto Licensee the right (i) to enter upon certain property owned by Licensor in Midland County, Texas, being seventeen and one-half (17.5) feet on each side of the centerline of the pipeline locations as shown on Exhibit A attached hereto and incorporated herein together with an additional seven and one-half (7.5) feet on each side of the centerline of said pipeline locations during the construction of such pipelines (the "Property"), for the purpose of placing, constructing, operating, repairing, maintaining, replacing and removing, thereon, along the herein described pipeline locations, one (1) pipeline, not to exceed eighteen (18) inches in diameter, for the transportation of gas products, one (1) pipeline, not to exceed twelve (12) inches in diameter, for the transportation of oil products, one (1) pipeline, not to exceed twelve (12) inches in diameter, for the transportation of produced water, and one (1) pipeline, not to exceed sixteen (16) inches in diameter, for the transportation of produced and/or fresh water and (ii) of ingress and egress over and across the Property and the right to access the Property at such locations, if any, on Licensor's land as may be designated by Licensor on Exhibit A attached hereto or as may otherwise be designated to Licensee in writing by Licensor, for such purposes, subject to the terms of the Right of Way License, as amended by the First Amendment, and as more particularly described in the Right of Way License and the First Amendment.

Licensor and Licensee are executing this Memorandum for the purpose of placing the same of record in the above-referenced County, and in order to constitute constructive notice to all third parties dealing with Licensor and/or Licensee of the existence of the First Amendment and of the rights and obligations contained therein. Licensor and Licensee give notice that the Right of Way License may be further amended or supplemented from time to time in the future and any inquiry as to the contents thereof should also include an inquiry as to the contents of any and all such amendments and supplements. In the event of any conflict between the terms of this Memorandum and the First Amendment, the terms of the First Amendment shall control.

This Memorandum shall be binding upon both parties signing a counterpart of this Memorandum, whether or not both parties sign the same counterpart hereof. To facilitate recordation, one or more executed counterparts of this Memorandum may be assembled into one document for recording purposes and a single counterpart containing additional signature and acknowledgment pages from the other counterparts may be executed and recorded.

[Remainder of page intentionally left blank; signature pages follow.]

IN WITNESS WHEREOF, this Memorandum is executed as of the dates of the acknowledgments of the respective parties, but effective as of June 9, 2020.

LICENSOR:

CITY OF MIDLAND, TEXAS

By:_____
Robert Patrick, Interim City Manager

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

This instrument was acknowledged before me this ___ day of _____, 2020, by _____, _____ of the City of Midland, Texas, a home rule municipal corporation, on behalf of said entity.

_____
Notary Public – State of Texas

LICENSEE:

CROWNQUEST OPERATING, LLC

By: _____
Name: Robert W. Floyd
Title: President JB

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

This instrument was acknowledged before me this 23 day of November, 2020, by Robert W. Floyd, President of CrownQuest Operating, LLC, a Texas limited liability company, on behalf of said limited liability company.

BRIANNA CRITES
Notary Public, State of Texas
Comm. Expires 08-04-2024
Notary ID 130766189

_____
Notary Public – State of Texas

EXHIBIT A

Attached to that certain Memorandum of First Amendment to Right of Way License
between the City of Midland, Texas, as "Licensor"
and
CrownQuest Operating, LLC, as "Licensee"

(see attached)

FIRST AMENDMENT TO
RIGHT OF WAY LICENSE

This FIRST AMENDMENT TO RIGHT OF WAY LICENSE (this "Amendment"), dated as of _____, 2020, but effective as of June 9, 2020 (the "Effective Date"), is by and between the **CITY OF MIDLAND, TEXAS**, a home rule municipal corporation, whose address is P.O. Box 1152, Midland, Texas 79702 ("Licensor"), and **CROWNQUEST OPERATING, LLC**, a Texas limited liability company, whose address is 18 Desta Drive, Midland, Texas 79701 ("Licensee"). Licensor and Licensee are sometimes referred to herein individually as a "Party" and collectively as the "Parties". Any capitalized term used but not defined in this Amendment shall have the meaning assigned to such term in the Right of Way License (as defined below).

WHEREAS, Licensor and Licensee are Parties to that certain Right of Way License dated effective as of June 9, 2020, recorded by Memorandum of Right of Way License as Instrument No. 18205 in the Official Public Records of Midland County, Texas (the "Right of Way License"); and

WHEREAS, the Parties desire to amend the Right of Way License as more fully set forth herein.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. Paragraph C. of Article II of the Right of Way License is hereby amended and restated in its entirety as follows:

> "**C. Annual Fee.** Licensee shall pay to Licensor an annual fee ("Annual Fee") in the amount of Forty-Seven Thousand Five Hundred Thirty-Two and 00/100 Dollars ($47,532.00), which shall be payable each year on or before the anniversary of the Commencement Date of this License."

2. Paragraph A. of Article III of the Right of Way License is hereby amended and restated in its entirety as follows:

> "**A. Permitted Use.** Licensor does hereby grant unto Licensee, the right (i) to enter upon certain property owned by Licensor in Midland County, Texas, being seventeen and one-half (17.5) feet on each side of the centerline of the pipeline locations as shown on **Exhibit A** attached hereto and incorporated herein together with an additional seven and one-half (7.5) feet on each side of the centerline of said pipeline locations during the construction of such pipelines (the "Property"), for the purpose of placing, constructing, operating, repairing, maintaining, replacing and removing, thereon, along the herein described pipeline locations, one (1) pipeline, not to exceed eighteen (18) inches in diameter, for the transportation of gas products, one (1) pipeline, not to exceed twelve (12) inches in diameter, for the transportation of oil products, one (1) pipeline, not to exceed twelve (12) inches in diameter, for the transportation of produced water, and one (1) pipeline, not to exceed sixteen (16) inches in diameter, for the transportation of produced and/or

fresh water and (ii) of ingress and egress over and across the Property and the right to access the Property at such locations, if any, on Licensor's land as may be designated by Licensor on **Exhibit A** attached hereto or as may otherwise be designated to Licensee in writing by Licensor, for such purposes. All lines including the gas line will be SDR eleven (11) poly pipelines. In the event Licensee desires to construct or install within the Property additional pipelines and/or pipelines with diameters different than those listed immediately above for the respective pipeline type, Licensee must obtain the prior written consent of Licensor as to the number, location, size and specifications therefor, which consent shall be in the sole discretion of Licensor. Except during the construction of the pipelines and/or with the prior written consent of Licensor, which consent shall be at Licensor's sole discretion, no facilities, structures or equipment shall be located upon the surface of the Property. **Licensee shall provide Licensor with a complete as-built survey within sixty (60) days of completion of the pipeline(s) and permitted facilities described herein. The parties agree that Licensee's failure to provide Licensor with a complete as-built survey within sixty (60) days of completion of the pipeline(s) and permitted facilities described herein may result in the termination of this License. The decision to accept a complete as-built survey after the sixty-day deadline prescribed herein, or, conversely, to terminate this License shall be in the sole and absolute discretion of Licensor.**"

3. A one-time license fee in the amount of Twenty-Five Thousand Seven Hundred Ninety-Eight and 00/100 Dollars ($25,798.00) shall be due and payable by Licensee to Licensor contemporaneously with the execution by the Parties of this First Amendment.

4. In addition to the one-time license fee described in Paragraph 3 above, surface damage fees in the amount of Twenty-One Thousand Nine Hundred Eighty-Six and 10/100 Dollars ($21,986.10) shall be due and payable by Licensee to Licensor contemporaneously with the execution by the Parties of this First Amendment. The Parties acknowledge and agree that the payment of such surface damage fees, together with the surface damage fees paid to Licensor in connection with the execution of the Right of Way License, shall constitute payment for all surface damage fees required to be paid to Licensor pursuant to Paragraph B. of Article II of the Right of Way License for the initial installation and construction of the pipelines described in Paragraph 2 above located or to be located on the Property. For clarification, such payment of surface damage fees covers only the initial installation and construction of the pipelines described in Paragraph 2 above located or to be located on the Property and does not cover any other circumstances or operations for which surface damage fees may be payable under the terms of Paragraph B. of Article II of the Right of Way License, including, without limitation, surface damage fees payable in connection with any additional pipelines and/or pipelines with diameters different than those described in Paragraph 2 above that are consented to by Licensor in its sole discretion.

5. **Exhibit A** to the Right of Way License is hereby amended and replaced in its entirety with **Exhibit A** attached hereto and made a part hereof for all purposes.

6. Licensor and Licensee have executed a Memorandum of First Amendment to Right of Way License in the form attached hereto as **Exhibit B**, dated of even date herewith, for recording in the

records of the County in which the Property is located, to give record notice of this Amendment. Neither the Right of Way License nor this Amendment shall be recorded except with the prior written consent of Licensor.

7. Licensee shall reimburse Licensor for Licensor's attorneys' fees incurred in connection with the preparation and negotiation of this Amendment, such fees in connection with the preparation and negotiation of this Amendment not to exceed $5,000.

8. Except as expressly modified and amended hereby, the Right of Way License shall continue in full force and effect and the Parties hereby ratify and confirm the Right of Way License as modified and amended hereby.

9. This Amendment shall be governed by and construed under the laws of the State of Texas.

10. This Amendment may be executed in any number of counterparts, each of which shall be deemed an original instrument, but all of which together shall constitute one and the same instrument. Facsimile and electronic (i.e., pdf transmission) signature pages shall constitute original signature pages hereunder.

[*Signature pages follow. Remainder of page intentionally left blank.*]

EXECUTED by each party hereto as of the date first set forth above, to be effective for all purposes as of the Effective Date.

LICENSOR:

CITY OF MIDLAND, TEXAS

By:_____
Name:_____
Title:_____

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT AND COMPLETENESS:

_____
Name:_____
Title:_____

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

[Signature Page Follows]

LICENSEE:

CROWNQUEST OPERATING, LLC

By: _____
Name: _____
Title: Robert W. Floyd, President JB

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

This instrument was acknowledged before me this 23 day of Novembe, 2020, by Robert W. Floyd, President of CrownQuest Operating, LLC, a Texas limited liability company, on behalf of said limited liability company.

_____
Notary Public – State of Texas

BRIANNA CRITES
Notary Public, State of Texas
Comm. Expires 08-04-2024
Notary ID 130766189

EXHIBIT A
Attached to that certain First Amendment to Right of Way License
between the City of Midland, Texas, as "Licensor"
and
CrownQuest Operating, LLC, as "Licensee"

(see attached)

EXHIBIT B
Attached to that certain First Amendment to Right of Way License
between the City of Midland, Texas, as "Licensor"
and
CrownQuest Operating, LLC, as "Licensee"

MEMORANDUM OF FIRST AMENDMENT TO RIGHT OF WAY LICENSE

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

This Memorandum of First Amendment to Right of Way License (this "Memorandum") is made and entered into by and between the **CITY OF MIDLAND, TEXAS**, a home rule municipal corporation, whose address is 300 N. Loraine, Midland, Texas, 79701, Attention: Right of Way Manager (herein "Licensor") and **CROWNQUEST OPERATING, LLC**, a Texas limited liability company, whose address is 18 Desta Drive, Midland, Texas 79705, Attention: Land Manager (herein "Licensee").

WITNESSETH:

Licensor and Licensee are parties to that certain Right of Way License dated effective as of June 9, 2020, recorded by Memorandum of Right of Way License as Instrument No. 18205 in the Official Public Records of Midland County, Texas (the "Right of Way License").

Licensor and Licensee have entered into that certain First Amendment to Right of Way License dated on or about _____, 2020, but effective as of June 9, 2020 (the "First Amendment") under which Licensor and Licensee amended certain terms and provisions contained in the Right of Way License. Without limiting the foregoing, under the terms of the First Amendment, Exhibit A to the Right of Way License was amended and replaced in its entirety with Exhibit A attached to the First Amendment. A copy of Exhibit A to the First Amendment is attached hereto as Exhibit A and is made a part hereof for all purposes.

Under the terms of the Right of Way License, as amended by the First Amendment, Licensor granted unto Licensee the right (i) to enter upon certain property owned by Licensor in Midland County, Texas, being seventeen and one-half (17.5) feet on each side of the centerline of the pipeline locations as shown on Exhibit A attached hereto and incorporated herein together with an additional seven and one-half (7.5) feet on each side of the centerline of said pipeline locations during the construction of such pipelines (the "Property"), for the purpose of placing, constructing, operating, repairing, maintaining, replacing and removing, thereon, along the herein described pipeline locations, one (1) pipeline, not to exceed eighteen (18) inches in diameter, for the transportation of gas products, one (1) pipeline, not to exceed twelve (12) inches in diameter, for the transportation of oil products, one (1) pipeline, not to exceed twelve (12) inches in diameter, for the transportation of produced water, and one (1) pipeline, not to exceed sixteen (16) inches in diameter, for the transportation of produced and/or fresh water and (ii) of ingress and egress over

and across the Property and the right to access the Property at such locations, if any, on Licensor's land as may be designated by Licensor on Exhibit A attached hereto or as may otherwise be designated to Licensee in writing by Licensor, for such purposes, subject to the terms of the Right of Way License, as amended by the First Amendment, and as more particularly described in the Right of Way License and the First Amendment.

Licensor and Licensee are executing this Memorandum for the purpose of placing the same of record in the above-referenced County, and in order to constitute constructive notice to all third parties dealing with Licensor and/or Licensee of the existence of the First Amendment and of the rights and obligations contained therein. Licensor and Licensee give notice that the Right of Way License may be further amended or supplemented from time to time in the future and any inquiry as to the contents thereof should also include an inquiry as to the contents of any and all such amendments and supplements. In the event of any conflict between the terms of this Memorandum and the First Amendment, the terms of the First Amendment shall control.

This Memorandum shall be binding upon both parties signing a counterpart of this Memorandum, whether or not both parties sign the same counterpart hereof. To facilitate recordation, one or more executed counterparts of this Memorandum may be assembled into one document for recording purposes and a single counterpart containing additional signature and acknowledgment pages from the other counterparts may be executed and recorded.

[Remainder of page intentionally left blank; signature pages follow.]

IN WITNESS WHEREOF, this Memorandum is executed as of the dates of the acknowledgments of the respective parties, but effective as of June 9, 2020.

LICENSOR:

CITY OF MIDLAND, TEXAS

By:_____
Robert Patrick, Interim City Manager

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

This instrument was acknowledged before me this ___ day of _____, 2020, by _____, _____ of the City of Midland, Texas, a home rule municipal corporation, on behalf of said entity.

_____
Notary Public – State of Texas

LICENSEE:

CROWNQUEST OPERATING, LLC

By:_____
Name:_____
Title:_____

ACKNOWLEDGMENT

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

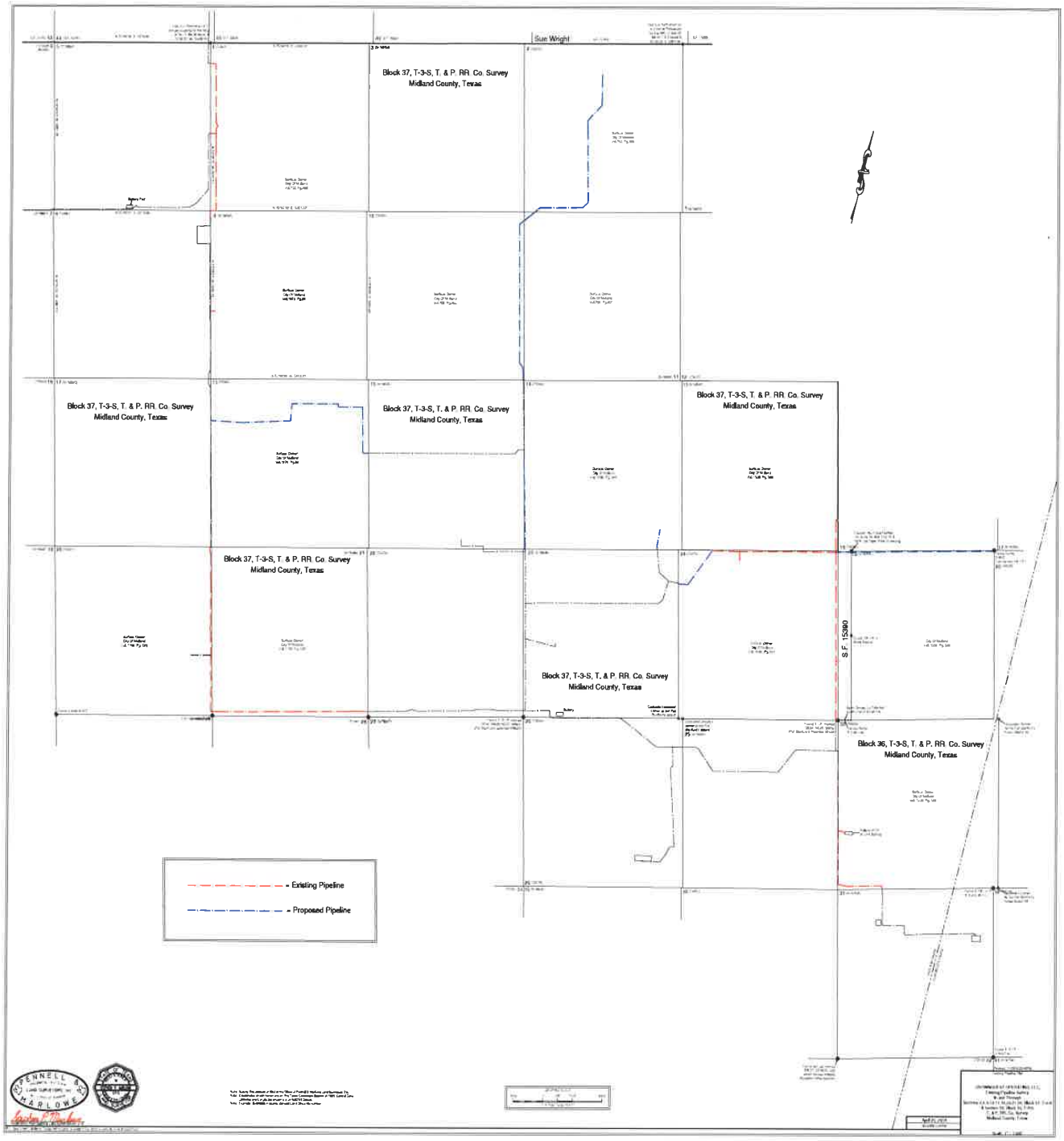
This instrument was acknowledged before me this ___ day of _____, 2020, by _____, _____ of CrownQuest Operating, LLC, a Texas limited liability company, on behalf of said limited liability company.

_____
Notary Public – State of Texas

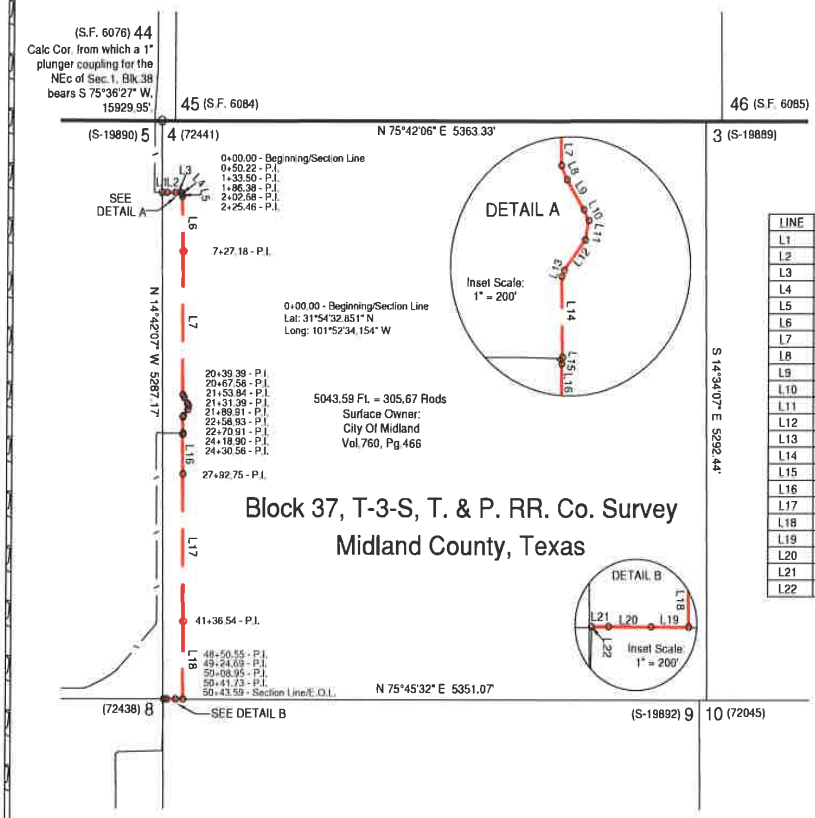
EXHIBIT A

Attached to that certain Memorandum of First Amendment to Right of Way License
between the City of Midland, Texas, as "Licensor"
and
CrownQuest Operating, LLC, as "Licensee"

(see attached)



PACKET
26.3256
December 15, 2020



LINE	BEARING	DISTANCE
L1	N 75°24'28" E	50.22'
L2	N 75°25'34" E	83.28'
L3	N 76°28'17" E	52.88'
L4	S 59°39'18" E	16.30'
L5	S 25°58'06" E	22.77'
L6	S 14°50'03" E	501.72'
L7	S 14°35'39" E	1312.21'
L8	S 37°12'27" E	28.19'
L9	S 45°17'23" E	63.81'
L10	S 40°36'05" E	22.45'
L11	S 03°22'23" E	36.07'
L12	S 22°20'17" W	69.02'
L13	S 06°17'06" W	11.99'
L14	S 14°50'10" E	147.99'
L15	S 07°23'57" E	11.66'
L16	S 14°46'29" E	362.19'
L17	S 14°32'11" E	1343.79'
L18	S 14°37'44" E	714.01'
L19	S 75°51'27" W	74.14'
L20	S 76°03'55" W	84.26'
L21	S 75°34'51" W	32.78'
L22	S 13°13'27" E	1.86'

CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 4, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a calculated corner for the Northwest corner of Section 4, Block 37 bears N 14°42'07" W, 655.85 feet from which a 1" plunger coupling for the Northeast corner of Section 1, Block 37 bears S 75°36'27" W, 15929.95 feet.

Thence N 75°24'28" E, a distance of 50.22 feet to pipeline station 0+50.22 being a P.I.;
Thence N 75°25'34" E, a distance of 83.28 feet to pipeline station 1+33.50 being a P.I.;
Thence N 76°28'17" E, a distance of 52.88 feet to pipeline station 1+86.38 being a P.I.;
Thence S 59°39'18" E, a distance of 16.30 feet to pipeline station 2+02.68 being a P.I.;
Thence S 25°58'06" E, a distance of 22.77 feet to pipeline station 2+25.46 being a P.I.;
Thence S 14°50'03" E, a distance of 501.72 feet to pipeline station 7+27.18 being a P.I.;
Thence S 14°35'39" E, a distance of 1312.21 feet to pipeline station 20+39.39 being a P.I.;
Thence S 37°12'27" E, a distance of 28.19 feet to pipeline station 20+67.58 being a P.I.;
Thence S 45°17'23" E, a distance of 63.81 feet to pipeline station 21+53.84 being a P.I.;
Thence S 40°36'05" E, a distance of 22.45 feet to pipeline station 21+31.39 being a P.I.;
Thence S 03°22'23" E, a distance of 36.07 feet to pipeline station 21+89.91 being a P.I.;
Thence S 22°20'17" W, a distance of 69.02 feet to pipeline station 22+58.93 being a P.I.;
Thence S 06°17'06" W, a distance of 11.99 feet to pipeline station 22+70.91 being a P.I.;
Thence S 14°50'10" E, a distance of 147.99 feet to pipeline station 24+18.90 being a P.I.;
Thence S 07°23'57" E, a distance of 11.66 feet to pipeline station 24+30.56 being a P.I.;
Thence S 14°46'29" E, a distance of 362.19 feet to pipeline station 27+92.75 being a P.I.;
Thence S 14°32'11" E, a distance of 1343.79 feet to pipeline station 41+36.54 being a P.I.;
Thence S 14°37'44" E, a distance of 714.01 feet to pipeline station 48+50.55 being a P.I.;
Thence S 75°51'27" W, a distance of 74.14 feet to pipeline station 49+24.69 being a P.I.;
Thence S 76°03'55" W, a distance of 84.26 feet to pipeline station 50+08.95 being a P.I.;
Thence S 75°34'51" W, a distance of 32.78 feet to pipeline station 50+41.73 being a P.I.;
Thence S 13°13'27" E, a distance of 1.86 feet to pipeline station 50+43.59 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a calculated corner for the Northwest corner of Section 4, Block 37 bears N 14°45'01" W, 5287.21 feet from which a 1" plunger coupling for the Northeast corner of Section 1, Block 37 bears S 75°36'27" W, 15929.95 feet.

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' "U.S. FEET"

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & ALL TYPES OF SURVEYS
LAND SURVEYORS, INC.

STATE OF TEXAS REGISTERED STEPHEN P. MARLOWE 5715 PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

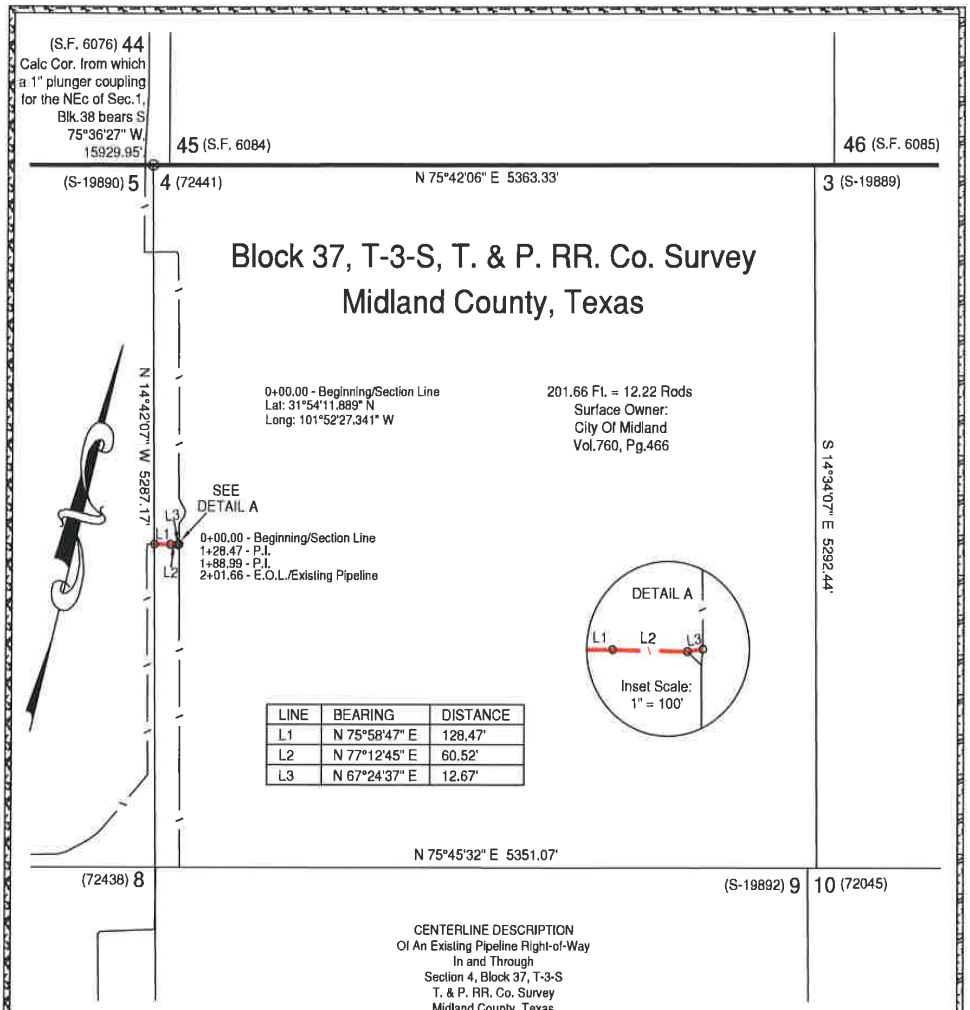
P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

April 26, 2018
180426M12-KRM

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 4, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



LINE	BEARING	DISTANCE
L1	N 75°58'47" E	128.47'
L2	N 77°12'45" E	60.52'
L3	N 67°24'37" E	12.67'

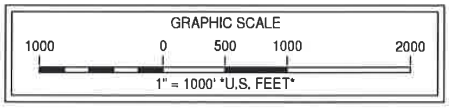
CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 4, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a calculated corner for the Northwest corner of Section 4, Block 37 bears N 14°42'07" W, 2654.01 feet from which a 1" plunger coupling for the Northeast corner of Section 1, Block 38 bears S 75°36'27" W, 15929.95 feet.

Thence N 75°58'47" E, a distance of 128.47 feet to pipeline station 1+28.47 being a P.I.;

Thence N 77°12'45" E, a distance of 60.52 feet to pipeline station 1+88.99 being a P.I.;

Thence N 67°24'37" E, a distance of 12.67 feet to pipeline station 2+01.66 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a calculated corner for the Northwest corner of Section 4, Block 37 bears N 18°44'16" W, 2862.92 feet.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

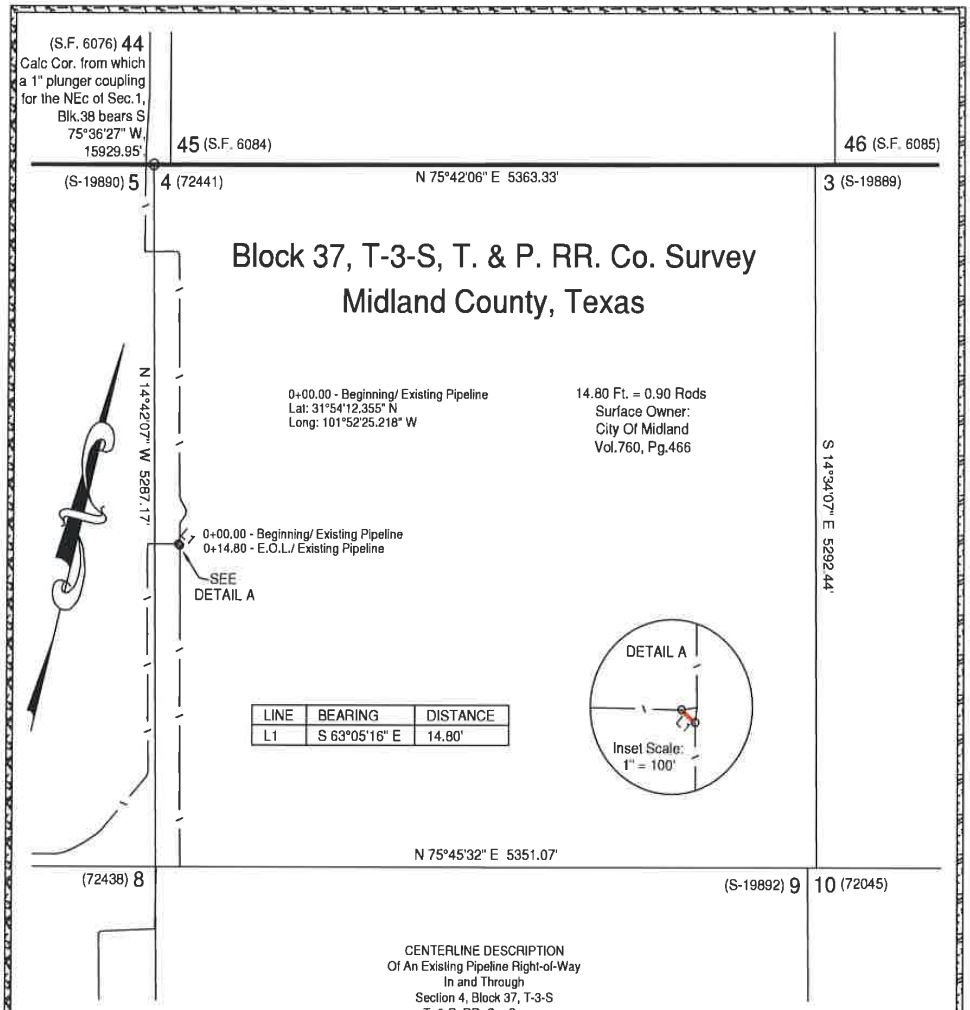
April 26, 2018
180426M11-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 4, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

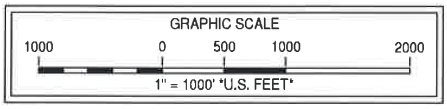
Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 4, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a calculated corner for the Northwest corner of Section 4, Block 37 bears N 18°29'05" W, 2863.80 feet from which a 1" plunger coupling for the Northeast corner of Section 1, Block 38 bears S 75°36'27" W, 15929.95 feet.

Thence S 63°05'16" E, a distance of 14.80 feet to pipeline station 0+14.80 being the E.O.L. (end of line) on an existing pipeline from which a calculated corner for the Northwest corner of Section 1, Block 37 bears N 18°41'31" W, 2874.35 feet from which a 1" plunger coupling for the Northeast corner of Section 1, Block 38 bears S 75°36'27" W, 15929.95 feet.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

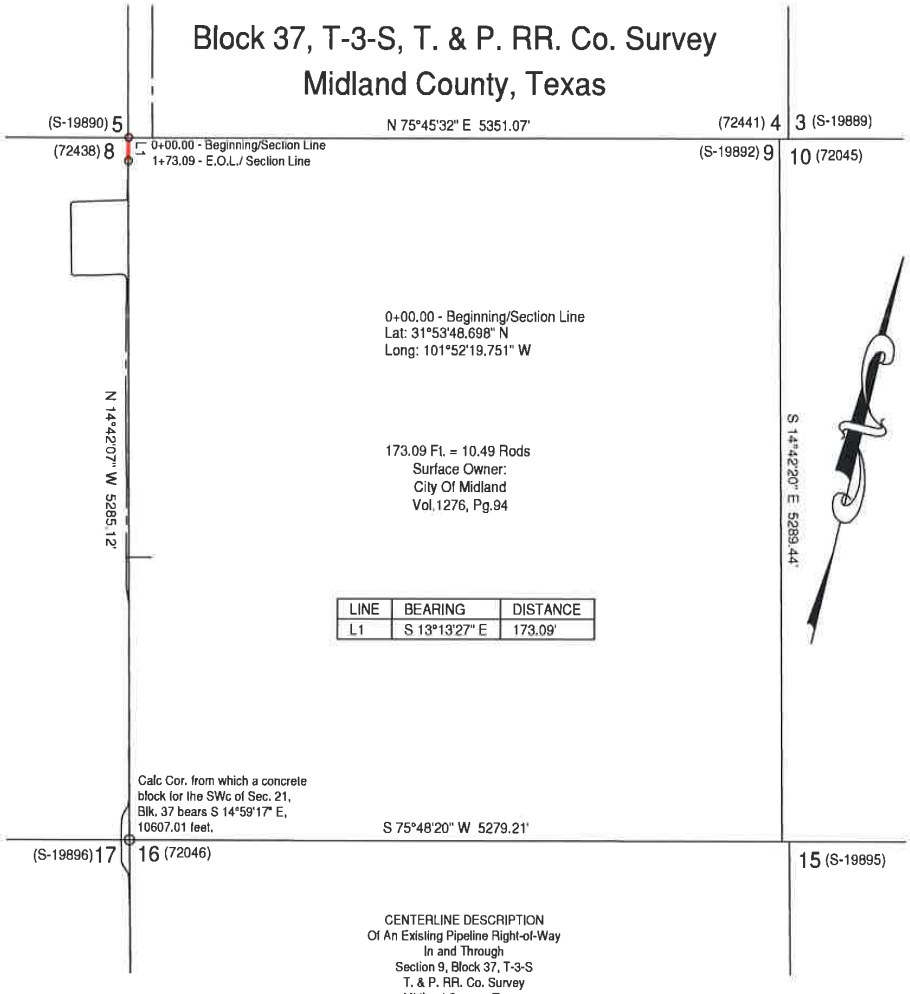
April 26, 2018
180426M13-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 4, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 9, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a calculated corner for the Southwest corner of Section 9, Block 37 bears S 14°39'12" E, 5285.09 feet from which a concrete block for the Southwest corner of Section 21, Block 37 bears S 14°59'17" E, 10607.01 feet.

Thence S 13°13'27" E, a distance of 173.09 feet to pipeline station 1+73.09 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a calculated corner for the Southwest corner of Section 9, Block 37 bears S 14°42'07" E, 5112.05 feet from which a concrete block for the Southwest of Section 21, Block 37 bears S 14°59'17" E, 10607.01 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

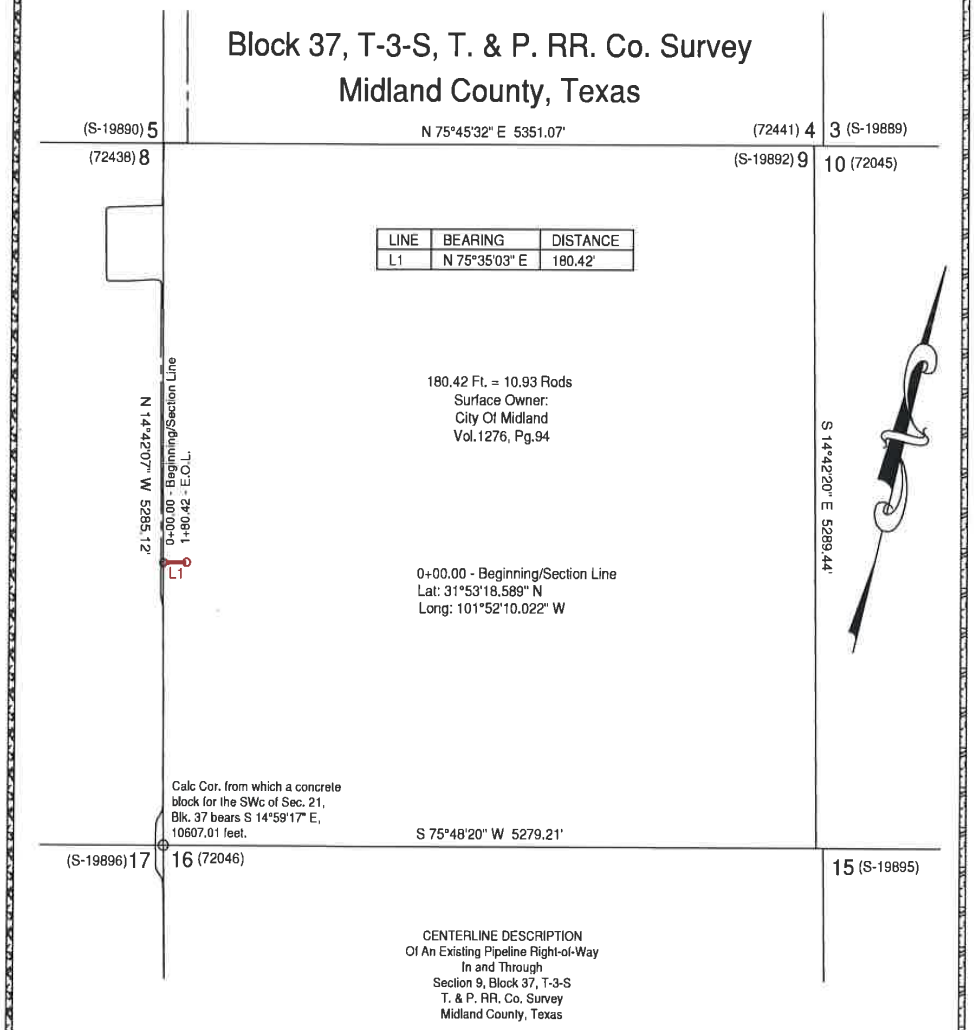
April 26, 2018
180426M14-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 9, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

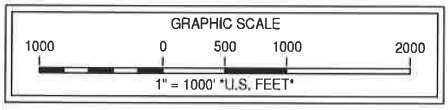
Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 9, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a calculated corner for the Southwest corner of Section 9, Block 37 bears S 14°42'07" E, 2128.98 feet from which a concrete block for the SWc of Section 21, Block 37 bears S 14°59'17" E, 10607.01 feet.

Thence N 75°35'03" E, a distance of 180.42 feet to pipeline station 1+80.42 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a calculated corner for the Southwest corner of Section 9, Block 37 bears S 09°51'21" E, 2135.71 feet from which a concrete block for the SWc of Section 21, Block 37 bears S 14°59'17" E, 10607.01 feet.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

April 26, 2018
180426M15-KRM

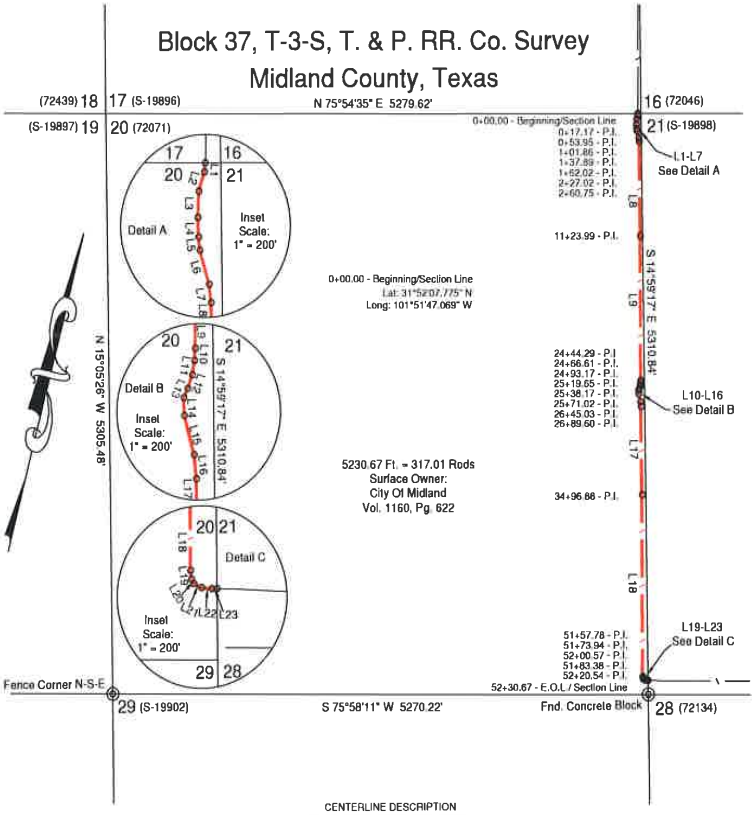
P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 9, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'

Block 37, T-3-S, T. & P. RR. Co. Survey
Midland County, Texas



LINE	BEARING	DISTANCE
L1	S 09°45'28" E	17.17'
L2	S 03°42'18" W	36.77'
L3	S 12°39'18" E	47.91'
L4	S 16°01'55" E	36.03'
L5	S 20°55'05" E	24.14'
L6	S 30°36'23" E	65.00'
L7	S 21°20'58" E	33.73'
L8	S 14°53'48" E	863.23'
L9	S 14°27'44" E	1320.30'
L10	S 10°42'16" E	22.32'
L11	S 04°46'02" E	26.56'
L12	S 05°13'11" W	26.48'
L13	S 10°45'26" W	18.53'
L14	S 16°11'24" E	32.84'
L15	S 29°23'28" E	74.02'
L16	S 19°54'28" E	44.57'
L17	S 14°54'12" E	807.28'
L18	S 14°29'06" E	1660.91'
L19	S 20°38'07" E	16.16'
L20	S 43°13'46" E	9.44'
L21	S 78°46'29" E	17.20'
L22	N 81°46'13" E	19.97'
L23	N 76°41'21" E	10.13'

CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
in and Through
Section 20, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a concrete block for the Southeast corner of Section 20, Block 37 bears S 15°19'05" E, 5311.40 feet.
Thence S 09°45'28" W, a distance of 17.17 feet to pipeline station 0+17.17 being a P.I.;
Thence S 03°42'18" W, a distance of 36.77 feet to pipeline station 0+53.95 being a P.I.;
Thence S 12°39'18" E, a distance of 47.91 feet to pipeline station 1+01.86 being a P.I.;
Thence S 16°01'55" E, a distance of 36.03 feet to pipeline station 1+37.89 being a P.I.;
Thence S 20°55'05" E, a distance of 24.14 feet to pipeline station 1+62.02 being a P.I.;
Thence S 30°36'23" E, a distance of 65.00 feet to pipeline station 2+27.02 being a P.I.;
Thence S 21°20'58" E, a distance of 33.73 feet to pipeline station 2+60.75 being a P.I.;
Thence S 14°53'48" E, a distance of 863.23 feet to pipeline station 11+23.99 being a P.I.;
Thence S 14°27'44" E, a distance of 1320.30 feet to pipeline station 24+44.29 being a P.I.;
Thence S 10°42'16" E, a distance of 22.32 feet to pipeline station 24+66.61 being a P.I.;
Thence S 04°46'02" E, a distance of 26.56 feet to pipeline station 24+93.17 being a P.I.;
Thence S 05°13'11" W, a distance of 26.48 feet to pipeline station 25+19.65 being a P.I.;
Thence S 10°45'26" W, a distance of 18.53 feet to pipeline station 25+38.17 being a P.I.;
Thence S 16°11'24" E, a distance of 32.84 feet to pipeline station 25+71.02 being a P.I.;
Thence S 29°23'28" E, a distance of 74.02 feet to pipeline station 26+45.03 being a P.I.;
Thence S 19°54'28" E, a distance of 44.57 feet to pipeline station 26+89.60 being a P.I.;
Thence S 14°54'12" E, a distance of 807.28 feet to pipeline station 34+96.88 being a P.I.;
Thence S 14°29'06" E, a distance of 1660.91 feet to pipeline station 51+57.78 being a P.I.;
Thence S 20°38'07" E, a distance of 16.16 feet to pipeline station 51+73.94 being a P.I.;
Thence S 43°13'46" E, a distance of 9.44 feet to pipeline station 52+00.57 being a P.I.;
Thence S 78°46'29" E, a distance of 17.20 feet to pipeline station 51+83.38 being a P.I.;
Thence N 81°46'13" E, a distance of 19.97 feet to pipeline station 52+20.54 being a P.I.;
Thence N 76°41'21" E, a distance of 10.13 feet to pipeline station 52+30.67 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a concrete block for the Southeast corner of Section 20, Block 37 bears S 14°59'17" E, 130.26 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' "U.S. FEET"

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Cental Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

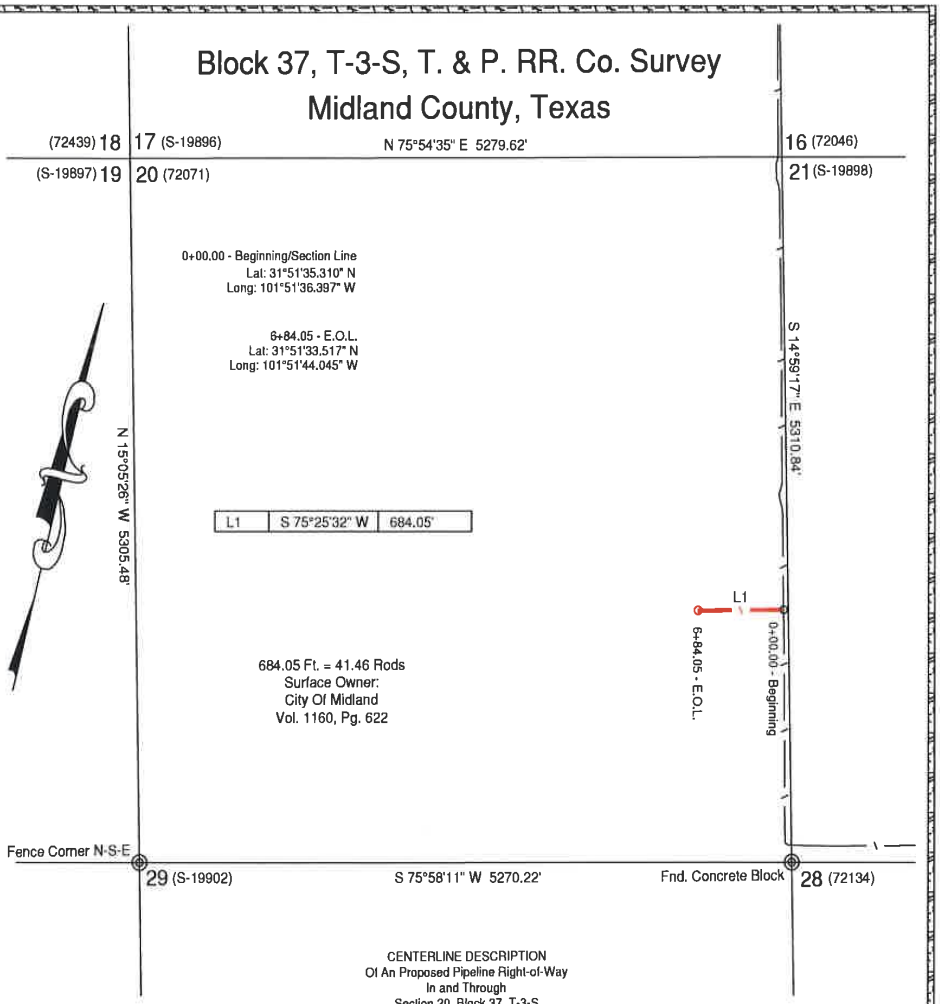
P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

April 26, 2018
180426M16-KRM

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 20, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 20, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a concrete block for the Southeast corner of Section 20, Block 37 bears S 16°05'36" E, 1904.33 feet.

Thence N 75°25'32" W, a distance of 684.05 feet to pipeline station 6+84.05 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a concrete block for the Southeast corner of Section 20, Block 37 bears S 35°40'25" E, 2040.46 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Cental Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

April 26, 2018
180426M46-KRM

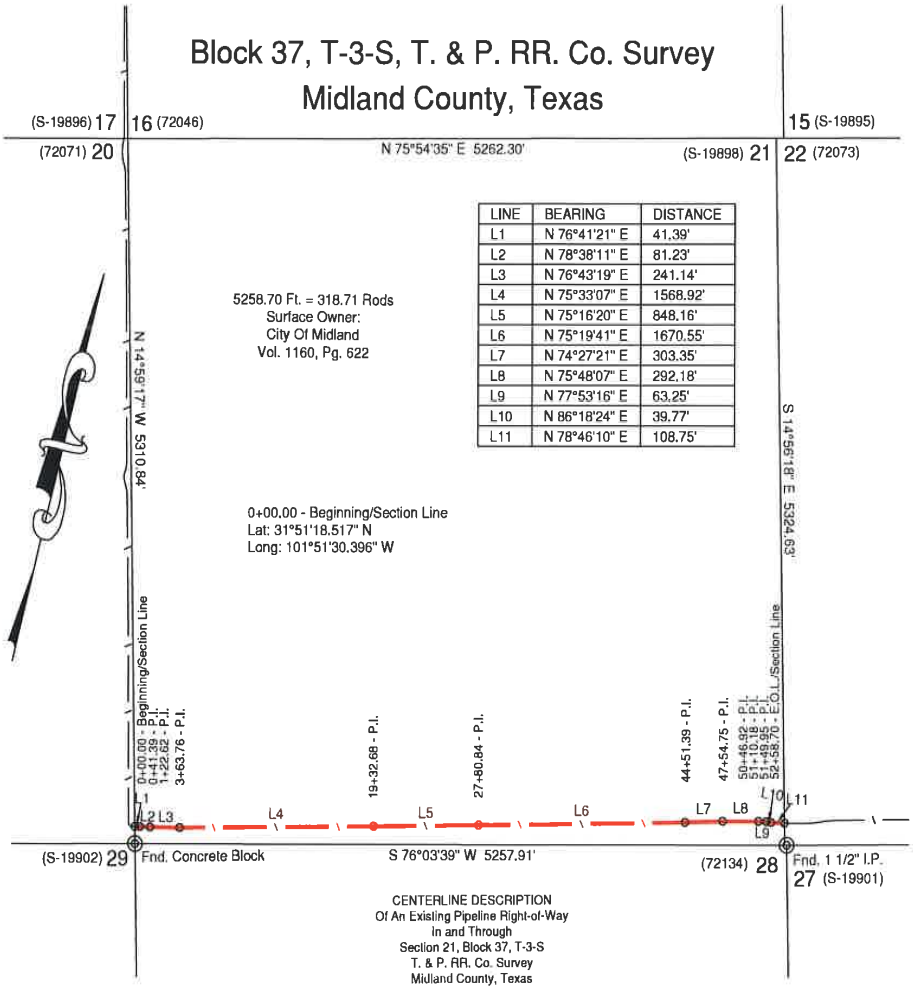
Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 20, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Block 37, T-3-S, T. & P. RR. Co. Survey
Midland County, Texas



LINE	BEARING	DISTANCE
L1	N 76°41'21" E	41.39'
L2	N 78°38'11" E	81.23'
L3	N 76°43'19" E	241.14'
L4	N 75°33'07" E	1568.92'
L5	N 75°16'20" E	848.16'
L6	N 75°19'41" E	1670.55'
L7	N 74°27'21" E	303.35'
L8	N 75°48'07" E	292.18'
L9	N 77°53'16" E	63.25'
L10	N 86°18'24" E	39.77'
L11	N 78°46'10" E	108.75'

CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 21, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a concrete block for the Southwest corner of Section 21, Block 37 bears S 14°59'17" E, 130.26 feet.
Thence N 76°41'21" E, a distance of 41.39 feet to pipeline station 0+41.39 being a P.I.;
Thence N 78°38'11" E, a distance of 81.23 feet to pipeline station 1+22.62 being a P.I.;
Thence N 76°43'19" E, a distance of 241.14 feet to pipeline station 3+63.76 being a P.I.;
Thence N 75°33'07" E, a distance of 1568.92 feet to pipeline station 19+32.68 being a P.I.;
Thence N 75°16'20" E, a distance of 848.16 feet to pipeline station 27+80.84 being a P.I.;
Thence N 75°19'41" E, a distance of 1670.55 feet to pipeline station 44+51.39 being a P.I.;
Thence N 74°27'21" E, a distance of 303.35 feet to pipeline station 47+54.75 being a P.I.;
Thence N 75°48'07" E, a distance of 292.18 feet to pipeline station 50+46.92 being a P.I.;
Thence N 77°53'16" E, a distance of 63.25 feet to pipeline station 51+10.18 being a P.I.;
Thence N 86°18'24" E, a distance of 39.77 feet to pipeline station 51+49.95 being a P.I.;
Thence N 78°46'10" E, a distance of 108.75 feet to pipeline station 52+58.70 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a 1-1/2" iron pipe for the Southeast corner of Section 21, Block 37 bears S 14°56'18" E, 165.94 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

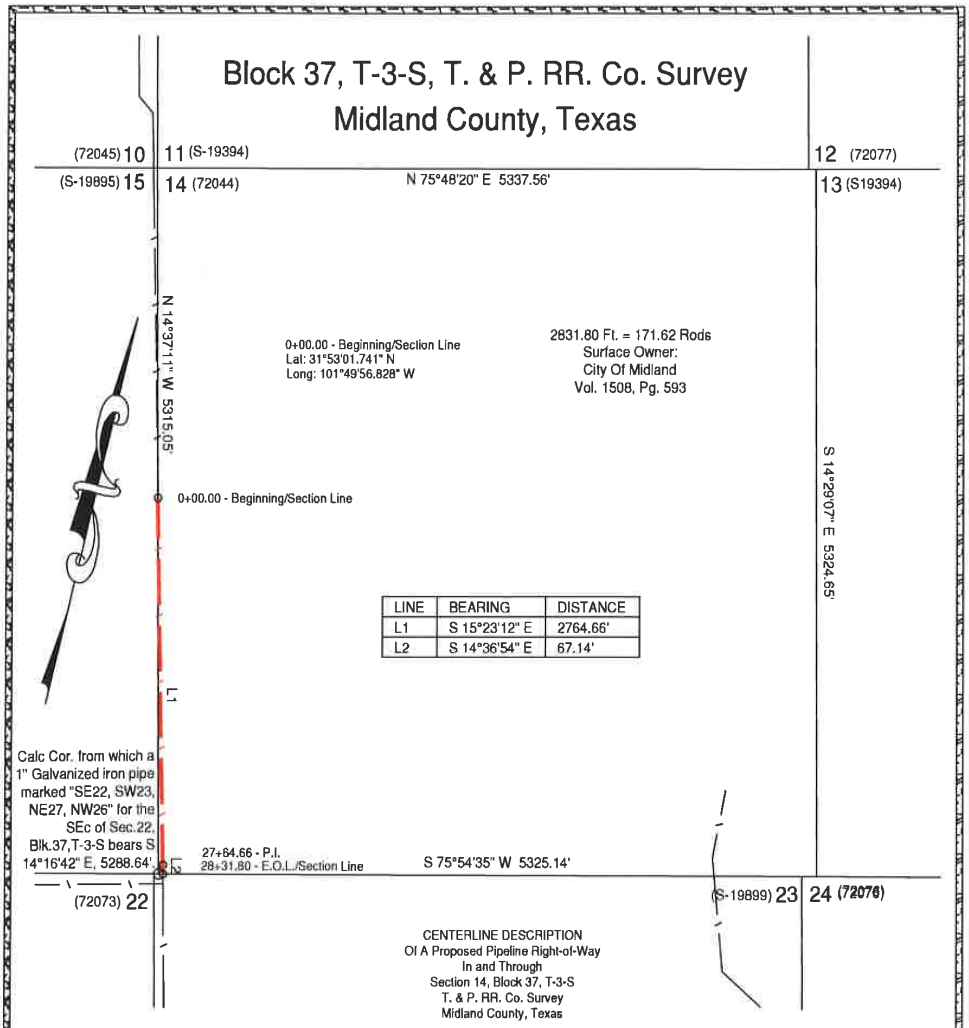
April 26, 2018
180426M17-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 21, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



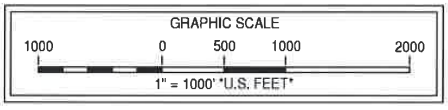
LINE	BEARING	DISTANCE
L1	S 15°23'12" E	2764.66'
L2	S 14°36'54" E	67.14'

CENTERLINE DESCRIPTION
Of A Proposed Pipeline Right-of-Way
In and Through
Section 14, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a calculated corner for the Southwest corner of Section 14, Block 37 bears S 14°37'11" E, 2831.21 feet from which a 1" Galvanized iron pipe marked "SE22, SW23, NE27, NW26" for the Southeast corner of Section 22, Block 37,T-3-S bears S 14°16'42" E, 5288.64 feet.

Thence S 15°23'12" E, a distance of 2764.66 feet to pipeline station 27+64.66 being a P.I.;

Thence S 14°36'54" E, a distance of 67.14 feet to pipeline station 28+31.80 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a calculated corner for the Southwest corner of Section 14, Block 37 bears S 75°54'35" W, 37.00 feet from which a 1" Galvanized iron pipe marked "SE22, SW23, NE27, NW26" for the Southeast corner of Section 22, Block 37,T-3-S bears S 14°16'42" E, 5288.64 feet.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

Revised: 02/18/2020-KRM

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & ALL TYPES OF SURVEYS
LAND SURVEYORS, INC.

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

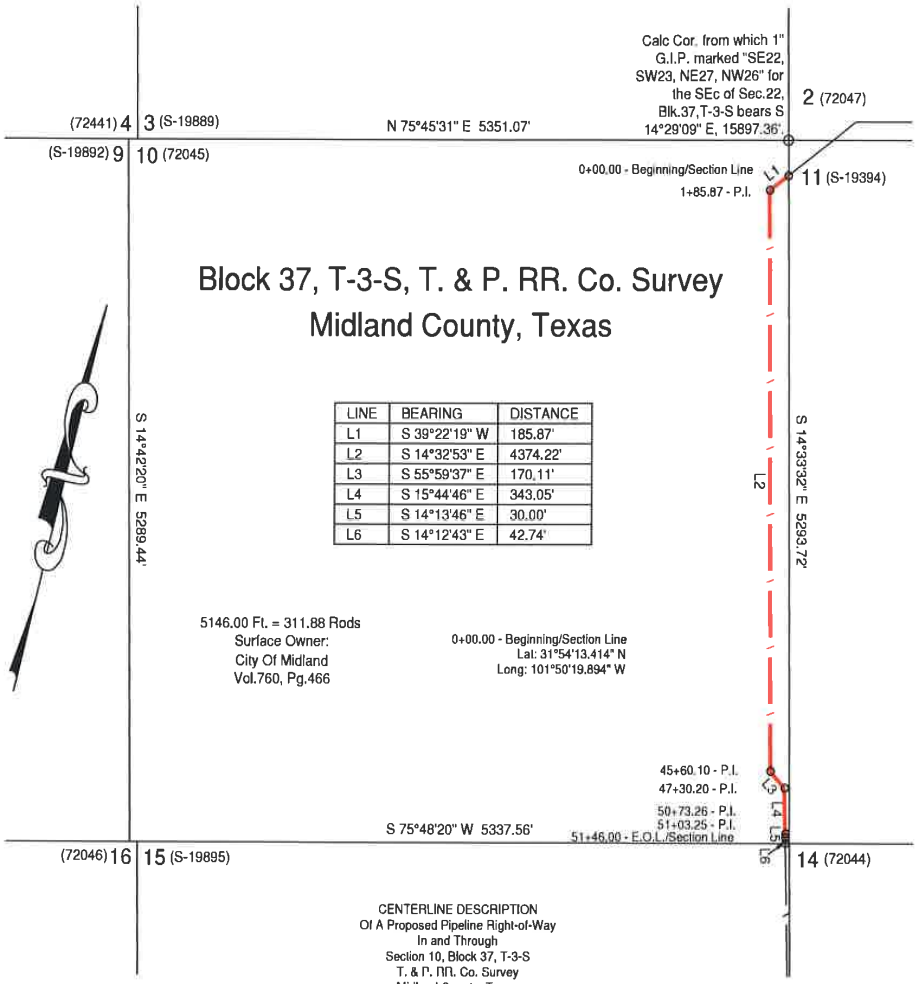
April 26, 2018
180426M21-KRM

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 14, Block 37, T-3-S
T. & P. RR. CO. Survey
Midland County, Texas

Scale: 1" = 1000'

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

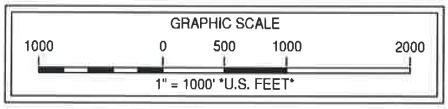


LINE	BEARING	DISTANCE
L1	S 39°22'19" W	185.87'
L2	S 14°32'53" E	4374.22'
L3	S 55°59'37" E	170.11'
L4	S 15°44'46" E	343.05'
L5	S 14°13'46" E	30.00'
L6	S 14°12'43" E	42.74'

CENTERLINE DESCRIPTION
Of A Proposed Pipeline Right-of-Way
In and Through
Section 10, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a calculated corner for the Northeast corner of Section 10, Block 37 bears N 14°33'32" W, 266.60 feet from which a 1"galvanized iron pipe marked "SE22, SW23, NE27, NW26" for the Southeast corner of Section 22, Block 37,T-3-S bears S 14°29'09" E, 15897.36'.

Thence S 39°22'19" W, a distance of 185.87 feet to pipeline station 1+85.87 being a P.I.;
Thence S 14°32'53" E, a distance of 4374.22 feet to pipeline station 45+60.10 being a P.I.;
Thence S 55°59'37" E, a distance of 170.11 feet to pipeline station 47+30.20 being a P.I.;
Thence S 15°44'46" E, a distance of 343.05 feet to pipeline station 50+73.26 being a P.I.;
Thence S 14°13'46" E, a distance of 30.00 feet to pipeline station 51+03.25 being a P.I.;
Thence S 14°12'43" E, a distance of 42.74 feet to pipeline station 51+46.00 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a calculated corner for the Northeast corner of Section 10, Block 37 bears N 14°12'52" W, 5293.61 feet from which a 1"galvanized iron pipe marked "SE22, SW23, NE27, NW26" for the Southeast corner of Section 22, Block 37,T-3-S bears S 14°29'09" E, 15897.36'.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

Revised: 02/18/2020-KRM

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

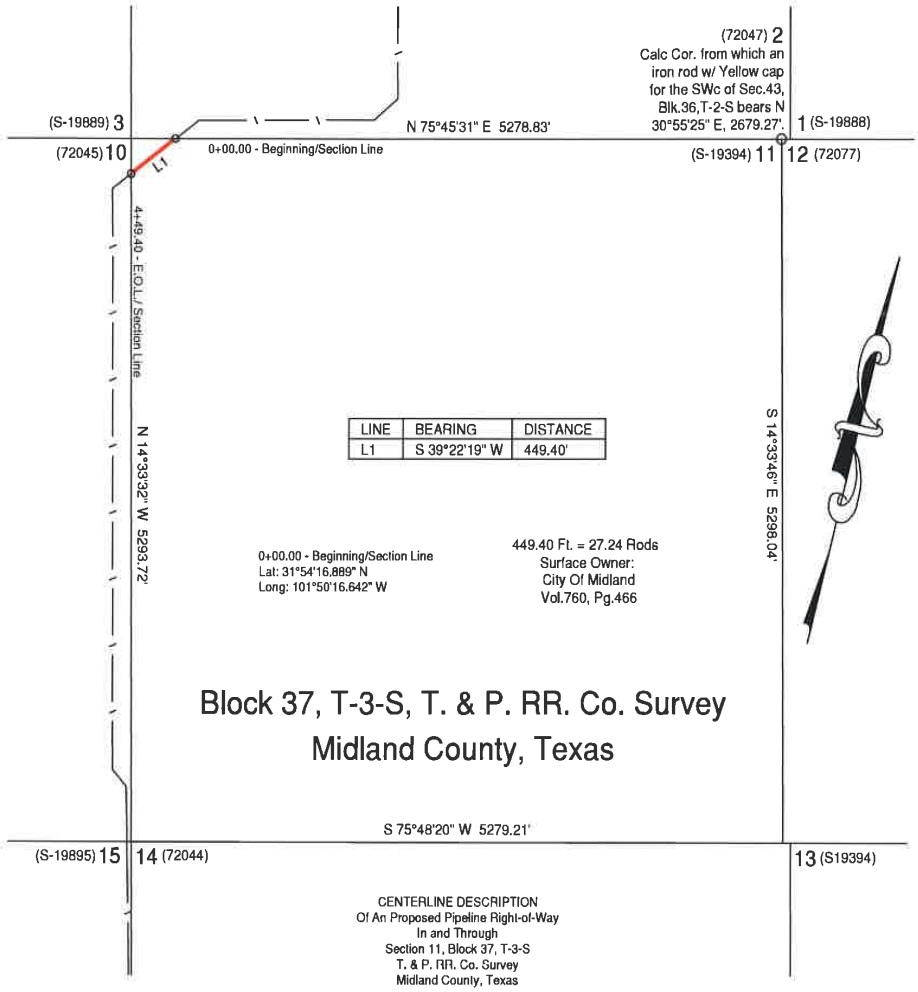
April 26, 2018
180426M20-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 10, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 11, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a calculated corner for the Northeast corner of Section 11, Bock 37 bears N 75°45'31" E, 4915.57 feet from which an iron rod with Yellow cap for the Southwest corner of Section 43, Block 36,T-2-S bears N 30°55'25" E, 2679.27 feet.

Thence S 39°22'19" W, a distance of 449.40 feet to pipeline station 4+49.40 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a calculated corner for the Northeast corner of Section 11, Block 37 bears N 72°52'00" E, 5284.08 feet from which an iron rod with Yellow cap for the Southwest corner of Section 43, Block 36,T-2-S bears N 30°55'25" E, 2679.27 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

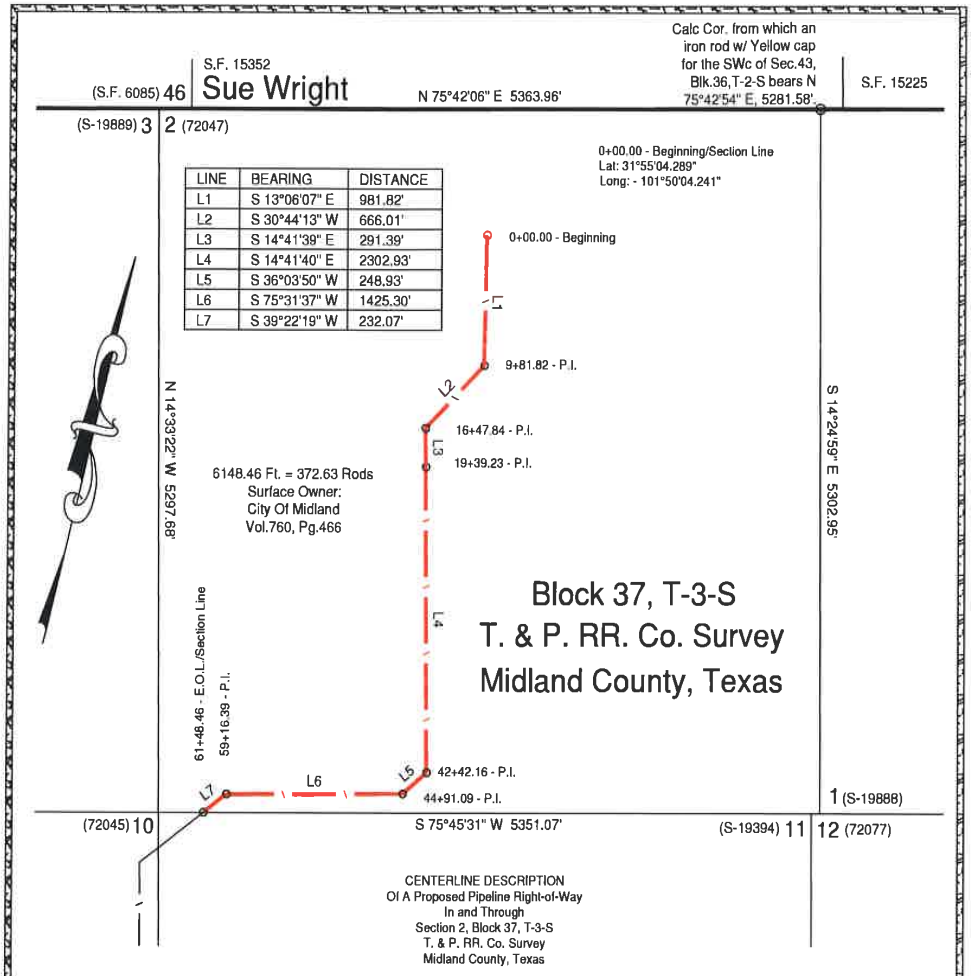
April 26, 2018
180426M19-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Revised: 02/18/2020-KRM
Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 11, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

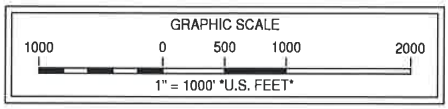
Scale: 1" = 1000'



LINE	BEARING	DISTANCE
L1	S 13°06'07" E	981.82'
L2	S 30°44'13" W	666.01'
L3	S 14°41'39" E	291.39'
L4	S 14°41'40" E	2302.93'
L5	S 36°03'50" W	248.93'
L6	S 75°31'37" W	1425.30'
L7	S 39°22'19" W	232.07'

CENTERLINE DESCRIPTION
Of A Proposed Pipeline Right-of-Way
In and Through
Section 2, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a calculated corner for the Northeast corner of Section 2, Block 37 bears N 56°17'44" E, 2861.71 feet from which an iron rod with Yellow cap for the Southwest corner of Section 43, Block 36, T-2-S bears N 75°42'54" E, 5281.58 feet.
Thence S 13°06'07" E, a distance of 981.82 feet to pipeline station 9+81.82 being a P.I.;
Thence S 30°44'13" W, a distance of 666.01 feet to pipeline station 16+47.84 being a P.I.;
Thence S 14°41'39" E, a distance of 291.39 feet to pipeline station 19+39.23 being a P.I.;
Thence S 14°41'40" E, a distance of 2302.93 feet to pipeline station 42+42.16 being a P.I.;
Thence S 36°03'50" W, a distance of 248.93 feet to pipeline station 44+91.09 being a P.I.;
Thence S 75°31'37" W, a distance of 1425.30 feet to pipeline station 59+16.39 being a P.I.;
Thence S 39°22'19" W, a distance of 232.07 feet to pipeline station 61+48.46 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a calculated corner for the Northeast corner of Section 2, Block 37 bears N 28°54'42" E, 7268.97 feet from which an iron rod with Yellow cap for the Southwest corner of Section 43, Block 36, T-2-S bears N 75°42'54" E, 5281.58 feet.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

Revised: 02/18/2020-KRM

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

April 26, 2018
180426M18-KRM

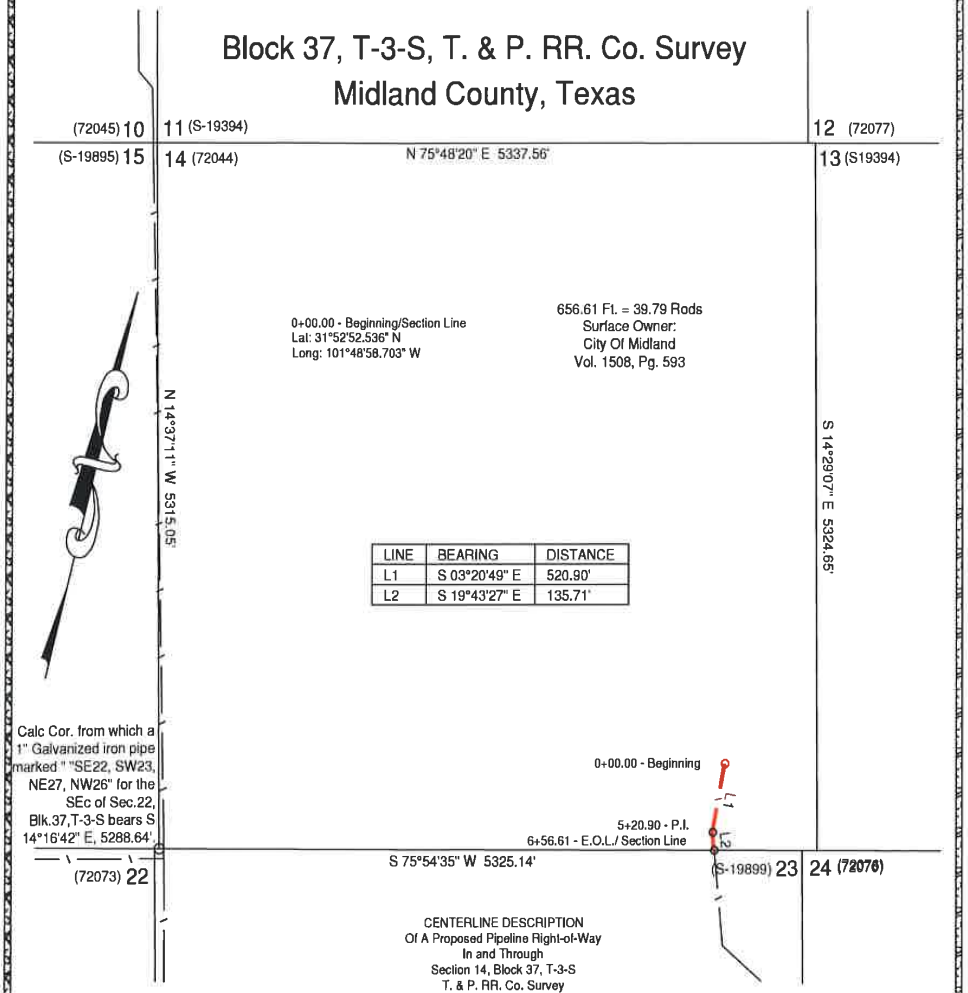
P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 2, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'

Block 37, T-3-S, T. & P. RR. Co. Survey
Midland County, Texas

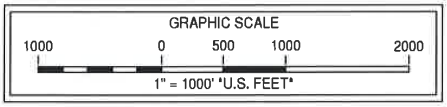


CENTERLINE DESCRIPTION
Of A Proposed Pipeline Right-of-Way
In and Through
Section 14, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a calcuated corner for the Southwest corner of Section 14, Block 37 bears S 67°52'13" W, 4626.94 feet from which a 1" Galvanized iron pipe marked "SE22, SW23, NE27, NW26" for the Southeast corner of Section 22, Block 37,T-3-S bears S 14°16'42" E, 5288.64 feet.

Thence S 03°20'49" E, a distance of 520.90 feet to pipeline station 5+20.90 being a P.I.;

Thence S 19°43'27" E, a distance of 135.71 feet to pipeline station 6+56.61 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a calculated corner for the Southwest corner of Section 14, Block 37 bears S 75°54'35" W, 4495.70 feet from which a 1" Galvanized iron pipe marked "SE22, SW23, NE27, NW26" for the Southeast corner of Section 22, Block 37,T-3-S bears S 14°16'42" E, 5288.64 feet.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

Revised: 02/18/2020-KRM

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

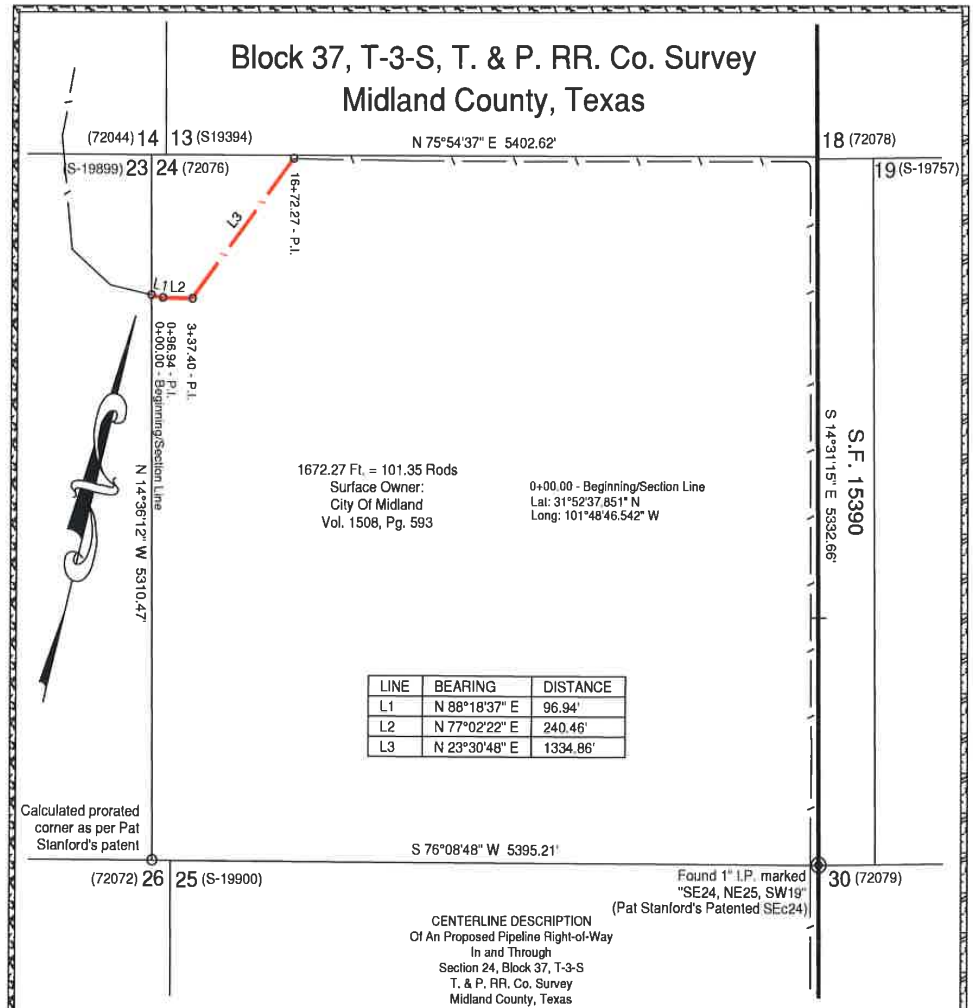
April 26, 2018
180426M22-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 14, Block 37, T-3-S
T. & P. RR. CO. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 65°53'09" E, 6914.20 feet.
Thence N 88°18'37" E, a distance of 96.94 feet to pipeline station 0+96.94 being a P.I.;
Thence N 77°02'22" E, a distance of 240.46 feet to pipeline station 3+37.40 being a P.I.;
Thence N 23°30'48" E, a distance of 1334.86 feet to pipeline station 16+72.27 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears N 52°59'36" E, 6821.02 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

Revised: 02/18/2020-KRM

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

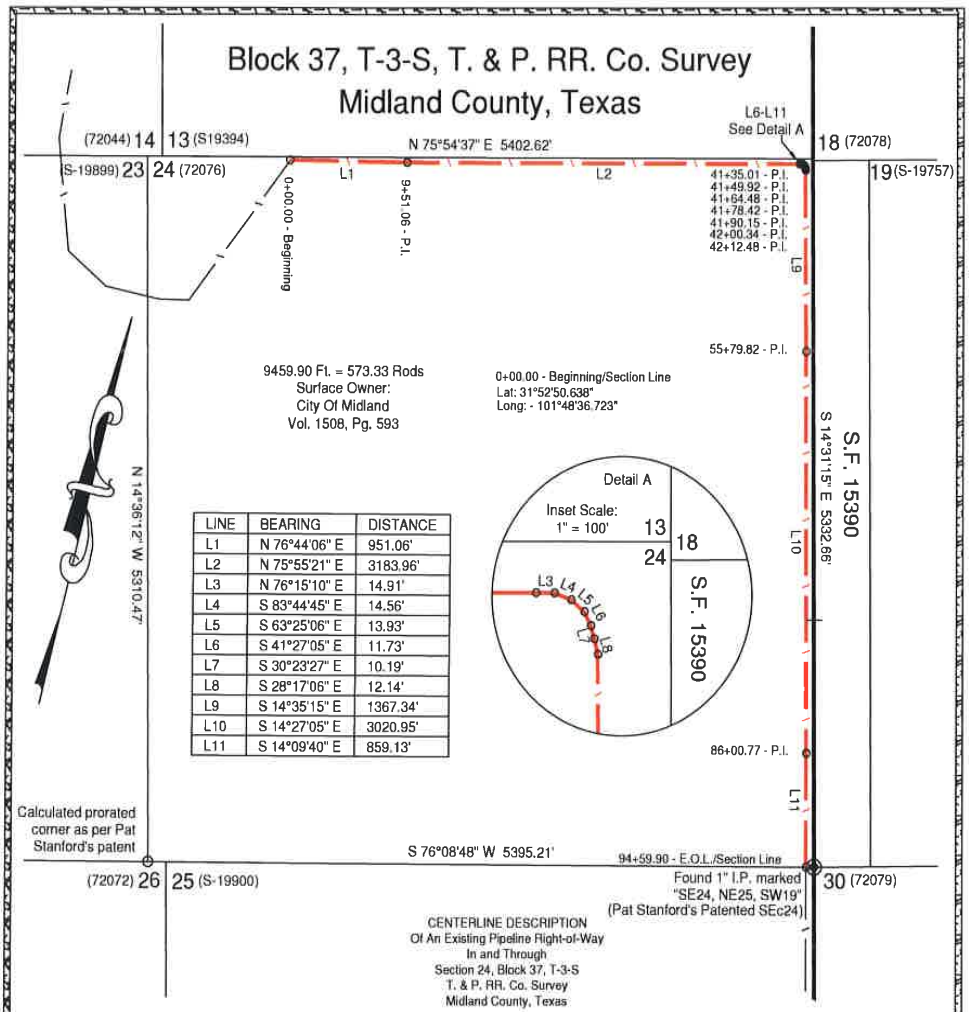
April 26, 2018
180426M23-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

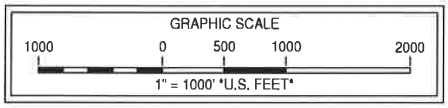
Scale: 1" = 1000'



LINE	BEARING	DISTANCE
L1	N 76°44'06" E	951.06'
L2	N 75°55'21" E	3183.96'
L3	N 76°15'10" E	14.91'
L4	S 83°44'45" E	14.56'
L5	S 63°25'06" E	13.93'
L6	S 41°27'05" E	11.73'
L7	S 30°23'27" E	10.19'
L8	S 28°17'06" E	12.14'
L9	S 14°35'15" E	1367.34'
L10	S 14°27'05" E	3020.95'
L11	S 14°09'40" E	859.13'

CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 52°59'36" E, 6821.02 feet.
Thence N 76°44'06" E, a distance of 951.06 feet to pipeline station 9+51.06 being a P.I.;
Thence N 75°55'21" E, a distance of 3183.96 feet to pipeline station 41+35.01 being a P.I.;
Thence N 76°15'10" E, a distance of 14.91 feet to pipeline station 41+49.92 being a P.I.;
Thence N 83°44'45" E, a distance of 14.56 feet to pipeline station 41+64.48 being a P.I.;
Thence S 63°25'06" E, a distance of 13.93 feet to pipeline station 41+78.42 being a P.I.;
Thence S 41°27'05" E, a distance of 11.73 feet to pipeline station 41+90.15 being a P.I.;
Thence S 30°23'27" E, a distance of 10.19 feet to pipeline station 42+00.34 being a P.I.;
Thence S 28°17'06" E, a distance of 12.14 feet to pipeline station 42+12.48 being a P.I.;
Thence S 14°35'15" E, a distance of 1367.34 feet to pipeline station 55+79.82 being a P.I.;
Thence S 14°27'05" E, a distance of 3020.95 feet to pipeline station 86+00.77 being a P.I.;
Thence S 14°09'40" E, a distance of 859.13 feet to pipeline station 94+59.90 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears N 76°08'48" E, 66.38 feet.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

Revised: 02/18/2020-KRM

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

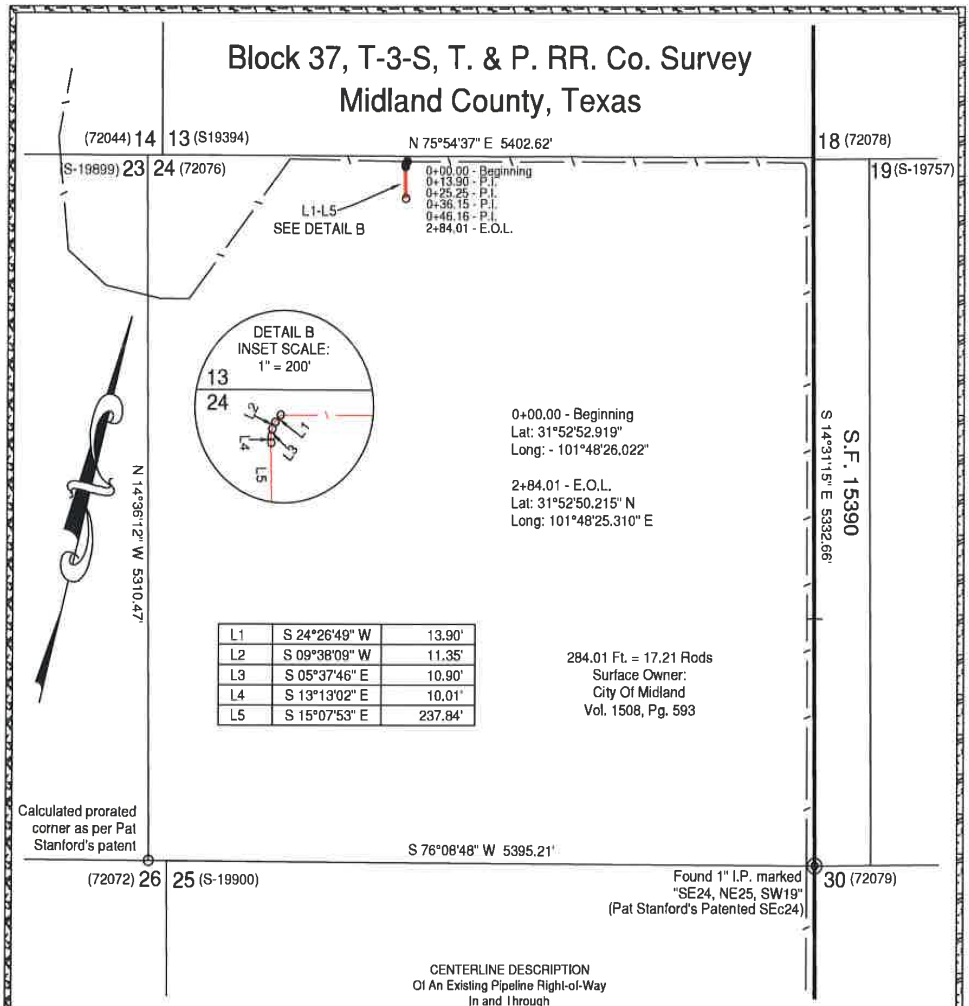
April 26, 2018
180426M23A-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



L1	S 24°26'49" W	13.90'
L2	S 09°38'09" W	11.35'
L3	S 05°37'46" E	10.90'
L4	S 13°13'02" E	10.01'
L5	S 15°07'53" E	237.84'

CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 46°16'44" E, 6256.06 feet.

Thence S 24°26'49" W, with the centerline of this existing pipeline right-of-way, a distance of 13.90 feet to pipeline station 0+13.90 being a P.I.;
Thence S 09°38'09" W, with the centerline of this existing pipeline right-of-way, a distance of 11.35 feet to pipeline station 0+25.25 being a P.I.;
Thence S 05°37'46" E, with the centerline of this existing pipeline right-of-way, a distance of 10.90 feet to pipeline station 0+36.15 being a P.I.;
Thence S 13°13'02" E, with the centerline of this existing pipeline right-of-way, a distance of 10.01 feet to pipeline station 0+46.16 being a P.I.;
Thence S 15°07'53" E, with the centerline of this existing pipeline right-of-way, a distance of 237.84 feet to pipeline station 2+84.01 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a 1" iron pipe for the Southeast corner of Section 24, Block 37 bears S 47°46'56" E 6026.97 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

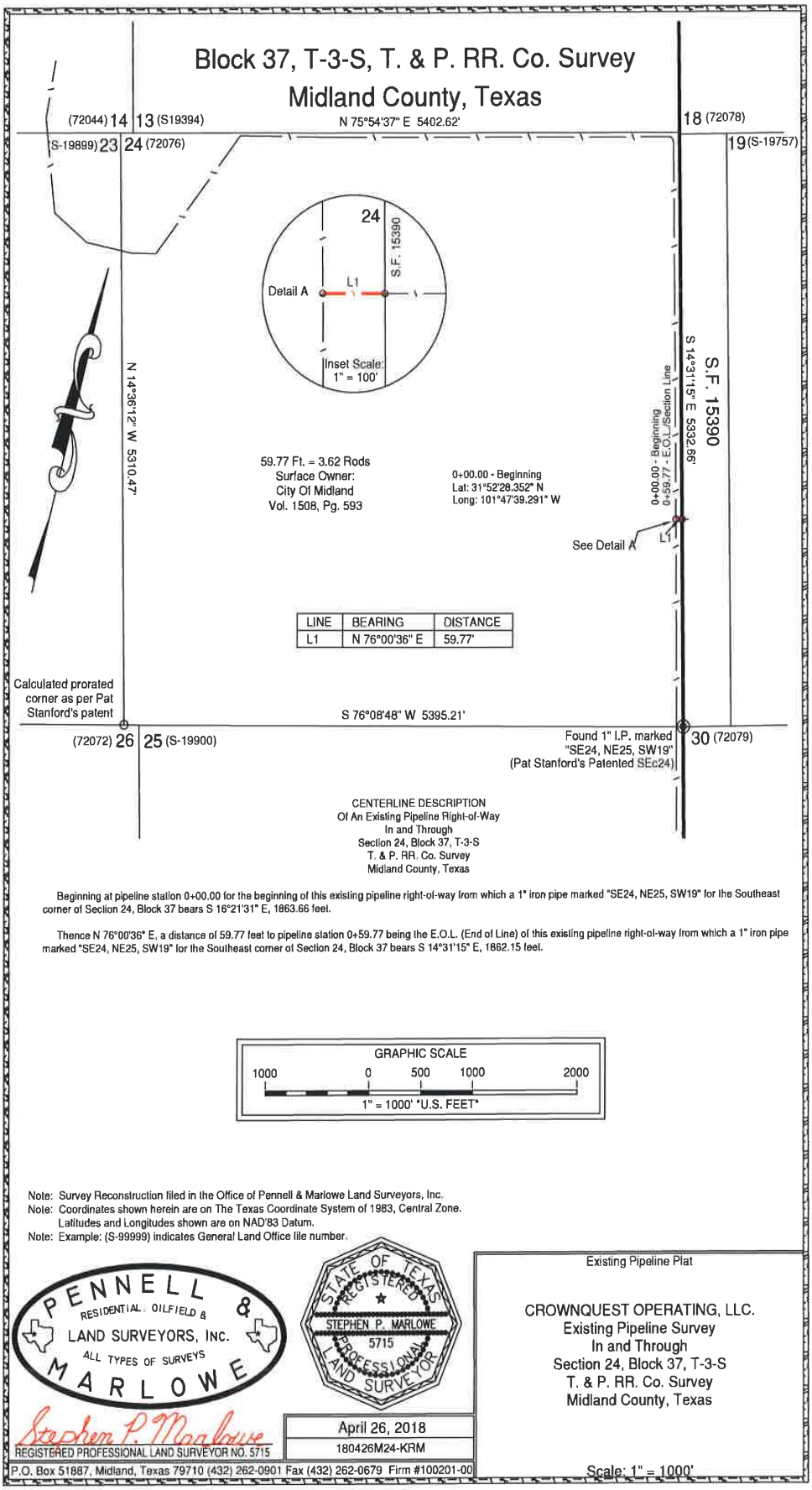
April 26, 2018
180426M23B-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 16°21'31" E, 1863.66 feet.

Thence N 76°00'36" E, a distance of 59.77 feet to pipeline station 0+59.77 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 14°31'15" E, 1862.15 feet.

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

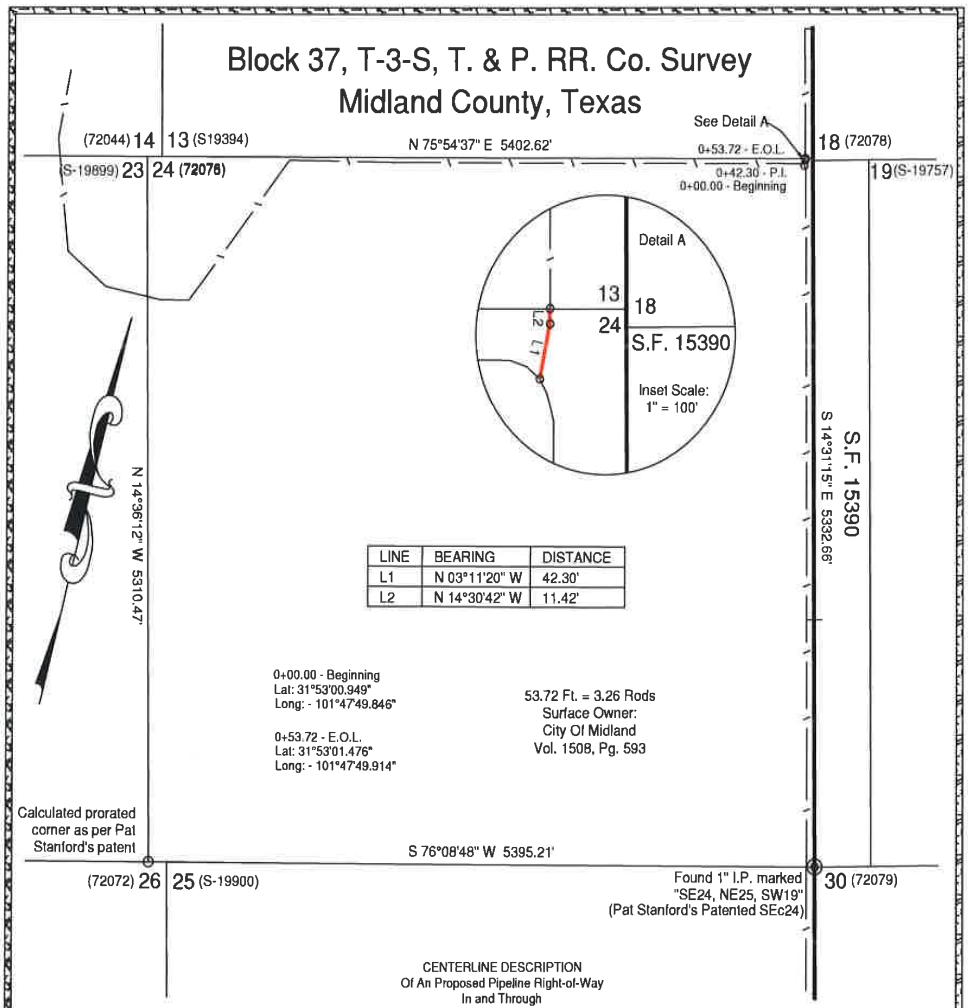
April 26, 2018
180426M24-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



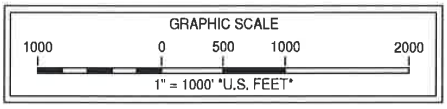
LINE	BEARING	DISTANCE
L1	N 03°11'20" W	42.30'
L2	N 14°30'42" W	11.42'

CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 15°16'45" E, 5280.69 feet.

Thence N 03°11'20" W, a distance of 42.30 feet to pipeline station 0+42.30 being a P.I. with a deflection of 11°19'22";

Thence N 14°30'42" W, a distance of 11.42 feet to pipeline station 0+53.72 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 15°10'57" E, 5333.48 feet.



Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

April 04, 2019
190404M-KRM

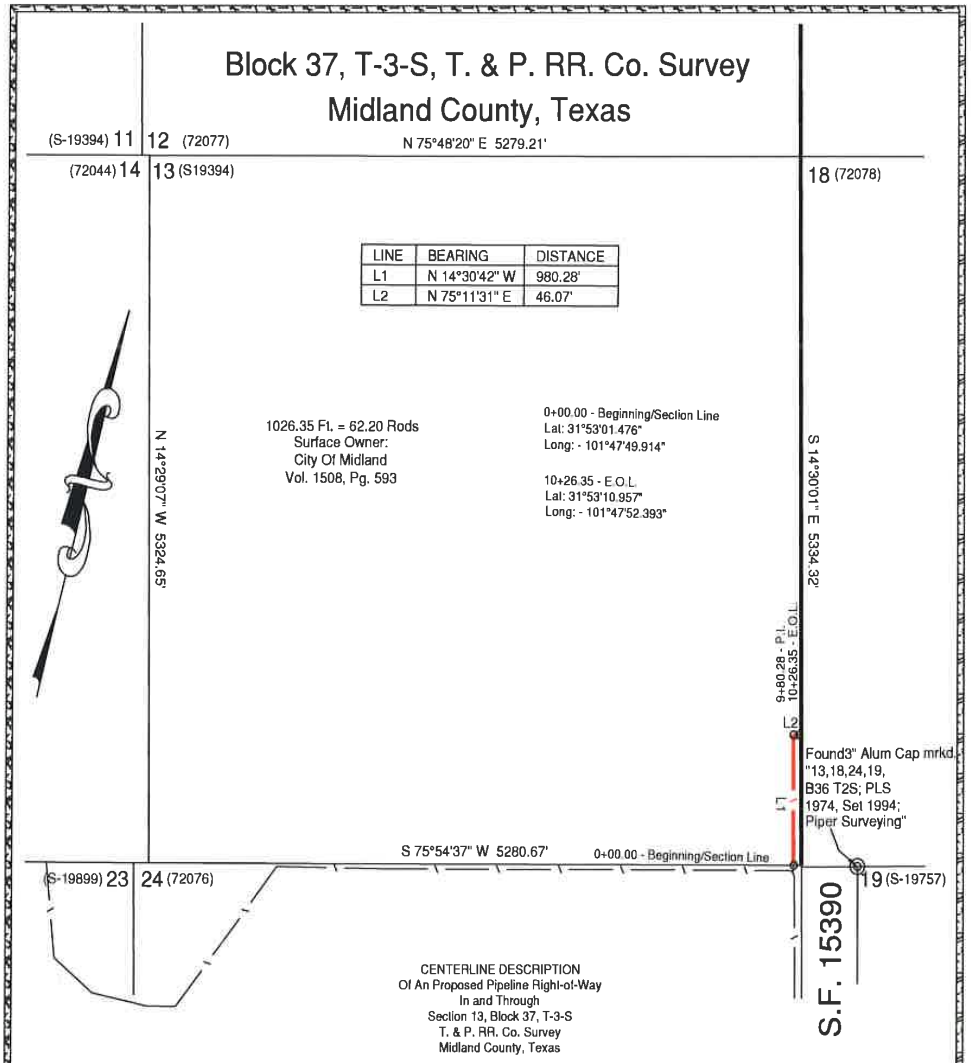
P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'

Block 37, T-3-S, T. & P. RR. Co. Survey
Midland County, Texas



CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 13, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a 3" Aluminum cap marked "13,18,24,19 B36 T2S PLS 1974 for the Northwest corner of Section 19, Block 37 bears N 76°48'31" E, 513.94 feet.

Thence N 14°30'42" W, a distance of 980.28 feet to pipeline station 9+80.28 being a P.I. with a deflection of 89°42'13";

Thence N 75°11'31" E, a distance of 46.07 feet to pipeline station 10+26.35 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a 3" Aluminum cap marked "13,18,24,19 B36 T2S PLS 1974 for the Northwest corner of Section 19, Block 37 bears S 39°44'52" E, 1097.07 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

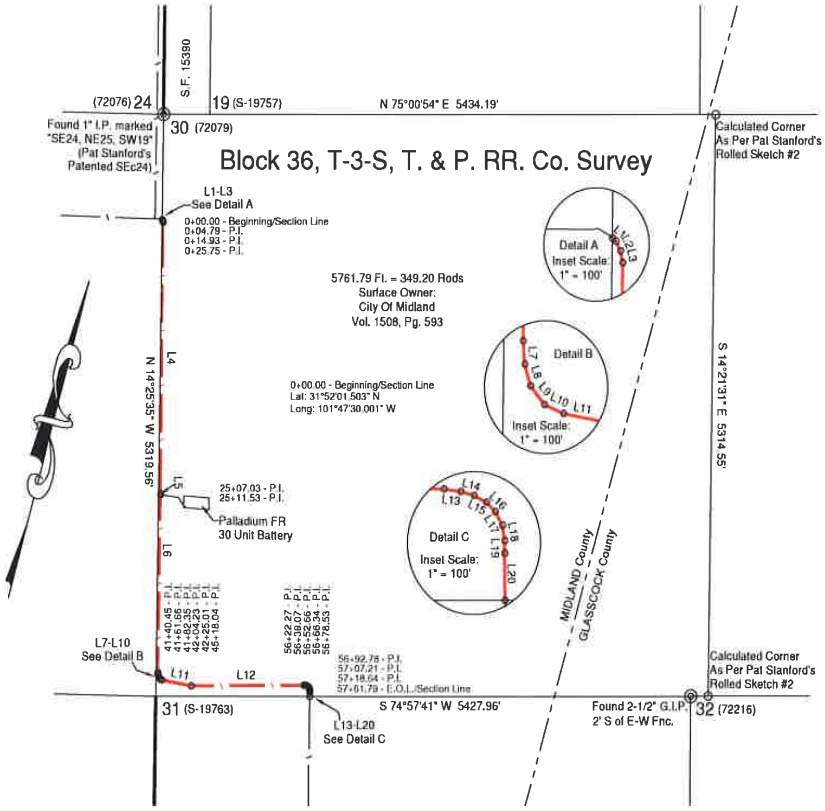
April 04, 2019
190404M1-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 13, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 30, Block 36, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Northwest corner of Section 30, Block 36 bears N 14°25'35" W, 965.70 feet,
Thence S 66°06'41" E, a distance of 4.79 feet to pipeline station 0+04.79 being a P.I.;
Thence S 41°04'33" E, a distance of 10.15 feet to pipeline station 0+14.93 being a P.I.;
Thence S 26°39'52" E, a distance of 10.82 feet to pipeline station 0+25.75 being a P.I.;
Thence S 14°41'45" E, a distance of 2481.28 feet to pipeline station 25+07.03 being a P.I.;
Thence S 16°32'08" E, a distance of 4.49 feet to pipeline station 25+11.53 being a P.I.;
Thence S 14°18'15" E, a distance of 1628.93 feet to pipeline station 41+40.45 being a P.I.;
Thence S 18°50'17" E, a distance of 21.21 feet to pipeline station 41+61.66 being a P.I.;
Thence S 31°43'13" E, a distance of 20.69 feet to pipeline station 41+82.35 being a P.I.;
Thence S 53°22'29" E, a distance of 21.88 feet to pipeline station 42+04.23 being a P.I.;
Thence S 81°29'15" E, a distance of 20.78 feet to pipeline station 42+25.01 being a P.I.;
Thence N 85°29'42" E, a distance of 293.02 feet to pipeline station 45+18.04 being a P.I.;
Thence N 74°40'35" E, a distance of 1104.24 feet to pipeline station 56+22.27 being a P.I.;
Thence N 82°41'24" E, a distance of 16.80 feet to pipeline station 56+39.07 being a P.I.;
Thence N 89°58'44" E, a distance of 13.59 feet to pipeline station 56+52.66 being a P.I.;
Thence S 77°36'50" E, a distance of 13.68 feet to pipeline station 56+66.34 being a P.I.;
Thence S 60°23'46" E, a distance of 12.19 feet to pipeline station 56+78.53 being a P.I.;
Thence S 44°45'51" E, a distance of 14.26 feet to pipeline station 56+92.78 being a P.I.;
Thence S 24°02'53" E, a distance of 14.43 feet to pipeline station 57+07.21 being a P.I.;
Thence S 14°37'13" E, a distance of 11.42 feet to pipeline station 57+18.64 being a P.I.;
Thence S 15°45'05" E, a distance of 43.15 feet to pipeline station 57+61.79 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a 2-1/2" galvanized iron pipe for the Northeast corner of Section 31, Block 36 bears N 74°57'41" E, 3744.04.

LINE	BEARING	DISTANCE
L1	S 66°06'41" E	4.79'
L2	S 41°04'33" E	10.15'
L3	S 26°39'52" E	10.82'
L4	S 14°41'45" E	2481.28'
L5	S 16°32'08" E	4.49'
L6	S 14°18'15" E	1628.93'
L7	S 18°50'17" E	21.21'
L8	S 31°43'13" E	20.69'
L9	S 53°22'29" E	21.88'
L10	S 81°29'15" E	20.78'
L11	N 85°29'42" E	293.02'
L12	N 74°40'35" E	1104.24'
L13	N 82°41'24" E	16.80'
L14	N 89°58'44" E	13.59'
L15	S 77°36'50" E	13.68'
L16	S 60°23'46" E	12.19'
L17	S 44°45'51" E	14.26'
L18	S 24°02'53" E	14.43'
L19	S 14°37'13" E	11.42'
L20	S 15°45'05" E	43.15'

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' "U.S. FEET"

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

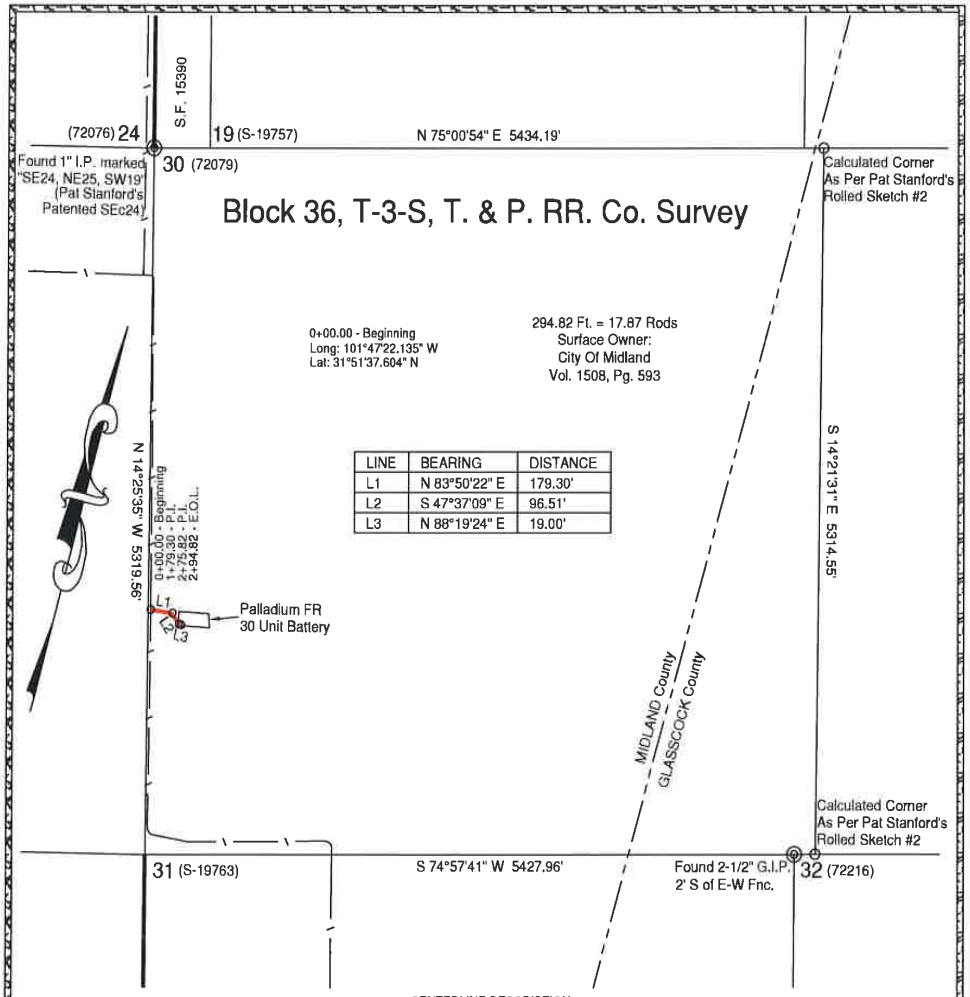
P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

April 26, 2018
180426M25-KRM

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 30, Block 36, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Existing Pipeline Right-of-Way
In and Through
Section 30, Block 36, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this existing pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Northwest corner of Section 30, Block 36 bears N 14°47'47" W, 3474.13 feet.

Thence N 83°50'22" E, a distance of 179.30 feet to pipeline station 1+79.30 being a P.I.;

Thence S 47°37'09" E, a distance of 96.51 feet to pipeline station 2+75.82 being P.I.;

Thence N 88°19'24" E, a distance of 19.00 feet to pipeline station 2+94.82 being the E.O.L. (End of Line) of this existing pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" bears N 18°45'13" W, 3595.04 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

April 26, 2018
180426M26-KRM

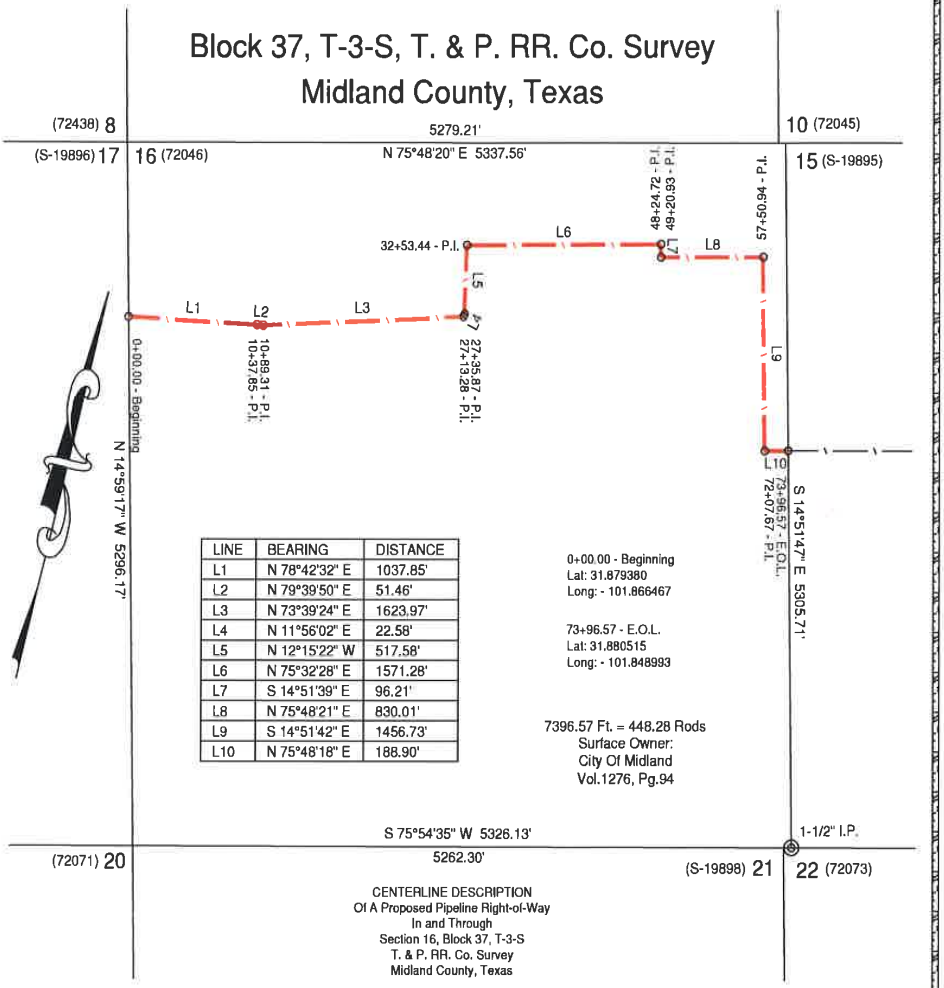
P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Existing Pipeline Plat

CROWNQUEST OPERATING, LLC.
Existing Pipeline Survey
In and Through
Section 30, Block 36, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'

Block 37, T-3-S, T. & P. RR. Co. Survey
Midland County, Texas



LINE	BEARING	DISTANCE
L1	N 78°42'32" E	1037.85'
L2	N 79°39'50" E	51.46'
L3	N 73°39'24" E	1623.97'
L4	N 11°56'02" E	22.58'
L5	N 12°15'22" W	517.58'
L6	N 75°32'28" E	1571.28'
L7	S 14°51'39" E	96.21'
L8	N 75°48'21" E	830.01'
L9	S 14°51'42" E	1456.73'
L10	N 75°48'18" E	188.90'

0+00.00 - Beginning
Lat: 31.879380
Long: - 101.866467

73+96.57 - E.O.L.
Lat: 31.880515
Long: - 101.848993

7396.57 Ft. = 448.28 Rods
Surface Owner:
City Of Midland
Vol.1276, Pg.94

CENTERLINE DESCRIPTION
Of A Proposed Pipeline Right-of-Way
In and Through
Section 16, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 being a point in the West line of Section 16, Block 37 for the beginning of this proposed pipeline right-of-way from which a 1-1/2" iron pipe for the Southeast corner of Section 16, Block 37, T-2-S bears S 67°38'05" E, 6699.49 feet.
Thence N 78°42'32" E, a distance of 1037.85 feet to pipeline station 10+37.85 being a P.I. with a deflection of 00°57'19";
Thence N 79°39'50" E, a distance of 51.46 feet to pipeline station 10+89.31 being a P.I. with a deflection of 06°00'26";
Thence N 73°39'24" E, a distance of 1623.97 feet to pipeline station 27+13.28 being a P.I. with a deflection of 61°43'22";
Thence N 11°56'02" E, a distance of 22.58 feet to pipeline station 27+35.87 being a P.I. with a deflection of 24°11'24";
Thence N 12°15'22" W, a distance of 517.58 feet to pipeline station 32+53.44 being a P.I. with a deflection of 87°47'50";
Thence N 75°32'28" E, a distance of 1571.28 feet to pipeline station 48+24.72 being a P.I. with a deflection of 89°35'53";
Thence S 14°51'39" E, a distance of 96.21 feet to pipeline station 49+20.93 being a P.I. with a deflection of 89°20'00";
Thence N 75°48'21" E, a distance of 830.01 feet to pipeline station 57+50.94 being a P.I. with a deflection of 89°19'57";
Thence S 14°51'42" E, a distance of 1456.73 feet to pipeline station 72+07.67 being a P.I. with a deflection of 89°20'00";
Thence N 75°48'18" E, a distance of 188.90 feet to pipeline station 73+96.57 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a 1 1/2" iron pipe for the Southeast corner of Section 16, Block 37, T-2-S bears S 14°51'47" E, 2987.67 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & ALL TYPES OF SURVEYS
LAND SURVEYORS, INC.

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

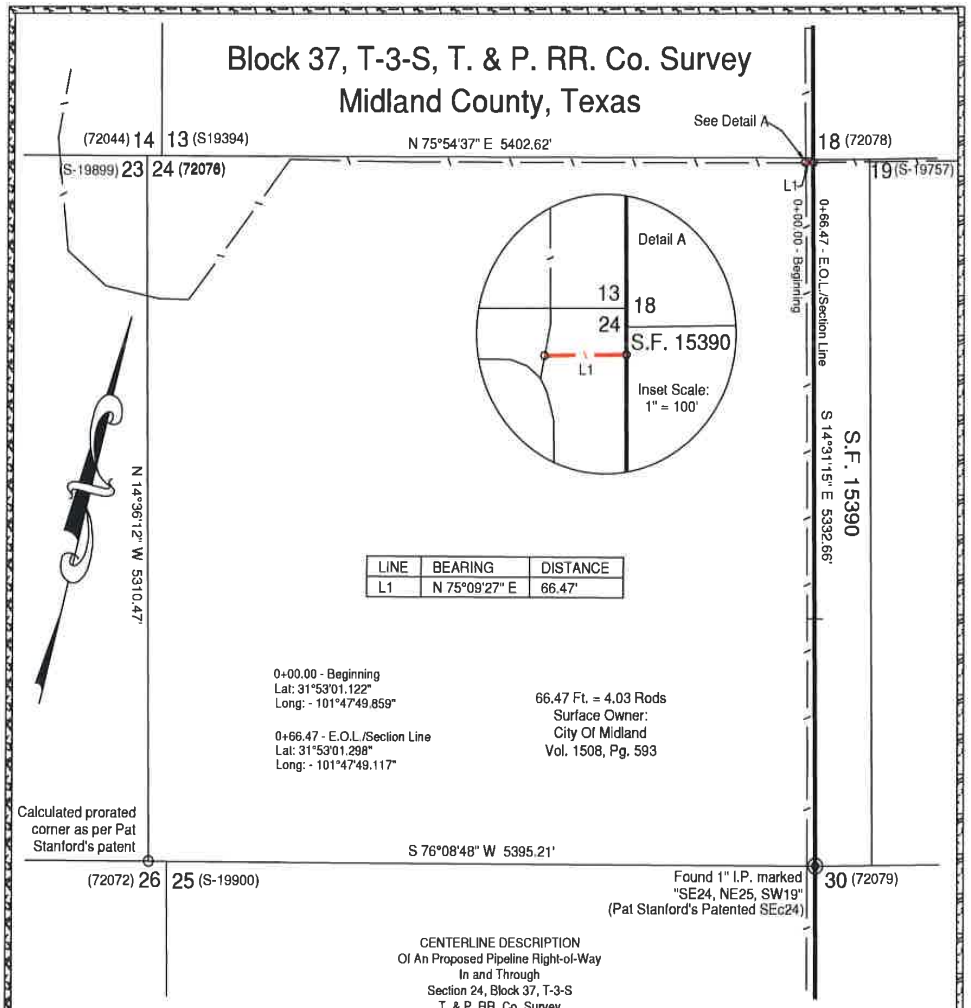
September 17, 2020
200917M2-KRM

Revised: 10/06/2020-KRM
Concept Plan

CROWNQUEST OPERATING, LLC.
Concept Plan
Proposed Pipeline Survey
In and Through
Section 16, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00



CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 15°14'23" E, 5297.74 feet.

Thence N 75°09'27" E, a distance of 66.47 feet to pipeline station 0+66.47 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 14°31'15" E, 5297.70 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & ALL TYPES OF SURVEYS
LAND SURVEYORS, INC.

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

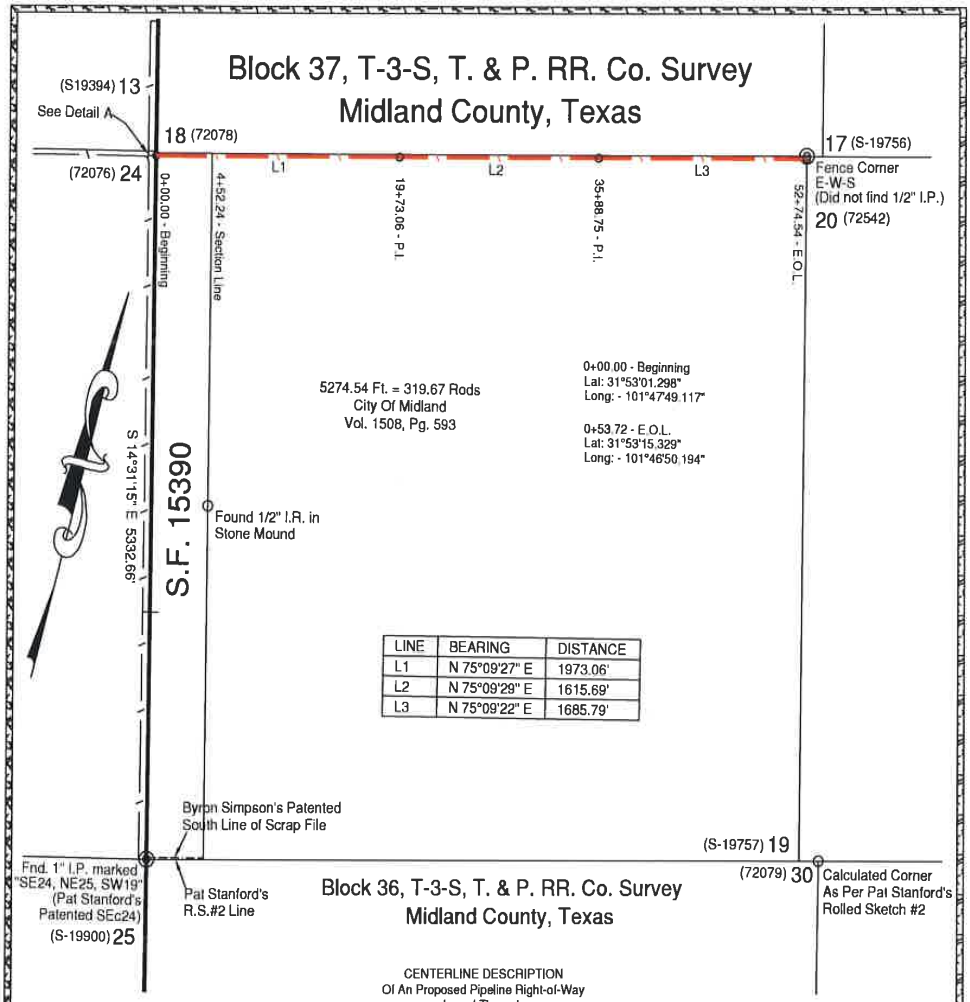
November 03, 2020
201103M-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 24, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 19 Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a 1" iron pipe marked "SE24, NE25, SW19" for the Southeast corner of Section 24, Block 37 bears S 14°31'15" E, 5297.70 feet.

Thence N 75°09'27" E, a distance of 1973.06 feet to pipeline station 19+73.06 being a P.I. with a deflection of

Thence N 75°09'29" E, a distance of 1615.69 feet to pipeline station 35+88.75 being a P.I. with a deflection of

Thence N 75°09'22" E, a distance of 1685.79 feet to pipeline station 52+74.54 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a fence corner E-W-S for the Northeast corner of Section 19, Block 37 bears N 14°32'48" W, 20.31 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & LAND SURVEYORS, INC.
ALL TYPES OF SURVEYS

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

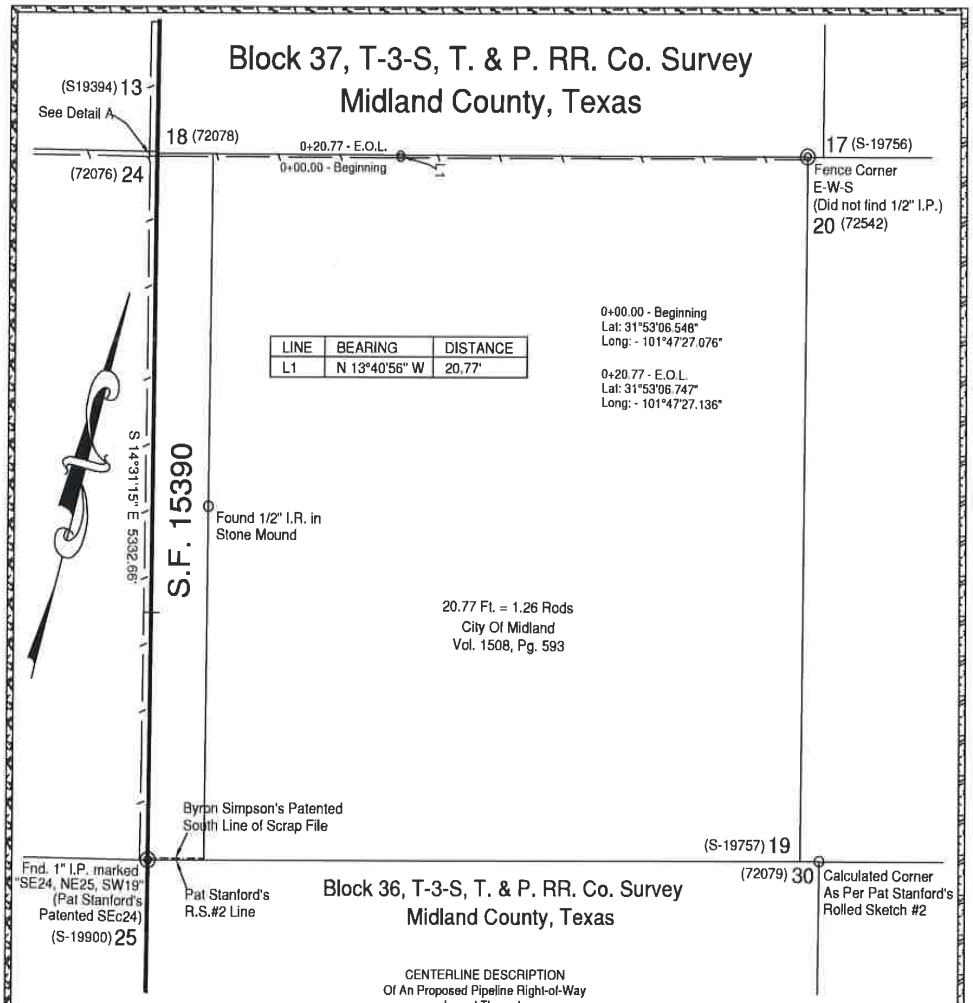
November 03, 2020
201103M1-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 19, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 19 Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a fence corner E-W-S for the Northeast corner of Section 19, Block 37 bears N 74°48'17" E, 3301.65 feet.

Thence N 13°40'56" W, a distance of 20.77 feet to pipeline station 0+20.77 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a fence corner E-W-S for the Northeast corner of Section 19, Block 37 bears N 75°09'54" E, 3301.17 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & ALL TYPES OF SURVEYS
LAND SURVEYORS, INC.

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

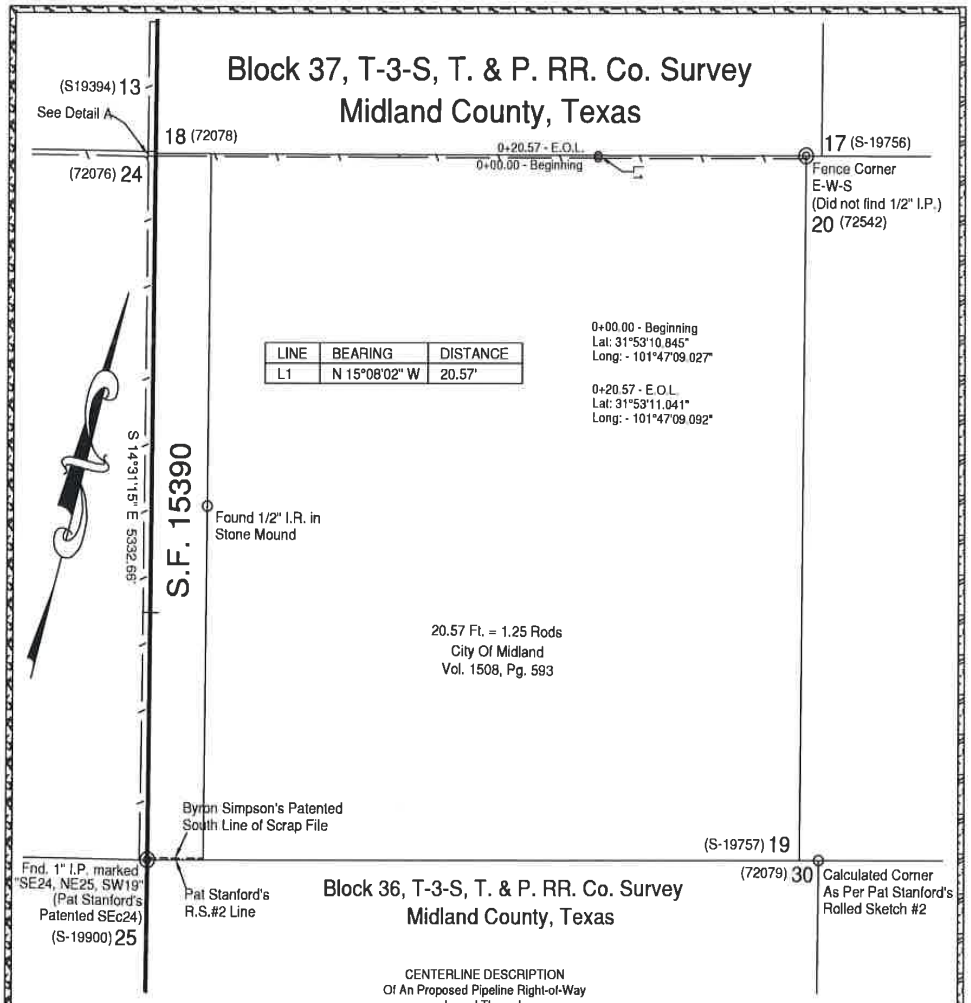
November 03, 2020
201103M2-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 19, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'



CENTERLINE DESCRIPTION
Of An Proposed Pipeline Right-of-Way
In and Through
Section 19 Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Beginning at pipeline station 0+00.00 for the beginning of this proposed pipeline right-of-way from which a fence corner E-W-S for the Northeast corner of Section 19, Block 37 bears N 74°27'57" E, 1686.02 feet.

Thence N 15°08'02" W, a distance of 20.57 feet to pipeline station 0+20.57 being the E.O.L. (End of Line) of this proposed pipeline right-of-way from which a fence corner E-W-S for the Northeast corner of Section 19, Block 37 bears N 75°09'54" E, 1686.00 feet.

GRAPHIC SCALE
1000 0 500 1000 2000
1" = 1000' *U.S. FEET*

Note: Survey Reconstruction filed in the Office of Pennell & Marlowe Land Surveyors, Inc.
Note: Coordinates shown herein are on The Texas Coordinate System of 1983, Central Zone. Latitudes and Longitudes shown are on NAD'83 Datum.
Note: Example: (S-99999) indicates General Land Office file number.

PENNELL & MARLOWE
RESIDENTIAL, OILFIELD & ALL TYPES OF SURVEYS
LAND SURVEYORS, INC.

STATE OF TEXAS
REGISTERED
STEPHEN P. MARLOWE
5715
PROFESSIONAL
LAND SURVEYOR

Stephen P. Marlowe
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5715

November 03, 2020
201103M3-KRM

P.O. Box 51887, Midland, Texas 79710 (432) 262-0901 Fax (432) 262-0679 Firm #100201-00

Proposed Pipeline Plat

CROWNQUEST OPERATING, LLC.
Proposed Pipeline Survey
In and Through
Section 19, Block 37, T-3-S
T. & P. RR. Co. Survey
Midland County, Texas

Scale: 1" = 1000'

City Council Meeting

Item Number: 27

Meeting Date: December 15, 2020

To: City Council / City Manager

From: John Simmons, Manager, Right-of-Way

Subject: RESOLUTION AUTHORIZING THE ACCEPTANCE OF A 22.21-ACRE UTILITY EASEMENT OUT OF SECTIONS 9, 10 AND 11, BLOCK 39, T-1-S, T&P RR CO. SURVEY, MARTIN AND MIDLAND COUNTIES, TEXAS, AT A COST NOT TO EXCEED $277,375.00; AND ORDERING RECORDATION BY THE CITY SECRETARY (UTILITIES)

Purpose:

This resolution accepts a Public Utility Easement from Occidental Permian LTD, for a 60’ wide right of way for the construction and operation of the 24” Northeast water transmission pipeline.

Recommended City Council Action:

Approve

Fiscal Impact:

Compensation for this right of way is a one-time payment of $277,375.00 mutually agreed upon and based on a detailed breakdown of costs to clear the proposed right of way of Occidental oil equipment. Occidental has agreed to waive any other compensation for the right of way.

Discussion:

This 22.21-acre section of Right of Way is the last and largest single land section for the Northeast Water Transmission line.

The Public Utility Easement is attached, as is a plat showing the proposed easement, Staff supports accepting this dedication.



City Manager's Office

RESOLUTION NO. _____

RESOLUTION AUTHORIZING THE ACCEPTANCE OF A 22.21-ACRE UTILITY EASEMENT OUT OF SECTIONS 9, 10 AND 11, BLOCK 39, T-1-S, T&P RR CO. SURVEY, MARTIN AND MIDLAND COUNTIES, TEXAS, AT A COST NOT TO EXCEED $277,375.00; AND ORDERING RECORDATION BY THE CITY SECRETARY

WHEREAS, the City Council finds it to be in the public interest to authorize the acceptance of a 22.21-acre easement out of Sections 9, 10 and 11, Block 39, T-1-S, T&P RR Co. Survey, Martin and Midland Counties, Texas, at a cost not to exceed $277,375.00, for the use and benefit of the public for utility purposes (the "Easement"), a copy of the instrument granting to the City said Easement being attached hereto as Exhibit "1" and incorporated herein for all legal purposes; and

WHEREAS, the City Council finds the price proposed for said utility easement to be fair and reasonable;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Easement is hereby accepted.

SECTION TWO. That the City Secretary is hereby authorized and directed to file the instrument granting to the City said Easement in the Deed Records of Midland County, Texas.

SECTION THREE. That upon receipt of proper invoice or statement approved by the City Manager, the City Comptroller is hereby authorized and directed to pay for said utility easement out of funds available in the Capital Project for the Northeast Water System Improvements in Fund 179.

On motion of Council member _____, seconded by Council member _____, the above and foregoing resolution was adopted by the City Council of the City of Midland at a regular meeting on the _____ day of _____, A.D., 2020, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

RECOMMENDED AND APPROVED:

_____
Robert Patrick, Interim City Manager

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Carl Craigo, Utilities Director

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

PUBLIC UTILITY EASEMENT

THE STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF MIDLAND §

THAT **Occidental Permian LTD.** ("Grantor"), a Texas limited partnership, whose mailing address is 5 Greenway Plaza, Suite 110, Houston, Texas 77046, for and in consideration of the sum of TEN AND NO/100 DOLLARS ($10.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, does hereby GRANT AND CONVEY, without warranties or covenants of title, express or implied, to the **CITY OF MIDLAND, TEXAS** ("Grantee"), a home-rule municipal corporation, whose address is 300 North Loraine, Midland, Texas 79701, an easement and right-of-way to construct, install, operate, use, maintain, repair, modify and replace public utilities, including a water line or a sewer line or both a water line and a sewer line, and any necessary appurtenant facilities (collectively, the "Utilities"), in, on, upon, over, under, across, along and through the following described property owned by Grantor:

A 22.21-acre tract of land located in Sections 9, 10 and 11, Block 39, T-1-S, T&P RR CO. Survey, Martin and Midland Counties, Texas, being more fully described in the attached **Exhibit A**, which is attached hereto and incorporated herein for all purposes (the "Easement Tract").

Grantee and its employees, contractors, agents, successors, and assigns, shall have the free and uninterrupted right of passage in, on, upon, over, under, across, along and through the Easement Tract described herein for the purpose of establishing, laying, constructing, reconstructing, installing, realigning, modifying, replacing, improving, altering, operating, maintaining, accessing, inspecting, repairing, and removing said public utilities and appurtenant facilities, together with the right of ingress, egress and regress for such purposes in, on, upon, over, under, across, along and through the Easement Tract. This Easement shall operate in conjunction with that certain easement made effective between Grantor and Grantee on July 12, 2016, being Instrument Number 2016-22809 in the Records of Midland County, Texas.

Grantee retains unto itself, its successors, assigns, lessees, agents, and licenses, the right to use and enjoy all of the Easement Tract; however, Grantor shall not exercise such use and enjoyment in a manner that will unreasonably interfere with the rights granted herein. Grantor expressly covenants and agrees for itself, its legal representatives, successors and/or assigns, that no building of any kind will be placed on the Easement Tract.

Grantee agrees to comply with all laws, rules and regulation (including those related to the environment) applicable to the rights granted herein.

THIS GRANT IS MADE WITHOUT WARRANTY OF ANY KIND WHATSOEVER, EITHER EXPRESSED OR IMPLIED, provided that this grant is made expressly subject to and subordinate to all previously recorded leases, instruments and encumbrances, and the existing rights of persons in possession.

TO THE EXTENT PERMITTED BY LAW, GRANTEE HEREBY AGREES TO INDEMNIFY, DEFEND AND HOLD GRANTOR, ITS AFFILIATES AND THEIR RESPECTIVE SUCCESSORS AND ASSIGNS HARMLESS FROM AND AGAINST ANY AND ALL LOSSES, LIABILITY, CLAIMS, DEMANDS, SUITS, CAUSES OF ACTION, JUDGMENTS, DAMAGES, FEES, COSTS OR EXPENSES (INCLUDING WITHOUT LIMITATION, ATTORNEYS' FEES AND COSTS OF DISPUTE RESOLUTION) OF ANY KIND OR NATURE ARISING OUT OF OR RELATED TO (i) GRANTEE'S USE OF THE EASEMENT TRACT (INCLUDING THE CONSTRUCTION, MAINTENANTCE, OPERATION, AND REPAIR OF THE UTILITIES) OR CONSTRUCTION OF THE UTILITIES WITHIN OR UNDER THE EASEMENT TRACT; AND/OR (ii) THE PERFORMANCE OF OR FAILURE TO PERFORM ANY DUTY, RESPONSIBILITY OR OBLIGATION OF THE GRANTEE WITH RESPECT TO THE EASEMENT. GRANTEE DOES HEREBY AGREE THAT THE DUTIES AND OBLIGATIONS IN THIS PARAGRAPH SHALL BE BINDING ON ITS SUCCESSORS AND ASSIGNS.

This instrument does not constitute a conveyance of any part of the Easement Tract nor of the mineral rights therein and thereunder, nor of any surface rights other than the Easement Area herein specifically described to the extent necessary to accomplish the purpose herein expressed, and any and all other rights, the exercise of which will not unduly interfere with the rights herein granted, are hereby reserved to Grantor.

Any assignment by Grantee of any of the rights granted by this instrument, in whole or in part, without first obtaining written consent of Grantor, shall be void unless expressly ratified in writing by Grantor, and the granting of any such consent by Grantor shall not have the effect of waiving this limitation as to any future, further or additional assignments.

TO HAVE AND TO HOLD the right to use the Easement Tract as herein provided unto Grantee, its successors and assigns, until such time as the Utilities are constructed or installed and then for so long thereafter as they are maintained on the Easement Tract, subject however, to automatic termination, extinguishment and reversion if (1) Grantee, its successors or assigns, fails to commence construction of the Utilities within ten (10) years from the Effective Date or fails to complete the construction of the Utilities within twenty four (24) months from the date of commencement of the construction, or (2) after completion or construction of the Utilities, the Utilities cease to be used for the purpose herein expressed for twenty four (24) consecutive months, or (3) Grantor's rights in and to the Easement Tract existing solely by virtue of an existing lease or other agreement should cease. In the event of such termination, Grantee shall immediately prepare and record a release of this instrument, and furnish a copy of same to Grantor.

This agreement embodies and includes the entire agreement between the two undersigned parties with respect to the subject matter herein and no reliance is placed upon previous writing, communications or implied representations, inducements or understandings of any kind whatsoever and they are excluded herefrom. This agreement may not be amended except by written instrument executed by both parties.

The provisions hereof shall be covenants running with the lands and shall be binding upon and inure to the benefit of Grantor and Grantee and their respective successors and assigns.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____ A.D. 20__.

GRANTOR

OCCIDENTAL PERMIAN LTD.

By: David J. Woest
Attorney-in Fact

THE STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me on the 29th day of July, 2020, by David J. Woest, Attorney-in-Fact of OCCIDENTAL PERMIAN, LTD., a Texas limited partnership.

MY COMMISSION EXPIRES

6-12-2023

Notary Public, State of Texas

RHETT D LAFLEUR
Notary ID #130258282
My Commission Expires
June 12, 2023

GRANTEE

CITY OF MIDLAND, TEXAS

By: Courtney Sharp

ATTEST:

Amy M. Turner, City Secretary

PACKET
27.3289
December 15, 2020

FIELD NOTES
FOR
A 22.21 ACRE EASEMENT
OUT OF
SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S,
T.& P. RR. CO. SURVEY
MIDLAND COUNTY, TEXAS

BEING a 22.21 acre tract out of Sections 9, 10, and 11, Block 39, T-1-S, T&P RR Co. Survey, Midland County, Texas, as conveyed to Occidental Permian LTD, recorded in Document No. 2010-17172, Official Public Records, Midland County, Texas, said 22.21 acre tract being more particularly described as follows:

Bearings and distances are grid, NAD 83 Texas Central Zone based on GPS observations

BEGINNING at (N= 10,721,307.29' and E= 1,736,532.25') a found 1/2 inch iron rod on the West line of said Section 9 for the southwest corner of this easement, same being the southwest corner of a 44.59 acre easement recorded in Document No. 2016-22809, Official Public Records, Midland County, Texas, where a found 1/2 inch iron rod at southwest corner of Section 9 bears 3,206.4' S 14°21'04"E.

THENCE North 14 degrees 21 minutes 11 seconds West a distance of 60.00 feet to a point, where a found 1/2 inch iron rod on the West line of said Section 9 for the northwest corner of a 44.59 acre easement recorded in Document No. 2016-22809, Official Public Records, Midland County, Texas bears 60.0' N 14°21'11" W;

THENCE North 75 degrees 52 minutes 06 seconds East a distance of 8,126.66 feet to a point;

THENCE with a curve turning to the left having a delta angle of 28 degrees 26 minutes 41 seconds, a radius of 997.61 feet, an arc length of 495.27 feet, and a chord bearing North 61 degrees 38 minutes 45 seconds East a distance of 490.20' to a point;

THENCE North 47 degrees 30 minutes 35 seconds East a distance of 100.61 feet to a point;

THENCE with a curve turning to the right having a delta angle of 27 degrees 35 minutes 43 seconds, a radius of 1,002.70 feet, an arc length of 482.93 feet, and a chord bearing North 61 degrees 18 minutes 27 seconds East a distance of 478.28' to a point;

THENCE North 75 degrees 09 minutes 06 seconds East a distance of 5,131.43 feet to a point;

THENCE with a curve turning to the right having a delta angle of 36 degrees 33 minutes 23 seconds, a radius of 1,000.29 feet, an arc length of 638.22 feet, and a chord bearing South 86 degrees 34 minutes 13 seconds East a distance of 627.44' to a point;

THENCE South 68 degrees 18 minutes 05 seconds East a distance of 673.66 feet to a point;

THENCE with a curve turning to the left having a delta angle of 08 degrees 09 minutes 50 seconds, a radius of 748.40 feet, an arc length of 106.63 feet, and a chord bearing South 72 degrees 20 minutes 45 seconds East a distance of 106.54' to a point;

THENCE North 89 degrees 12 minutes 03 seconds East a distance of 115.82 feet to a point;

THENCE North 75 degrees 40 minutes 31 seconds East at a distance of 252.35 feet to a point in the west right-of-way line of Business State Highway 349, where a found, bent 1/2 inch iron rod at the northeast corner of said 44.59 acre easement bears 20.13' N 14°30'15" W;

THENCE South 14 degrees 30 minutes 15 seconds East a distance of 60.00 feet to a point in the west right-of-way line of Business State Highway 349, where a found 1/2 inch iron rod with plastic cap marked "PLS 1974" at the southeast corner of said 44.59 acre easement bears 79.90' S 14°30'15 E;

THENCE South 75 degrees 40 minutes 31 seconds West a distance of 259.65 feet to a point;

THENCE South 89 degrees 12 minutes 03 seconds West a distance of 130.35 feet to a point on the south line of said 44.59 acre easement;

THENCE, along the south line of said 44.59 acre easement, with a curve turning to the right having a delta angle of 08 degrees 42 minutes 36 seconds, a radius of 808.40 feet, an arc length of 122.89 feet, and a chord bearing North 72 degrees 37 minutes 08 seconds West a distance of 122.77' to a found 1/2 inch iron rod with plastic cap marked "PLS 1974" at the end of the curve;

THENCE North 68 degrees 18 minutes 05 seconds West, along the south line of said 44.59 acre easement, a distance of 673.63 feet to a point;

THENCE, along the south line of said 44.59 acre easement, with a curve turning to the left having a delta angle of 36 degrees 32 minutes 15 seconds, a radius of 940.76 feet, an arc length of 599.92 feet, and a chord bearing North 86 degrees 34 minutes 13 seconds West a distance of 589.81' to a found 1/2 inch iron rod with plastic cap marked "PLS 1974";

THENCE South 75 degrees 09 minutes 06 seconds West, along the south line of said 44.59 acre easement, a distance of 5,131.38 to a found 1/2 inch iron rod with plastic cap marked "PLS 1974";

THENCE, along the south line of said 44.59 acre easement, with a curve turning to the left having a delta angle of 27 degrees 41 minutes 18 seconds, a radius of 939.60 feet, an arc length of 454.06 feet, and a chord bearing South 61 degrees 18 minutes 27 seconds West a distance of 449.66' to a 1/2 inch iron rod;

THENCE South 47 degrees 30 minutes 35 seconds West, along the south line of said 44.59 acre easement, a distance of 100.57 feet to a found 1/2 inch iron rod with plastic cap marked "PLS 1974";

THENCE, along the south line of said 44.59 acre easement, with a curve turning to the right having a delta angle of 28 degrees 16 minutes 29 seconds, a radius of 1,063.75 feet, an arc length of 524.95 feet, and a chord bearing South 61 degrees 38 minutes 50 seconds West a distance of 519.63' to a point;

THENCE South 75 degrees 52 minutes 06 seconds West, along the south line of said 44.59 acre easement, at 2,967.26 feet passing a found 1/2 inch iron rod with plastic cap marked "PLS 1974", at 3,127.13 feet passing a found 1/2 inch iron rod with plastic cap marked "PLS 1974", continuing for a total distance of 8,126.42 feet to the Point of Beginning containing an area of 22.21 acres. Surveyed on the ground April 10, 2019. See attached plat.



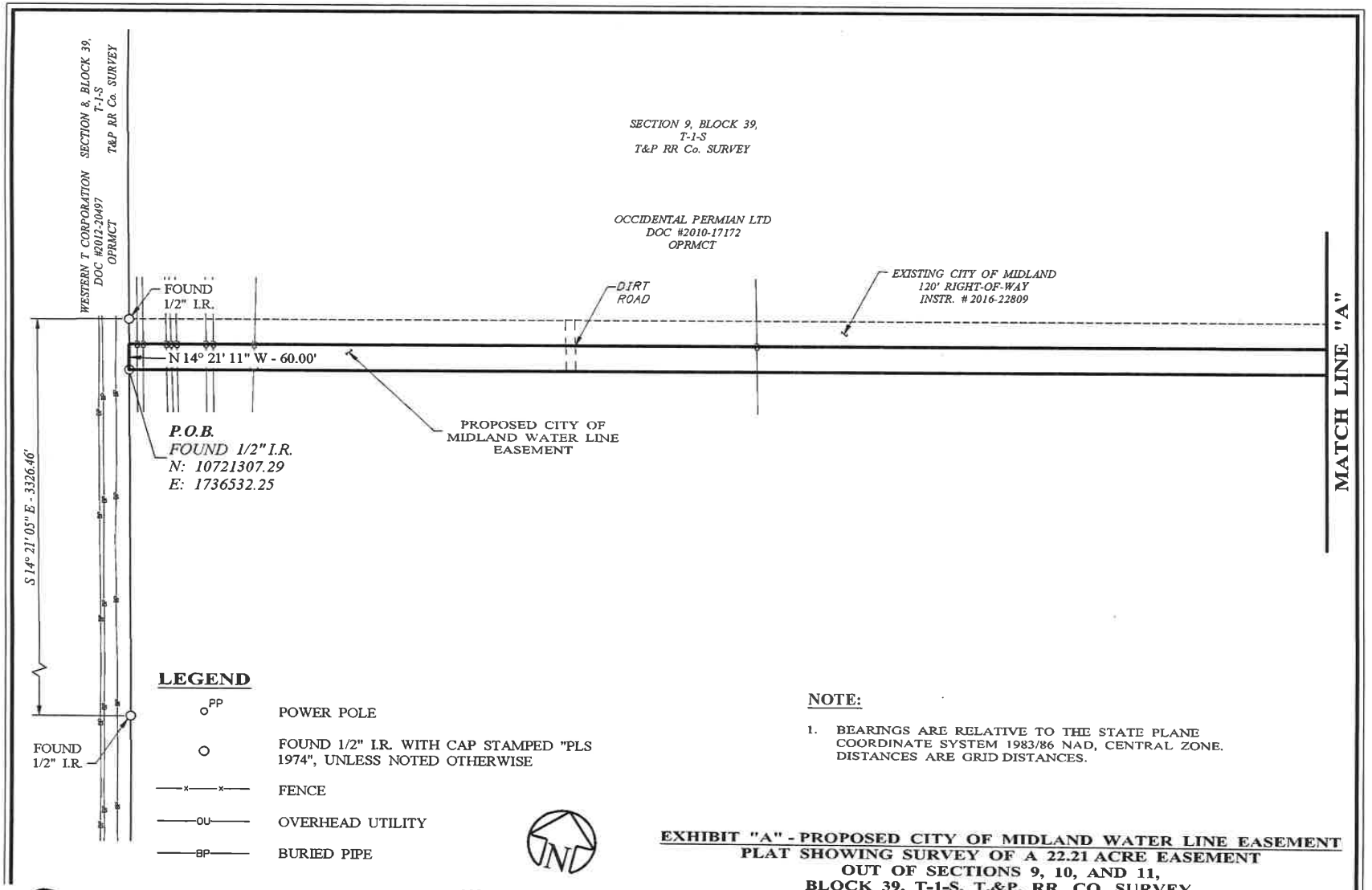
I, RILEY ELMER GRIFFITH, R.P.L.S. #5863 DO HEREBY CERTIFY THAT THE PLAT HEREON WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND DURING THE MONTH OF APRIL, 2019.

RILEY ELMER GRIFFITH, R.P.L.S. #5863

DATE 08/14/2020

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-698-5560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

18-7227



LEGEND

- POWER POLE
- FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
- FENCE
- OVERHEAD UTILITY
- BURIED PIPE

NOTE:

1. BEARINGS ARE RELATIVE TO THE STATE PLANE COORDINATE SYSTEM 1983/86 NAD, CENTRAL ZONE. DISTANCES ARE GRID DISTANCES.

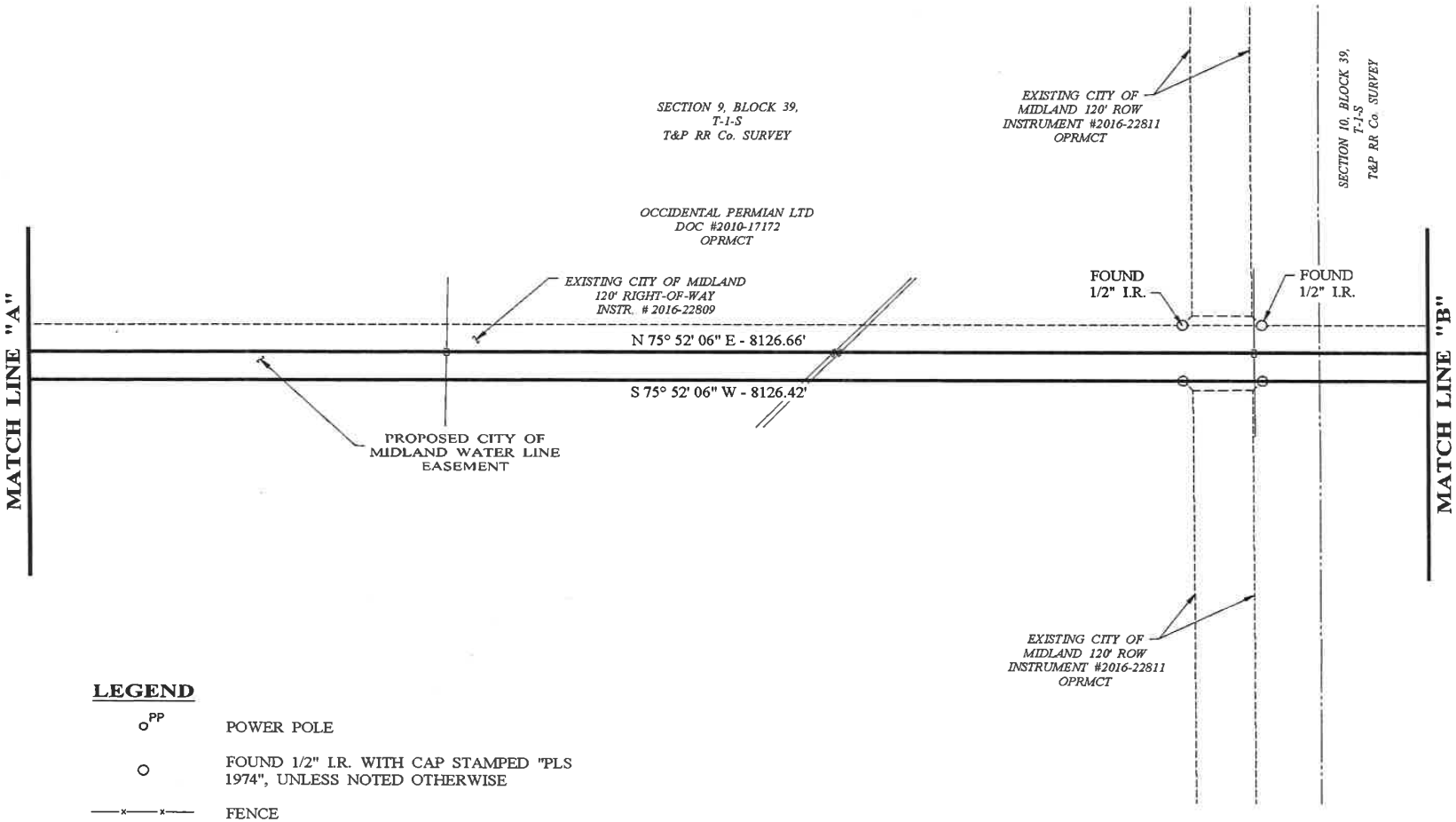
100 0 300

SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-686-5560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50102
RPLS Firm Registration Nos. 10011800

18-7227



LEGEND

o PP	POWER POLE
o	FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
——x——x——	FENCE
——OU——	OVERHEAD UTILITY
——BP——	BURIED PIPE

N

100 0 300

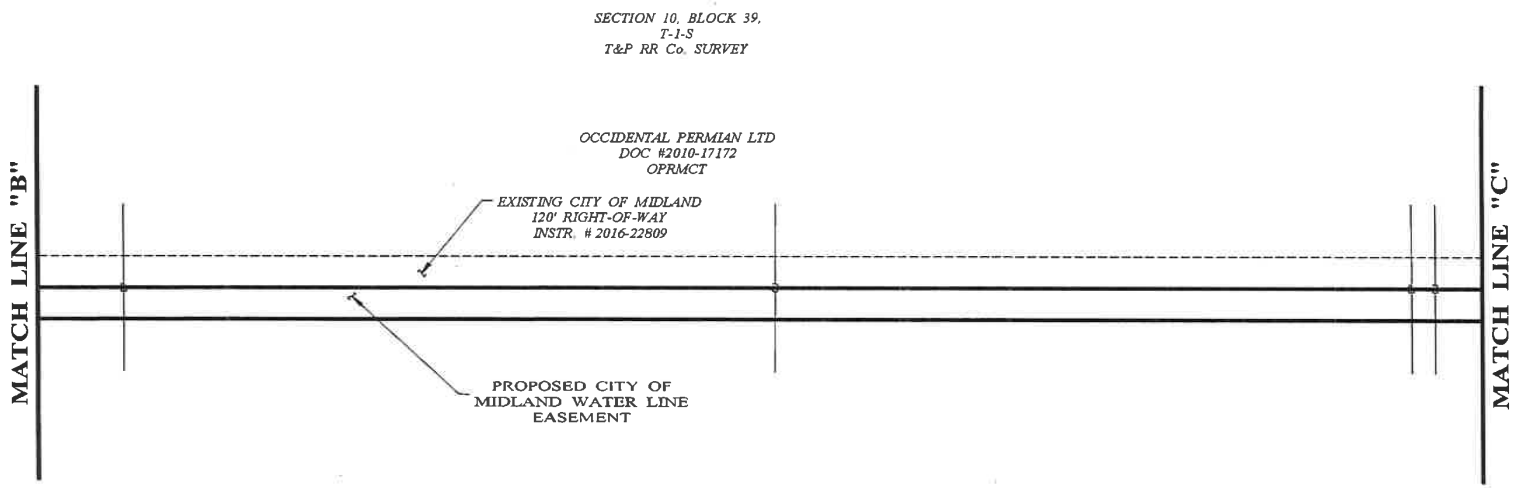
SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-698-5560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50102
RPLS Firm Registration Nos. 10011900

18-7227

08/14/2020



LEGEND

o PP	POWER POLE
o	FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
——x——x——	FENCE
——OU——	OVERHEAD UTILITY
——BP——	BURIED PIPE



100 0 300

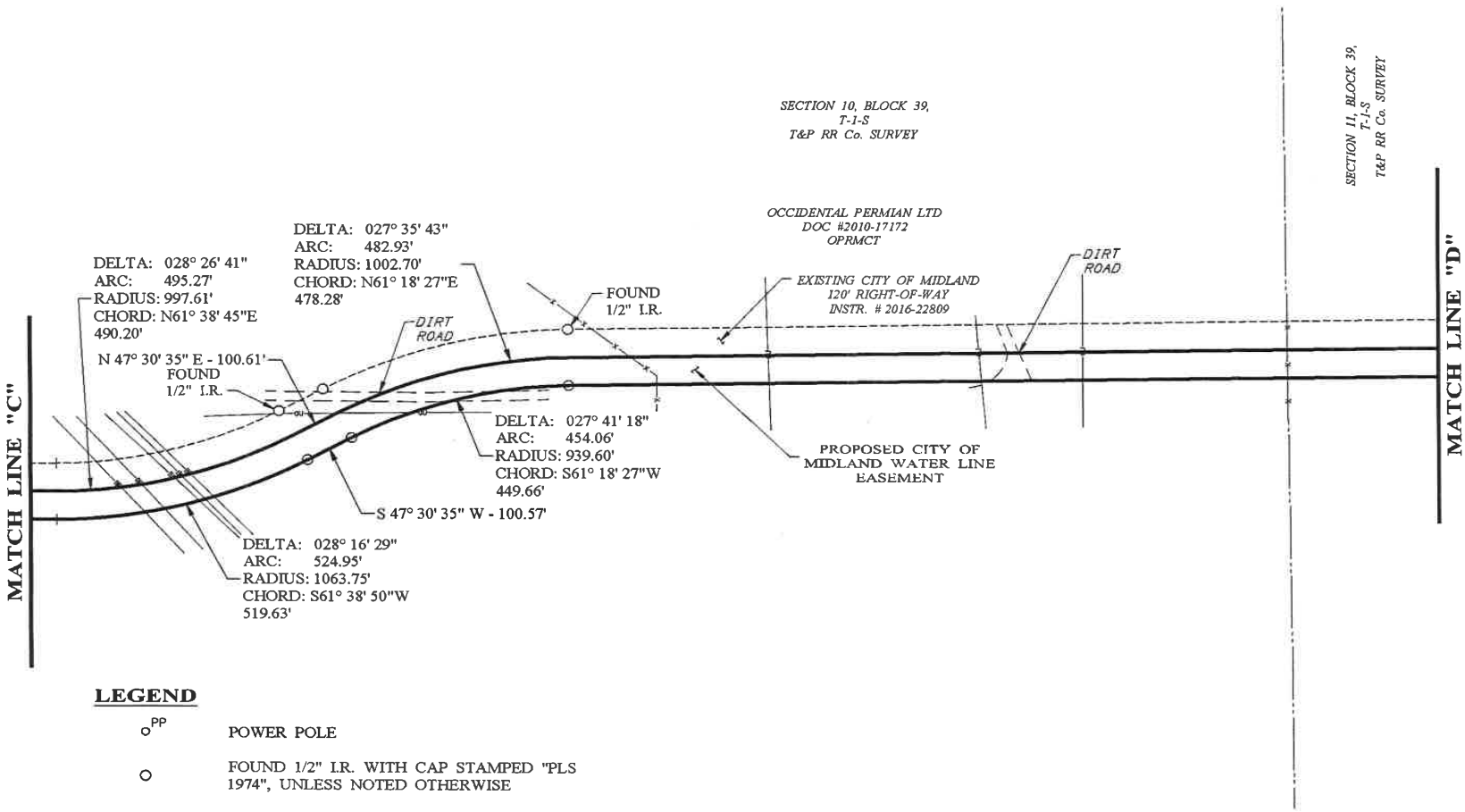
SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
Abilene, Texas 79601
325-668-5560
PE Firm Registration No. 1151
PG Firm Registration No. 50103
APLS Firm Registration Nos 10011900

18-7227

08/14/2020



LEGEND

o PP	POWER POLE
o	FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
——x——x——	FENCE
——OU——	OVERHEAD UTILITY
——BP——	BURIED PIPE



100 0 300

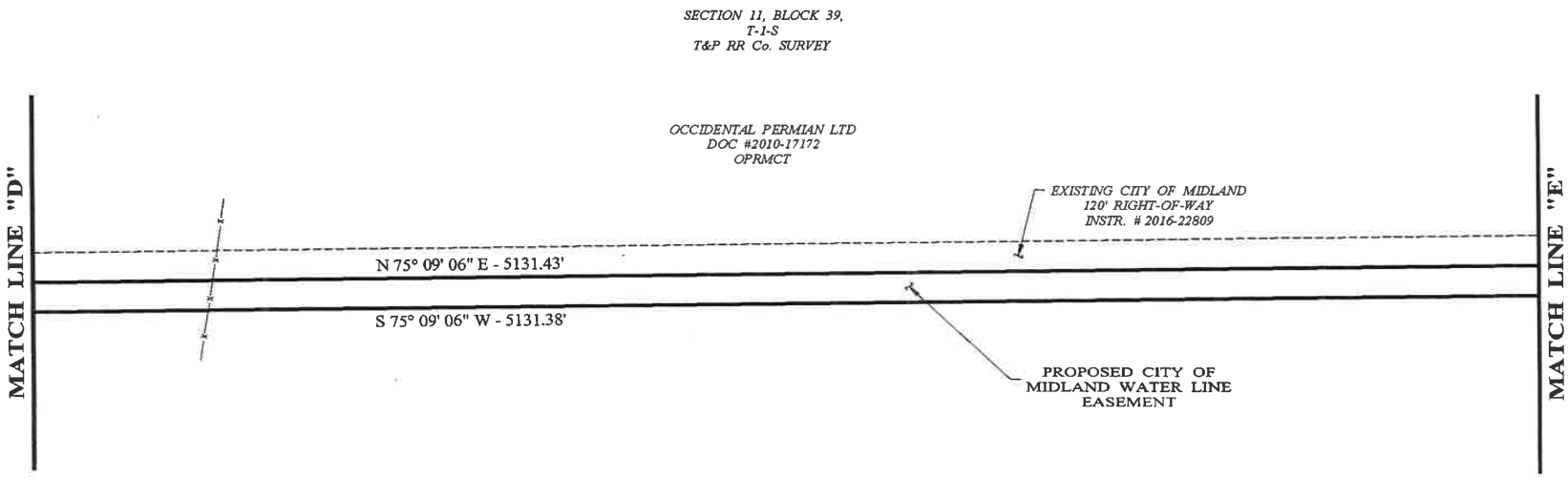
SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street Abilene, Texas 79601
325-668-5560
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration Nos. 10011900

18-7227

08/14/2020



LEGEND

o PP	POWER POLE
o	FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
——x——x——	FENCE
——OU——	OVERHEAD UTILITY
——BP——	BURIED PIPE



100 0 300

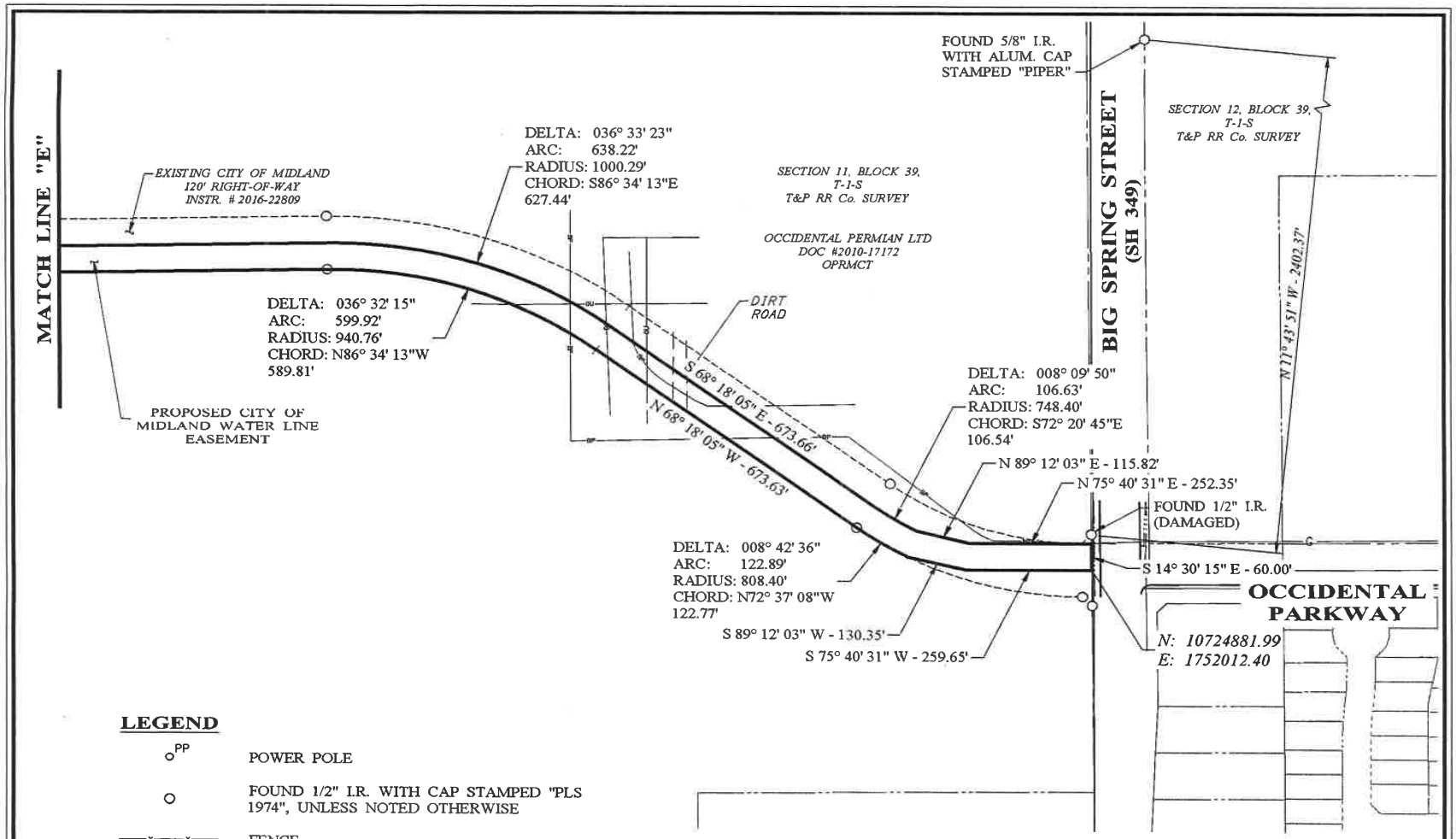
SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
Abilene, Texas 79601
325-698-5560
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration Nos 10011900

18-7227

08/14/2020



LEGEND

- POWER POLE
- FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
- FENCE
- OVERHEAD UTILITY
- BURIED PIPE

100 0 300

SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-698-5560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration Nos. 10011900

18-7227

6 OF 7

08/14/2020

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

PUBLIC UTILITY EASEMENT

THE STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF MIDLAND §

THAT **Occidental Permian LTD.** ("Grantor"), a Texas limited partnership, whose mailing address is 5 Greenway Plaza, Suite 110, Houston, Texas 77046, for and in consideration of the sum of TEN AND NO/100 DOLLARS ($10.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, does hereby GRANT AND CONVEY, without warranties or covenants of title, express or implied, to the **CITY OF MIDLAND, TEXAS** ("Grantee"), a home-rule municipal corporation, whose address is 300 North Loraine, Midland, Texas 79701, an easement and right-of-way to construct, install, operate, use, maintain, repair, modify and replace public utilities, including a water line or a sewer line or both a water line and a sewer line, and any necessary appurtenant facilities (collectively, the "Utilities"), in, on, upon, over, under, across, along and through the following described property owned by Grantor:

A 22.21-acre tract of land located in Sections 9, 10 and 11, Block 39, T-1-S, T&P RR CO. Survey, Martin and Midland Counties, Texas, being more fully described in the attached **Exhibit A**, which is attached hereto and incorporated herein for all purposes (the "Easement Tract").

Grantee and its employees, contractors, agents, successors, and assigns, shall have the free and uninterrupted right of passage in, on, upon, over, under, across, along and through the Easement Tract described herein for the purpose of establishing, laying, constructing, reconstructing, installing, realigning, modifying, replacing, improving, altering, operating, maintaining, accessing, inspecting, repairing, and removing said public utilities and appurtenant facilities, together with the right of ingress, egress and regress for such purposes in, on, upon, over, under, across, along and through the Easement Tract. This Easement shall operate in conjunction with that certain easement made effective between Grantor and Grantee on July 12, 2016, being Instrument Number 2016-22809 in the Records of Midland County, Texas.

Grantee retains unto itself, its successors, assigns, lessees, agents, and licenses, the right to use and enjoy all of the Easement Tract; however, Grantor shall not exercise such use and enjoyment in a manner that will unreasonably interfere with the rights granted herein. Grantor expressly covenants and agrees for itself, its legal representatives, successors and/or assigns, that no building of any kind will be placed on the Easement Tract.

Grantee agrees to comply with all laws, rules and regulation (including those related to the environment) applicable to the rights granted herein.

THIS GRANT IS MADE WITHOUT WARRANTY OF ANY KIND WHATSOEVER, EITHER EXPRESSED OR IMPLIED, provided that this grant is made expressly subject to and subordinate to all previously recorded leases, instruments and encumbrances, and the existing rights of persons in possession.

TO THE EXTENT PERMITTED BY LAW, GRANTEE HEREBY AGREES TO INDEMNIFY, DEFEND AND HOLD GRANTOR, ITS AFFILIATES AND THEIR RESPECTIVE SUCCESSORS AND ASSIGNS HARMLESS FROM AND AGAINST ANY AND ALL LOSSES, LIABILITY, CLAIMS, DEMANDS, SUITS, CAUSES OF ACTION, JUDGMENTS, DAMAGES, FEES, COSTS OR EXPENSES (INCLUDING WITHOUT LIMITATION, ATTORNEYS' FEES AND COSTS OF DISPUTE RESOLUTION) OF ANY KIND OR NATURE ARISING OUT OF OR RELATED TO (i) GRANTEE'S USE OF THE EASEMENT TRACT (INCLUDING THE CONSTRUCTION, MAINTENANTCE, OPERATION, AND REPAIR OF THE UTILITIES) OR CONSTRUCTION OF THE UTILITIES WITHIN OR UNDER THE EASEMENT TRACT; AND/OR (ii) THE PERFORMANCE OF OR FAILURE TO PERFORM ANY DUTY, RESPONSIBILITY OR OBLIGATION OF THE GRANTEE WITH RESPECT TO THE EASEMENT. GRANTEE DOES HEREBY AGREE THAT THE DUTIES AND OBLIGATIONS IN THIS PARAGRAPH SHALL BE BINDING ON ITS SUCCESSORS AND ASSIGNS.

This instrument does not constitute a conveyance of any part of the Easement Tract nor of the mineral rights therein and thereunder, nor of any surface rights other than the Easement Area herein specifically described to the extent necessary to accomplish the purpose herein expressed, and any and all other rights, the exercise of which will not unduly interfere with the rights herein granted, are hereby reserved to Grantor.

Any assignment by Grantee of any of the rights granted by this instrument, in whole or in part, without first obtaining written consent of Grantor, shall be void unless expressly ratified in writing by Grantor, and the granting of any such consent by Grantor shall not have the effect of waiving this limitation as to any future, further or additional assignments.

TO HAVE AND TO HOLD the right to use the Easement Tract as herein provided unto Grantee, its successors and assigns, until such time as the Utilities are constructed or installed and then for so long thereafter as they are maintained on the Easement Tract, subject however, to automatic termination, extinguishment and reversion if (1) Grantee, its successors or assigns, fails to commence construction of the Utilities within ten (10) years from the Effective Date or fails to complete the construction of the Utilities within twenty four (24) months from the date of commencement of the construction, or (2) after completion or construction of the Utilities, the Utilities cease to be used for the purpose herein expressed for twenty four (24) consecutive months, or (3) Grantor's rights in and to the Easement Tract existing solely by virtue of an existing lease or other agreement should cease. In the event of such termination, Grantee shall immediately prepare and record a release of this instrument, and furnish a copy of same to Grantor.

This agreement embodies and includes the entire agreement between the two undersigned parties with respect to the subject matter herein and no reliance is placed upon previous writing, communications or implied representations, inducements or understandings of any kind whatsoever and they are excluded herefrom. This agreement may not be amended except by written instrument executed by both parties.

The provisions hereof shall be covenants running with the lands and shall be binding upon and inure to the benefit of Grantor and Grantee and their respective successors and assigns.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____ A.D. 20__.

GRANTOR

OCCIDENTAL PERMIAN LTD.

By: David J. Woest
Attorney-in Fact

THE STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me on the 29th day of July, 2020, by David J. Woest, Attorney-in-Fact of OCCIDENTAL PERMIAN, LTD., a Texas limited partnership.

MY COMMISSION EXPIRES

6-12-2023

Notary Public, State of Texas

RHETT D LAFLEUR
Notary ID #130258282
My Commission Expires
June 12, 2023

GRANTEE

CITY OF MIDLAND, TEXAS

By: Courtney Sharp

ATTEST:

Amy M. Turner, City Secretary

FIELD NOTES
FOR
A 22.21 ACRE EASEMENT
OUT OF
SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S,
T.& P. RR. CO. SURVEY
MIDLAND COUNTY, TEXAS

BEING a 22.21 acre tract out of Sections 9, 10, and 11, Block 39, T-1-S, T&P RR Co. Survey, Midland County, Texas, as conveyed to Occidental Permian LTD, recorded in Document No. 2010-17172, Official Public Records, Midland County, Texas, said 22.21 acre tract being more particularly described as follows:

Bearings and distances are grid, NAD 83 Texas Central Zone based on GPS observations

BEGINNING at (N= 10,721,307.29' and E= 1,736,532.25') a found 1/2 inch iron rod on the West line of said Section 9 for the southwest corner of this easement, same being the southwest corner of a 44.59 acre easement recorded in Document No. 2016-22809, Official Public Records, Midland County, Texas, where a found 1/2 inch iron rod at southwest corner of Section 9 bears 3,206.4' S 14°21'04"E.

THENCE North 14 degrees 21 minutes 11 seconds West a distance of 60.00 feet to a point, where a found 1/2 inch iron rod on the West line of said Section 9 for the northwest corner of a 44.59 acre easement recorded in Document No. 2016-22809, Official Public Records, Midland County, Texas bears 60.0' N 14°21'11" W;

THENCE North 75 degrees 52 minutes 06 seconds East a distance of 8,126.66 feet to a point;

THENCE with a curve turning to the left having a delta angle of 28 degrees 26 minutes 41 seconds, a radius of 997.61 feet, an arc length of 495.27 feet, and a chord bearing North 61 degrees 38 minutes 45 seconds East a distance of 490.20' to a point;

THENCE North 47 degrees 30 minutes 35 seconds East a distance of 100.61 feet to a point;

THENCE with a curve turning to the right having a delta angle of 27 degrees 35 minutes 43 seconds, a radius of 1,002.70 feet, an arc length of 482.93 feet, and a chord bearing North 61 degrees 18 minutes 27 seconds East a distance of 478.28' to a point;

THENCE North 75 degrees 09 minutes 06 seconds East a distance of 5,131.43 feet to a point;

THENCE with a curve turning to the right having a delta angle of 36 degrees 33 minutes 23 seconds, a radius of 1,000.29 feet, an arc length of 638.22 feet, and a chord bearing South 86 degrees 34 minutes 13 seconds East a distance of 627.44' to a point;

THENCE South 68 degrees 18 minutes 05 seconds East a distance of 673.66 feet to a point;

THENCE with a curve turning to the left having a delta angle of 08 degrees 09 minutes 50 seconds, a radius of 748.40 feet, an arc length of 106.63 feet, and a chord bearing South 72 degrees 20 minutes 45 seconds East a distance of 106.54' to a point;

THENCE North 89 degrees 12 minutes 03 seconds East a distance of 115.82 feet to a point;

THENCE North 75 degrees 40 minutes 31 seconds East at a distance of 252.35 feet to a point in the west right-of-way line of Business State Highway 349, where a found, bent 1/2 inch iron rod at the northeast corner of said 44.59 acre easement bears 20.13' N 14°30'15" W;

THENCE South 14 degrees 30 minutes 15 seconds East a distance of 60.00 feet to a point in the west right-of-way line of Business State Highway 349, where a found 1/2 inch iron rod with plastic cap marked "PLS 1974" at the southeast corner of said 44.59 acre easement bears 79.90' S 14°30'15 E;

THENCE South 75 degrees 40 minutes 31 seconds West a distance of 259.65 feet to a point;

THENCE South 89 degrees 12 minutes 03 seconds West a distance of 130.35 feet to a point on the south line of said 44.59 acre easement;

THENCE, along the south line of said 44.59 acre easement, with a curve turning to the right having a delta angle of 08 degrees 42 minutes 36 seconds, a radius of 808.40 feet, an arc length of 122.89 feet, and a chord bearing North 72 degrees 37 minutes 08 seconds West a distance of 122.77' to a found 1/2 inch iron rod with plastic cap marked "PLS 1974" at the end of the curve;

THENCE North 68 degrees 18 minutes 05 seconds West, along the south line of said 44.59 acre easement, a distance of 673.63 feet to a point;

THENCE, along the south line of said 44.59 acre easement, with a curve turning to the left having a delta angle of 36 degrees 32 minutes 15 seconds, a radius of 940.76 feet, an arc length of 599.92 feet, and a chord bearing North 86 degrees 34 minutes 13 seconds West a distance of 589.81' to a found 1/2 inch iron rod with plastic cap marked "PLS 1974";

THENCE South 75 degrees 09 minutes 06 seconds West, along the south line of said 44.59 acre easement, a distance of 5,131.38 to a found 1/2 inch iron rod with plastic cap marked "PLS 1974";

THENCE, along the south line of said 44.59 acre easement, with a curve turning to the left having a delta angle of 27 degrees 41 minutes 18 seconds, a radius of 939.60 feet, an arc length of 454.06 feet, and a chord bearing South 61 degrees 18 minutes 27 seconds West a distance of 449.66' to a 1/2 inch iron rod;

THENCE South 47 degrees 30 minutes 35 seconds West, along the south line of said 44.59 acre easement, a distance of 100.57 feet to a found 1/2 inch iron rod with plastic cap marked "PLS 1974";

THENCE, along the south line of said 44.59 acre easement, with a curve turning to the right having a delta angle of 28 degrees 16 minutes 29 seconds, a radius of 1,063.75 feet, an arc length of 524.95 feet, and a chord bearing South 61 degrees 38 minutes 50 seconds West a distance of 519.63' to a point;

THENCE South 75 degrees 52 minutes 06 seconds West, along the south line of said 44.59 acre easement, at 2,967.26 feet passing a found 1/2 inch iron rod with plastic cap marked "PLS 1974", at 3,127.13 feet passing a found 1/2 inch iron rod with plastic cap marked "PLS 1974", continuing for a total distance of 8,126.42 feet to the Point of Beginning containing an area of 22.21 acres. Surveyed on the ground April 10, 2019. See attached plat.



I, RILEY ELMER GRIFFITH, R.P.L.S. #5863 DO HEREBY CERTIFY THAT THE PLAT HEREON WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND DURING THE MONTH OF APRIL, 2019.

RILEY ELMER GRIFFITH, R.P.L.S. #5863

DATE 08/14/2020

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-698-5560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration No. 10011900

18-7227

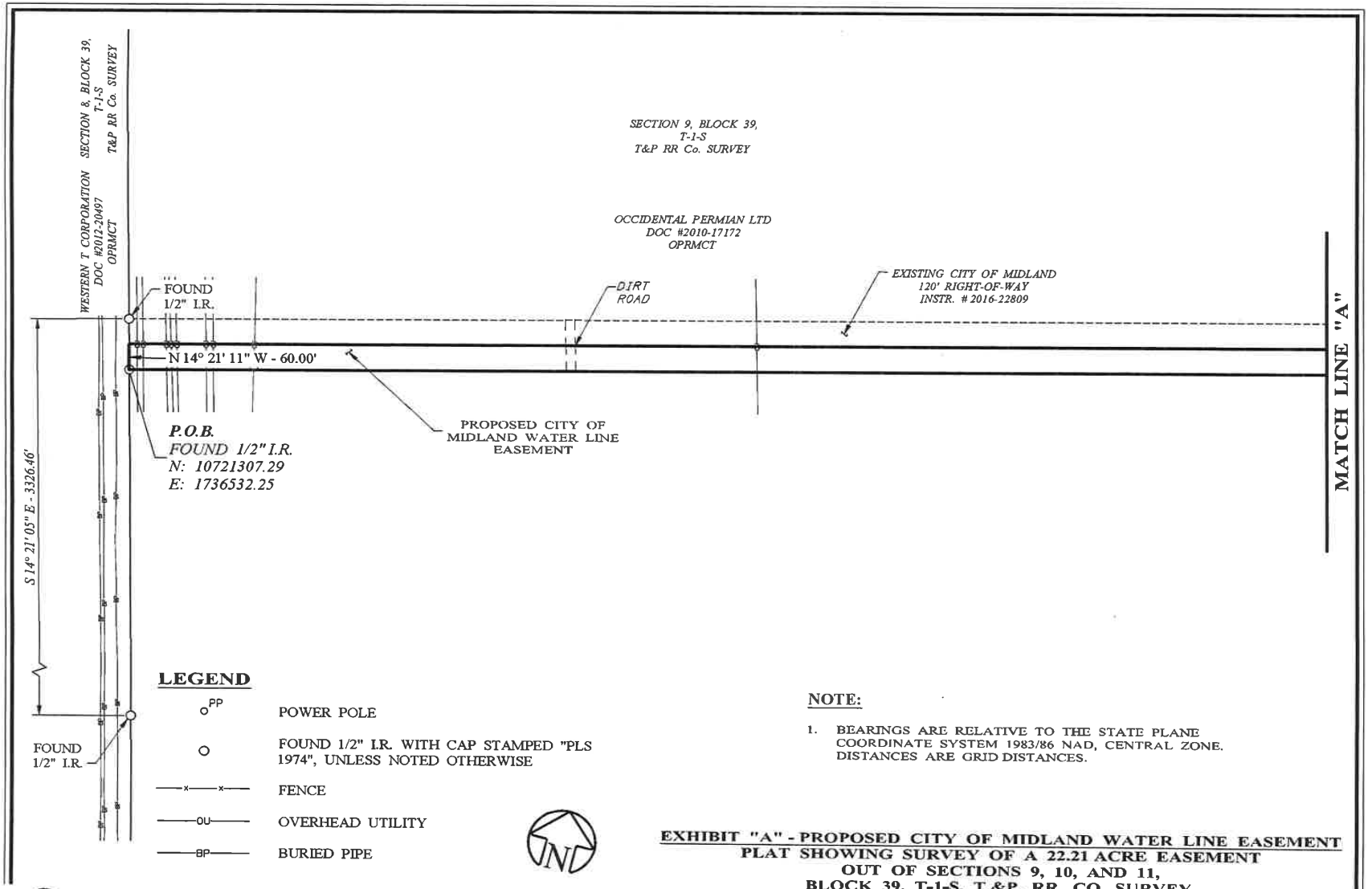
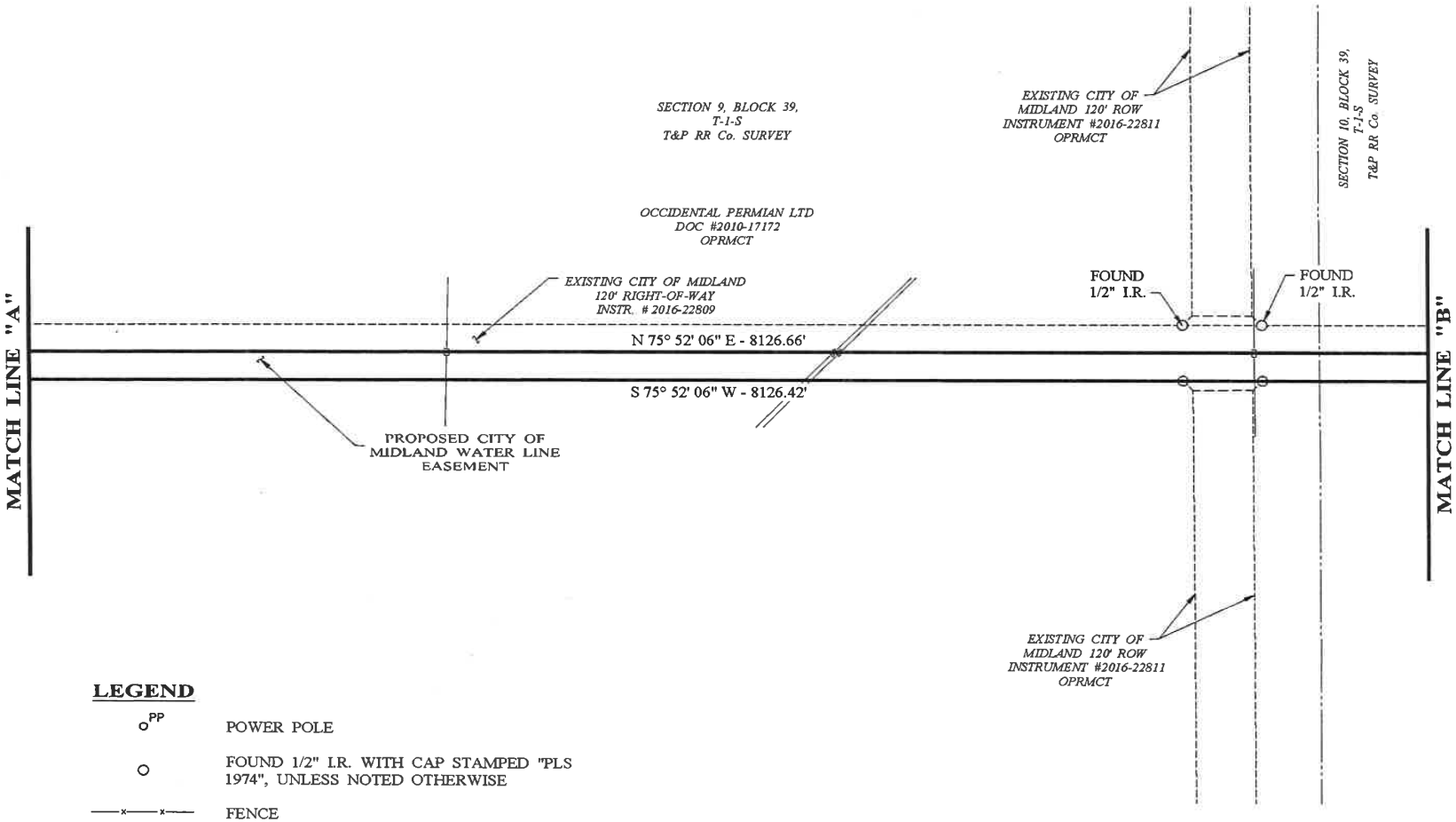


EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street Abilene, Texas 79601
325-686-5550
PE Firm Registration No. 1151
PG Firm Registration No. 50102
RPLS Firm Registration Nos. 10011800

18-7227



LEGEND

o PP	POWER POLE
o	FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
——x——x——	FENCE
——OU——	OVERHEAD UTILITY
——BP——	BURIED PIPE

N

100 0 300

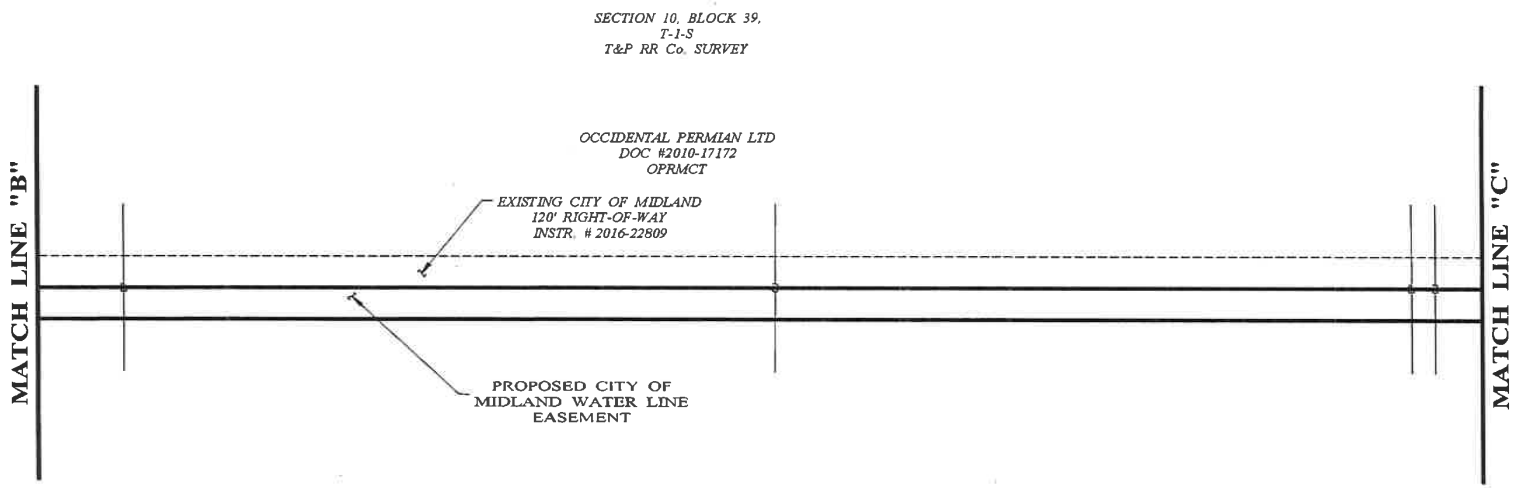
SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT OUT OF SECTIONS 9, 10, AND 11, BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY, MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-698-5560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50102
RPLS Firm Registration Nos. 10011900

18-7227

08/14/2020



LEGEND

o PP	POWER POLE
o	FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
——x——x——	FENCE
——OU——	OVERHEAD UTILITY
——BP——	BURIED PIPE



100 0 300

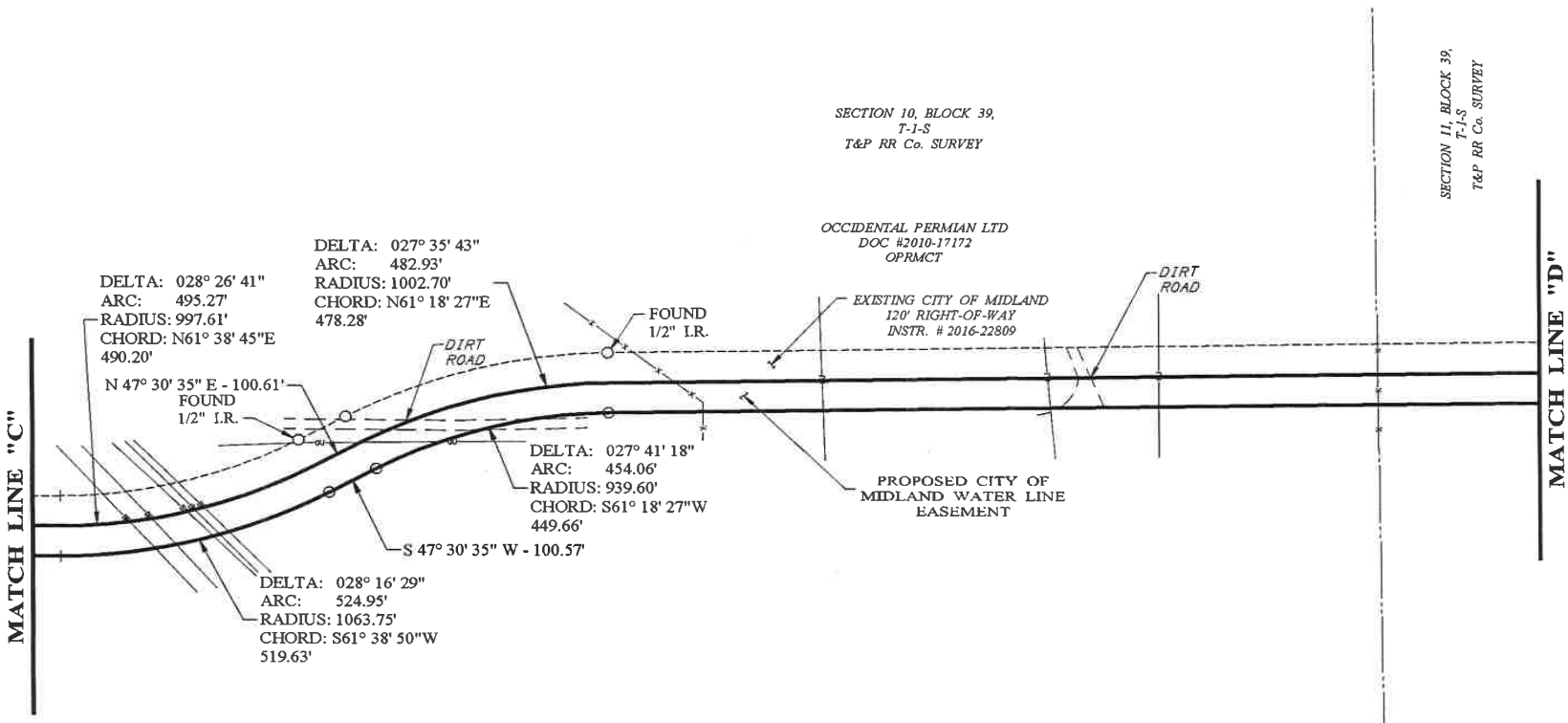
SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
Abilene, Texas 79601
325-668-5560
PE Firm Registration No. 1151
PG Firm Registration No. 50103
APLS Firm Registration Nos 10011900

18-7227

08/14/2020



LEGEND

o PP	POWER POLE
o	FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
——x——x——	FENCE
——OU——	OVERHEAD UTILITY
——BP——	BURIED PIPE

N

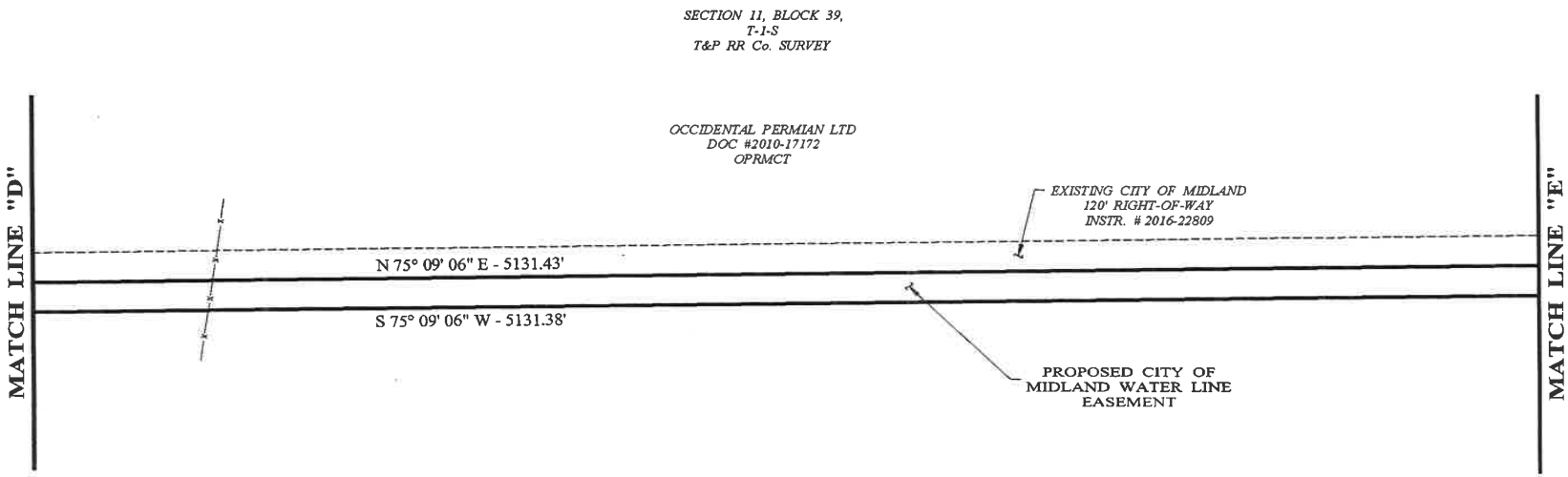
100 0 300

SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street Abilene, Texas 79601
325-668-5560
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration Nos. 10011900

18-7227



LEGEND

o PP	POWER POLE
o	FOUND 1/2" I.R. WITH CAP STAMPED "PLS 1974", UNLESS NOTED OTHERWISE
——x——x——	FENCE
——OU——	OVERHEAD UTILITY
——BP——	BURIED PIPE



100 0 300

SCALE IN FEET

EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
Abilene, Texas 79601
325-698-5560
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration Nos 10011900

18-7227

08/14/2020

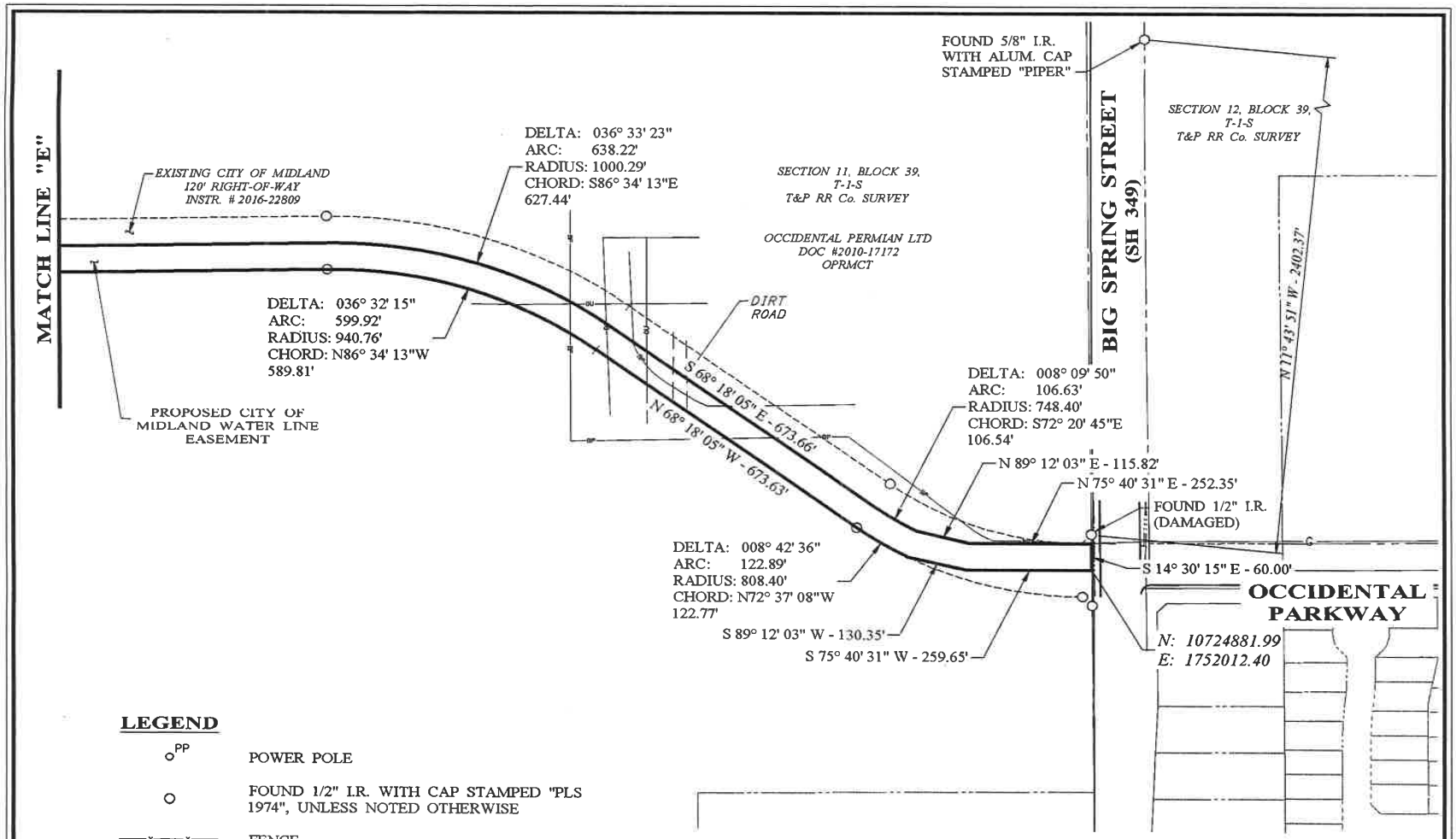


EXHIBIT "A" - PROPOSED CITY OF MIDLAND WATER LINE EASEMENT
PLAT SHOWING SURVEY OF A 22.21 ACRE EASEMENT
OUT OF SECTIONS 9, 10, AND 11,
BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY,
MIDLAND COUNTY, TEXAS

ENPROTEC/HIBBS & TODD, INC.
ENVIRONMENTAL AND CIVIL ENGINEERING
402 Cedar Street
325-698-5560
Abilene, Texas 79601
PE Firm Registration No. 1151
PG Firm Registration No. 50103
RPLS Firm Registration Nos. 10011900

18-7227

08/14/2020

Proposed Road Occidental Parkway

Electrical relocate		$	30,000.00
Fencing 32000'	4	$	128,000.00
(6) Cattle Guards	6500	$	39,000.00
(16) H Braces estimate		$	5,000.00
(6) Gates	150	$	900.00
Casing 6"/12"/16" 2600' total footage (13) crossings			
3 man crew per hour estimated 120 hours	110	$	13,200.00
3 man crew OT per hour estimated 30 hour	145	$	4,350.00
(1)Backhoe per week	2000	$	6,000.00
(2) Tackhoe per week estimated 2 weeks	5000	$	10,000.00
(1) Hydro vac per day	2500	$	12,500.00
(30) Line crossings	450	$	13,500.00
Welder, Combination, w/ Welding Rig estimated 40 hours	102	$	4,080.00
Welder, Combination, w/ Welding Rig - OT estimated 10 hours	133	$	1,330.00
Welder Helper estimated 40 hours	25	$	1,000.00
Welder Helper OT estimated 10 hours	37.5	$	375.00
Operator estimated 80 hours	45	$	3,600.00
Operator OT estimated 20 hours	67.5	$	1,350.00
Helper estimated 80 hours	29	$	2,320.00
Helper - OT estimated 20 hours	43.5	$	870.00

Total estimate $277,375.00

YOU ARE NOT AUTHORIZED TO FILE THIS OPINION OF RECORD INDEPENDENTLY OR AS AN ATTACHMENT TO ANY DOCUMENT

OPINION

DOWN THROUGH: November 8, 2019

DATE: November 25, 2019

EXACT LEGAL DESCRIPTION

A 44.59 acre easement located in Sections 9, 10, and 11, Block 39, T-1-S, T&P RR Co Survey, Midland County, Texas, and being more fully described in **Exhibit "A"**, which is attached hereto and included herein for all purposes.

My examination is based upon:

1. Plant Records of WEST TEXAS ABSTRACT & TITLE CO., INC.
2. PREVIOUS FILES: GF-
3. OTHER: Current run sheet.

I find record, fee simple title to be vested in: OCCIDENTIAL PERMIAN, LTD.

EXCEPTIONS

1. All visible and apparent easements and all underground easements, the existence of which may arise by unrecorded grant or by use.
2. Rights of parties in possession.
3. Rights of parties in possession under any unrecorded, written or oral lease agreements by and between the present owner and/or their predecessors in title as lessor and unknown persons as lessees covering any or the herein described property.
4. Any and all unrecorded leaseholds, rights of vendors and holders of security interests on personal property installed upon the property by tenants, and rights of tenants to remove trade fixtures at the expiration or the term of leases.
5. Visible and apparent easements.
6. Portion of the property that may lie within any roadway.
7. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the title that would be disclosed by an accurate and complete land survey or the land.
8. Affidavit executed by City of Midland to Billy Dickie dated March 31, 2010 and recorded April 16, 2010 in Document Number 2010-7070, Official Records of Midland County, Texas.
9. Restrictive Covenants in Deed executed by Scharbauer Minerals to South Curtis Ranch, LP dated May 4, 2010 and recorded May 5, 2010 in Document Number 2010-8402, Official Records of Midland County, Texas.
10. Right of Way executed by Occidental Permian LTD to Enterprise Crude Pipeline LLC dated September 21, 2011 and recorded October 13, 2011 in Document Number 2011-20677, Official Records of Midland County, Texas.
11. Right of Way executed by Occidental Permian LTD to Blue Stem Energy Assets LLC dated December 1, 2011 and recorded January 19, 2012 in Document Number 2012-1041, Official Records of Midland County, Texas.
12. Agreement executed by Occidental Permian LTD to WTG Gas Processing LP dated June 8, 2012 and recorded August 14, 2012 in Document Number 2012-17418, Official Records of Midland County, Texas.
13. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Centurion Pipeline GP INC and Centurion Pipeline LP dated August 14, 2012 and recorded August 30, 2012 in Document Number 2012-18883, Official Records of Midland County, Texas.
14. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Centurion Pipeline GP INC and Centurion Pipeline LP dated August 24, 2011 and recorded October 17, 2012 in Document Number 2012-22679, Official Records of Midland County, Texas.
15. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Lone Star NGL Asset GP LLC and Lone Star NGL Pipeline LP dated December 6, 2012 and

recorded January 10, 2013 in Document Number 2013-878, Official Records of Midland County, Texas.

16. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Coronado Midstream LLC dated February 24, 2014 and recorded March 21, 2014 in Document Number 2014-6253, Official Records of Midland County, Texas.
17. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Coronado Midstream LLC dated January 15, 2015 and recorded February 6, 2015 in Document Number 2015-2822, Official Records of Midland County, Texas.
18. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Rangeland Rio Pipeline LLC dated October 23, 2014 and recorded March 12, 2015 in Document Number 2015-5494, Official Records of Midland County, Texas.
19. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Diamondback E&P LLC dated June 1, 2016 and recorded June 24, 2016 in Document Number 2016-17455, Official Records of Midland County, Texas.
20. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to City of Midland Texas dated July 12, 2016 and recorded August 12, 2016 in Document Number 2016-22809, Official Records of Midland County, Texas.
21. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to City of Midland Texas dated July 12, 2016 and recorded August 12, 2016 in Document Number 2016-22811, Official Records of Midland County, Texas.
22. Right of Way executed by Oncor Electric Delivery Company LLC and RSP Permian LLC dated October 25, 2016 and recorded November 8, 2016 in Document Number 2016-31590, Official Records of Midland County, Texas.
23. Right of Way executed by Occidental Permian LTD to Enlink Energy GP LLC and Enlink North Texas Gathering LP dated January 1, 2017 and recorded June 14, 2017 in Document Number 2017-17684, Official Records of Midland County, Texas.
24. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Enlink Energy GP LLC and Enlink North Texas Gathering LP dated July 23, 2019 and recorded August 7, 2019 in Document Number 2019-24148, Official Records of Midland County, Texas.
25. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Parsley Energy LP and Parsley GP LLC dated July 29, 2019 and recorded August 20, 2019 in Document Number 2019-25499, Official Records of Midland County, Texas.
26. Donation Deed from Clarence Scharbauer Jr. to State of Texas recorded December 11, 2007 and recorded on Volume 2969, Page 295, Deed Records of Midland County, Texas.
27. Restrictive Covenants in Warranty Deed executed by South Curtis Ranch to Occidental Permian LTD, dated and recorded August 31, 2010 in Document No. 2010-17172, Official Records of Midland County, Texas.
28. Right of Way executed by Occidental Permian LTD to Lone Star NGL Pipeline LP dated June 4, 2012 and recorded June 15, 2012 in Document Number 2012-12571, Official Records of Midland County, Texas.
29. Right of Way executed by Occidental Permian LTD to Lone Star NGL Pipeline LP dated June 4, 2012 and recorded June 15, 2012 in Document Number 2012-12570, Official Records of Midland County, Texas.
30. Right of Way executed by Occidental Permian LTD to Lone Star NGL Pipeline LP dated June 4, 2012 and recorded June 15, 2012 in Document Number 2012-12572, Official Records of Midland County, Texas.
31. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Reliance Gathering LLC dated March 1, 2017 and recorded September 1, 2017 in Document Number 2017-26014, Official Records of Midland County, Texas.
32. Memorandum from Oxy USA Inc, High Sky Partners LLC, Occidental Permian LTD, Oxy Midstream Stategic Development LLC, Atty in Fact to Coronado Midstream LLC and Midmar Gas LLC dated August 1, 2017 and recorded October 19, 2018 in Document Number 2018-30559, Official Records of Midland County, Texas.
33. Deed executed by Diamondback E&P LLC, Diamondback O&G LLC, Cumberland & Western Resources LLC, Sushir LTD, Occidental Permian LTD, City of Midland, P Bar Parks Bell Ranch LLC, Fasken Land and Minerals LTD, Autry C. Stephens, and Western T Corporation to Rattler Midstream LLC dated November 29, 2018 and recorded November 30, 2018 in Document Number 2018-34998, Official Records of Midland County, Texas.
34. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Nustar Permian Transportation and Storage LLC dated July 9, 2019 and recorded August 20, 2019 in Document Number 2019-25518, Official Records of Midland County, Texas.
35. Memorandum of Lease executed by Oxy USA Inc to Sharyland Distribution and Transmission Services LLC dated September 12, 2014 and recorded November 10, 2014 in Document Number 2014-26498, Official Records of Midland County, Texas.

36. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Sunoco Logistics Partners Operations GP LLC and Sunoco Pipeline LP dated September 25, 2015 and recorded October 8, 2015 in Document Number 2015-26027, Official Records of Midland County, Texas.
37. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Sunoco Logistics Partners Operations GP LLC and Sunoco Pipeline LP dated March 9, 2016 and recorded March 29, 2016 in Document Number 2016-8409, Official Records of Midland County, Texas.
38. Right of Way executed by Ceniza Air LLC to Sharyland Utilities LP dated August 2, 2016 and recorded August 15, 2015 in Document Number 2016-22886, Official Records of Midland County, Texas.
39. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Oncor Electric Delivery Company LLC dated July 5, 2016 and recorded August 15, 2016 in Document Number 2016-22893, Official Records of Midland County, Texas.
40. Right of Way executed by Occidental Permian LTD to Enlink North Texas Gathering LP, dated September 9, 2016 and recorded September 28, 2016 in Document Number 2016-27690, Official Records of Midland County, Texas.
41. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to RSP Permian LCC dated December 21, 2016 and recorded February 13, 2017 in Document Number 2017-4463, Official Records of Midland County, Texas.
42. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Navitas Midstream Midland Basin LLC dated May 1, 2017 and recorded July 21, 2017 in Document Number 2017-21619, Official Records of Midland County, Texas.
43. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to City of Midland and Courtney Sharp dated July 31, 2017 and recorded October 6, 2017 in Document Number 2017-29514, Official Records of Midland County, Texas.
44. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to West Texas LPG Pipeline Limited Partnership and Oneok Permian NGL Operating Company LLC dated March 1, 2018 and recorded April 18, 2018 in Document Number 2018-10970, Official Records of Midland County, Texas.
45. Right of Way executed by Occidental Permian LTD and Occidental Permian Manager LLC to Nustar Permian Transportation and Storage LLC dated May 30, 2018 and recorded July 26, 2018 in Document Number 2018-21475, Official Records of Midland County, Texas.
46. Correction Deed executed by Scharbauer Minerals LP to South Curtis Ranch LP dated August 30, 2010 and recorded August 31, 2010 in Document Number 2010-17171, Official Records of Midland County, Texas.

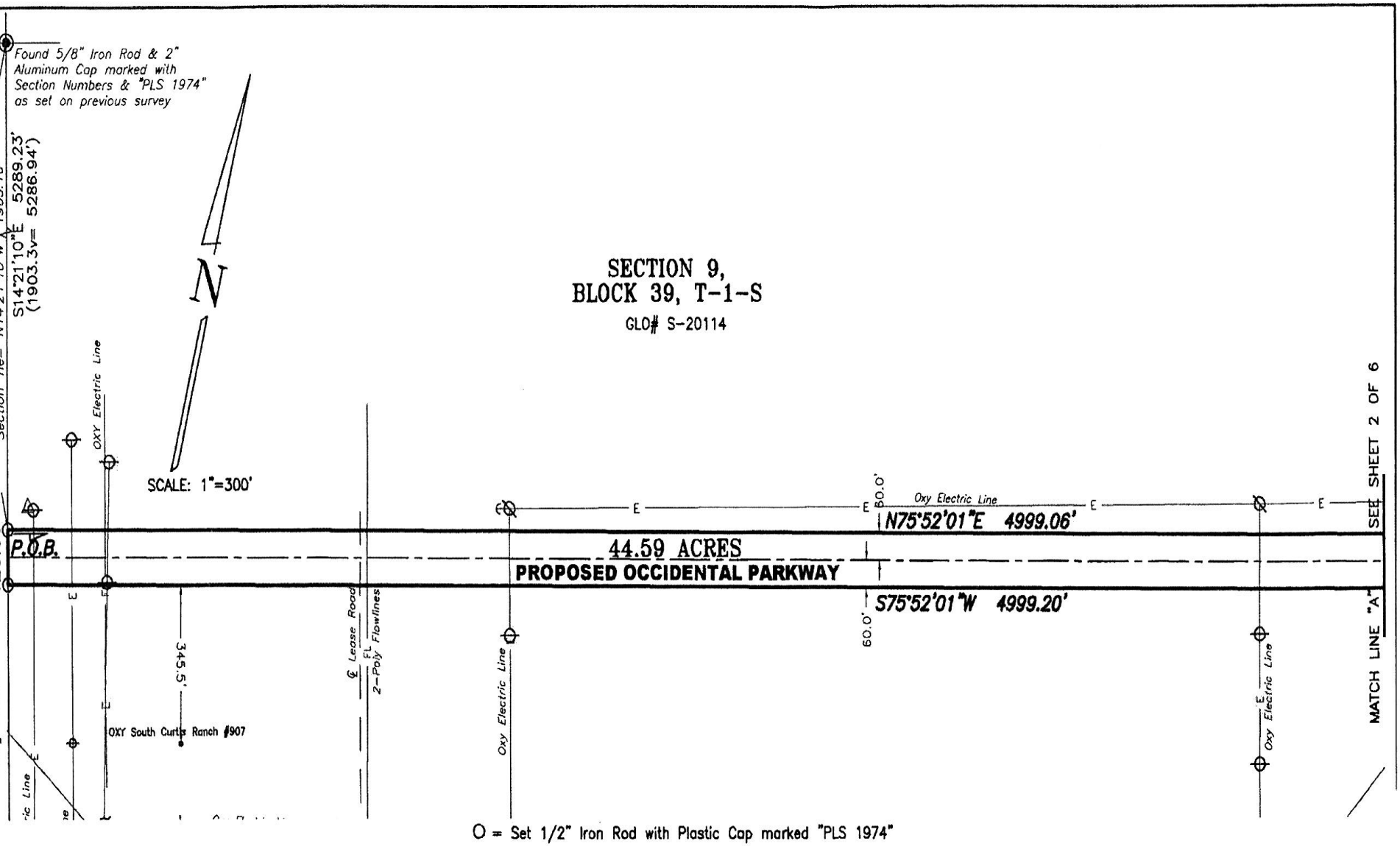
REQUIREMENTS

FOR INFORMATION PURPOSES ONLY: Our Office has performed a twenty-four (24) month deed search on the subject property and finds the following conveyance of record: (1) Warranty Deed executed by South Curtis Ranch, LP to Occidental Permian LTD, dated and recorded August 31, 2010 in Document No. 2010-17172, Official Records of Midland County, Texas; (2) Easement from Occidental Permian Ltd. recorded under Instrument Numbers 2016-22809, 2016-22811 and 2017-29514, Official Records of Midland County, Texas.

COMMENTS

1. **This opinion does not cover title to or effect of any oil, gas and/or minerals exploration or development, in, on and under the property herein described.**
2.

J. Brian Martin,
Examining Attorney



O = Set 1/2" Iron Rod with Plastic Cap marked "PLS 1974"

EXHIBIT "A"–PROPOSED OCCIDENTAL PARKWAY

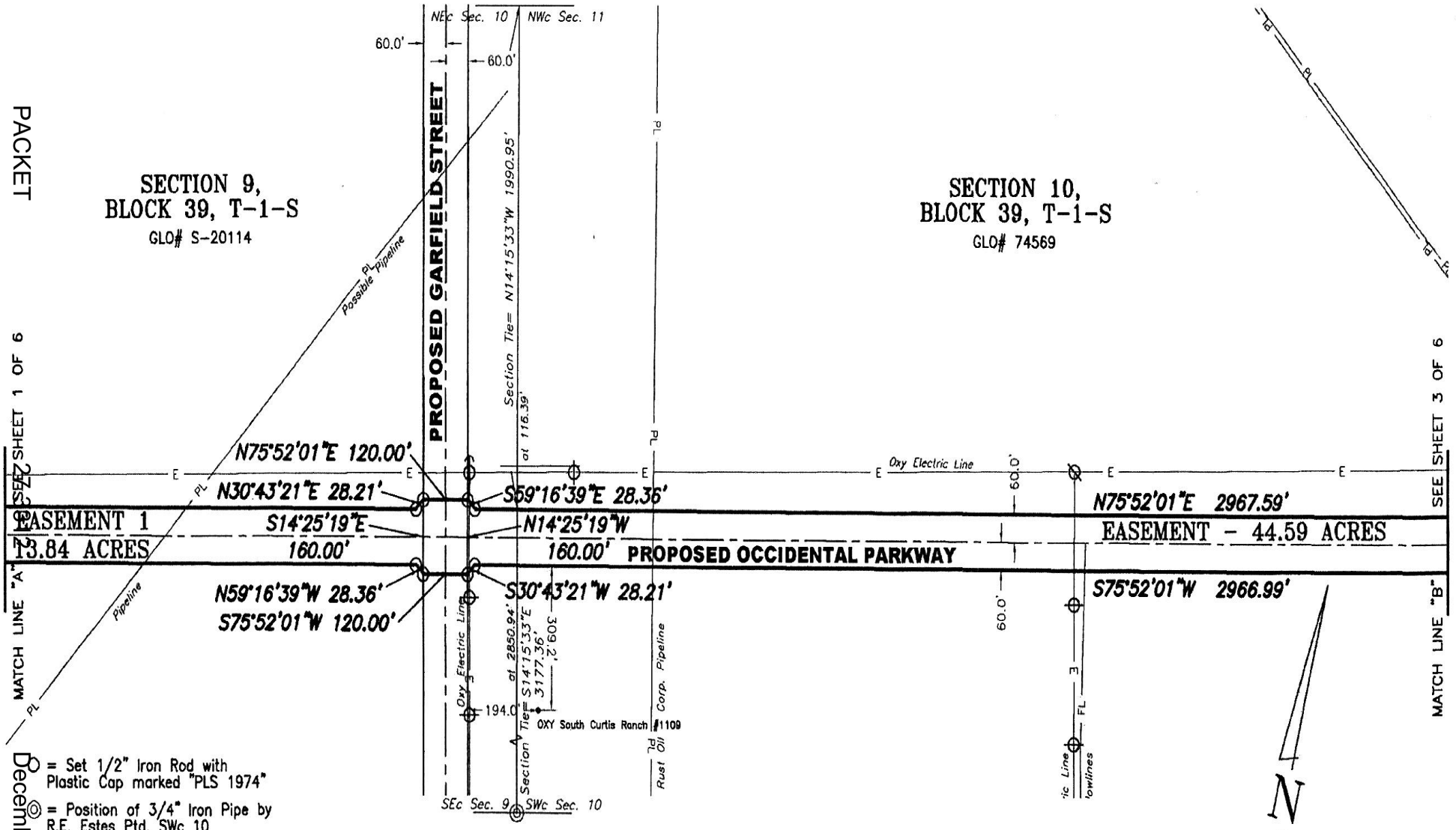
PLAT SHOWING SURVEY OF A 44.59 ACRE EASEMENT LOCATED IN SECTIONS 9, 10, AND 11, BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY, MIDLAND COUNTY, TEXAS

PIPER SURVEYING P.O. BOX 60432; MIDLAND, TEXAS 79711; 432.550.7810; FIRM NO. 10155200

228109

Drawing File: PSC-OXYRoads83c.Dwg; Crd File: OXY_ROADS83c.Crd; Drawn by: Gene M. Rodriguez; Scale: 1"=300'; Date: 3/7/2016

December 15, 2020



= Set 1/2" Iron Rod with Plastic Cap marked "PLS 1974"

◎ = Position of 3/4" Iron Pipe by R.E. Estes Ptd. SWc 10

EXHIBIT "A"–PROPOSED OCCIDENTAL PARKWAY

PLAT SHOWING SURVEY OF A 44.59 ACRE EASEMENT LOCATED IN SECTIONS 9, 10, AND 11, BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY, MIDLAND COUNTY, TEXAS

SCALE: 1"=300'

PIPER SURVEYING P.O. BOX 60432; MIDLAND, TEXAS 79711; 432.550.7810; FIRM NO. 10155200

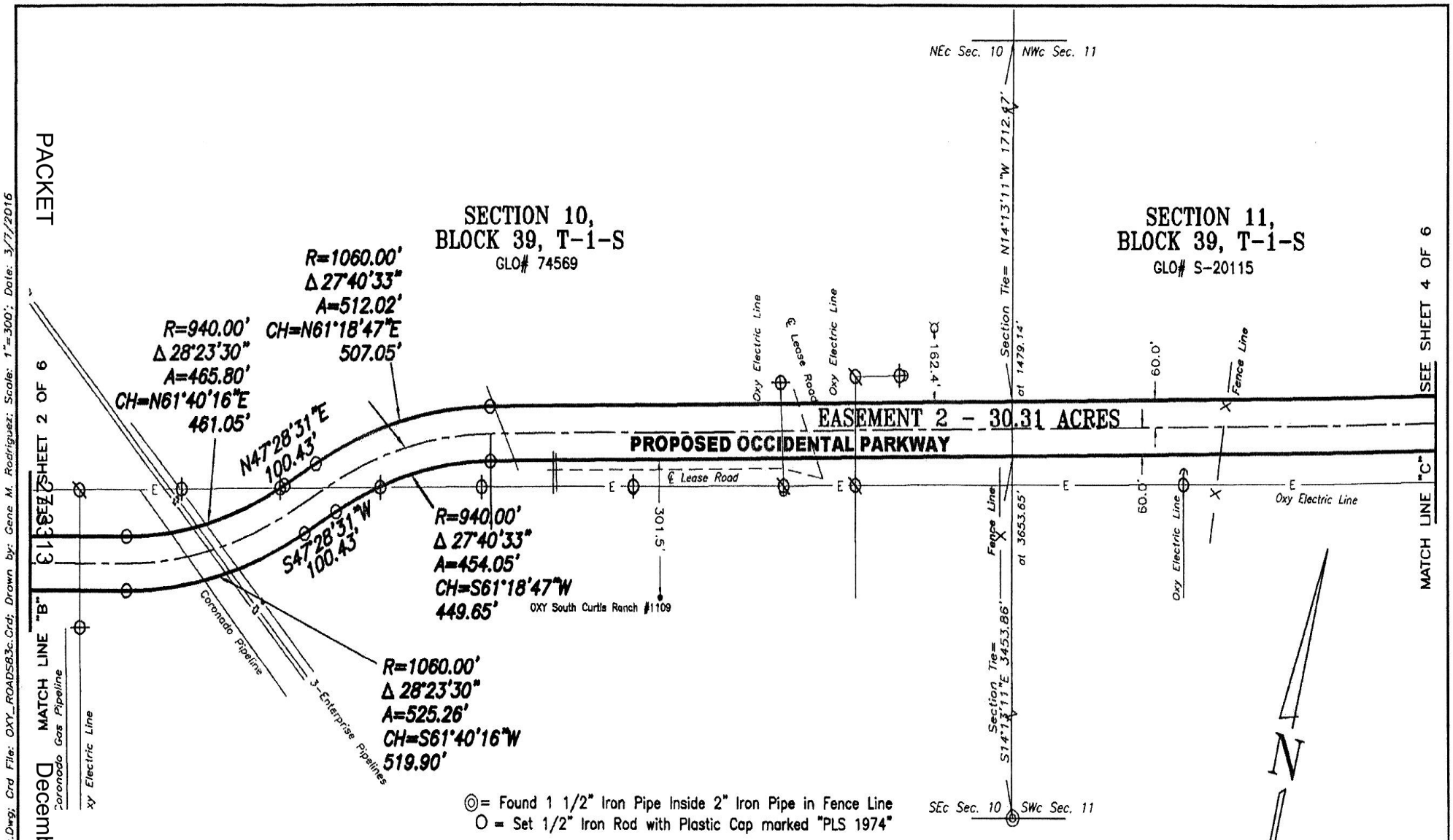
22809

SHEET 2 OF 6

PACKET

December 15, 2020

Drawing File: PSC-OXYRoads83c.Dwg; Crd File: OXY_ROADS83c.Crd; Drawn by: Gene M. Rodriguez; Scale: 1"=300'; Date: 3/7/2016



◎= Found 1 1/2" Iron Pipe Inside 2" Iron Pipe in Fence Line
O = Set 1/2" Iron Rod with Plastic Cap marked "PLS 1974"

EXHIBIT "A"-PROPOSED OCCIDENTAL PARKWAY

PLAT SHOWING SURVEY OF A 44.59 ACRE EASEMENT LOCATED IN SECTIONS 9, 10, AND 11, BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY, MIDLAND COUNTY, TEXAS

PIPER SURVEYING P.O. BOX 60432; MIDLAND, TEXAS 79711; 432.550.7810; FIRM NO. 10155200

22819

PACKET
Drawing File: PSC-OXY\Roads83c.Dwg; Crd File: OXY_ROADS83c.Crd; Drawn by: Gene M. Rodriguez; Scale: 1"=300'; Date: 3/7/2016
December 15, 2020

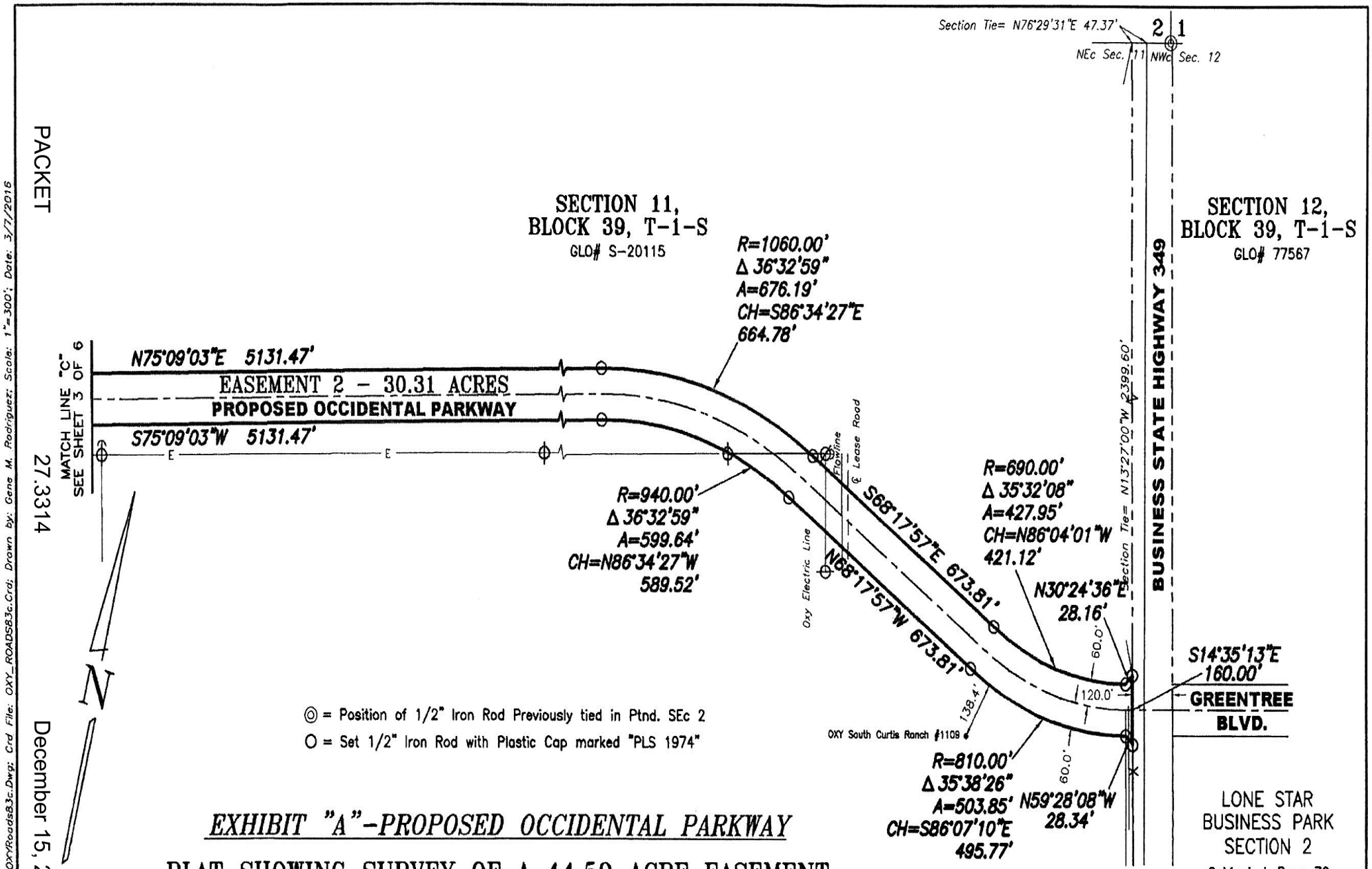


EXHIBIT "A"-PROPOSED OCCIDENTAL PARKWAY

PLAT SHOWING SURVEY OF A 44.59 ACRE EASEMENT LOCATED IN SECTIONS 9, 10, AND 11, BLOCK 39, T-1-S, T.&P. RR. CO. SURVEY, MIDLAND COUNTY, TEXAS

PIPER SURVEYING P.O. BOX 60432; MIDLAND, TEXAS 79711; 432.550.7810; FIRM NO. 10155200

22809

PACKET 27.3314 December 15, 2020

Drawing File: PSC-OXYRoads83c.Dwg; Crd File: OXY_ROADS83c.Crd; Drawn by: Gene M. Rodriguez; Scale: 1"=300'; Date: 3/7/2016

EXHIBIT "A"–PROPOSED OCCIDENTAL PARKWAY

LEGAL DESCRIPTION OF A 44.59 ACRE EASEMENT LOCATED IN SECTIONS 9, 10, AND 11, BLOCK 39, T–1–S, T.&P. RR. CO. SURVEY, MIDLAND COUNTY, TEXAS

22809

Boundary of Easement being further described by metes and bounds as follows:

BEGINNING at (N= 10,721,423.43' and E= 1,736,502.76') a 1/2" iron rod with plastic cap marked "PLS 1974" set on the West line of of said Section 9 at the Northwest corner of this easement, from whence a 5/8" iron rod & 2" aluminum cap marked with section numbers and "PLS 1974" previously set at the Northwest corner of said Section 9 bears N14°21'10"W, a distance of 1963.10 feet;

THENCE N75°52'01"E, a distance of 4999.06 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an interior corner of this easement;

THENCE N30°43'21"E, a distance of 28.21 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an exterior corner of this easement;

THENCE N75°52'01"E, a distance of 120.00 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an exterior corner of this easement;

THENCE S59°16'39"E, a distance of 28.36 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an interior corner of this easement;

THENCE N75°52'01"E, at 116.39 feet pass the common corner of said Sections 9 and 10 continuing for a total distance of 2967.59 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at a point of curvature of this easement;

THENCE around a curve to the left in a Northeasterly direction with a radius of 940.00 feet, a delta angle of 28°23'30", an arc length of 465.80 feet and a chord distance of 461.05 feet which bears N61°40'16"E to a 1/2" iron rod with plastic cap marked "PLS 1974" set point of tangency of this easement;

THENCE N47°28'31"E, a distance of 100.43 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at point of curvature of this easement;

THENCE around a curve to the right in a Northeasterly direction with a radius of 1060.00 feet, a delta angle of 27°40'33", an arc length of 512.02 feet and a chord distance of 507.05 feet which bears N61°18'47"E to a 1/2" iron rod with plastic cap marked "PLS 1974" set point of tangency of this easement;

THENCE N75°09'03"E, at 1479.14 feet pass the common corner of said Sections 10 and 11 continuing for a total distance of 5131.47 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at a point of curvature of this easement;

THENCE around a curve to the right in a Southeasterly direction with a radius of 1060.00 feet, a delta angle of 36°32'59", an arc length of 676.19 feet and a chord distance of 664.78 feet which bears S86°34'27"E to a 1/2" iron rod with plastic cap marked "PLS 1974" set point of tangency of this easement;

THENCE S68°17'57"E, a distance of 673.81 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at point of curvature of this easement;

THENCE around a curve to the left in a Southeasterly direction with a radius of 690.00 feet, a delta angle of 35°32'08", an arc length of 427.95 feet and a chord distance of 421.12 feet which bears S86°04'01"E to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an interior corner of this easement;

THENCE N30°24'36"E, a distance of 28.16 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at the Northeast corner of this easement, from whence the Northeast corner of said Section 11 bears N13°27'00"W, a distance of 2399.60 feet and N76°29'31"E, a distance of 47.37 feet;

THENCE S14°35'13"E with the West right–of–way line of Business State Highway 349, a distance of 160.00 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at the Southeast corner of this easement;

THENCE N59°28'08"W, a distance of 28.34 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an interior corner of this easement;

THENCE around a curve to the right in a Northwesterly direction with a radius of 810.00 feet, a delta angle of 35°38'26", an arc length of 503.85 feet and a chord distance of 495.77 feet which bears N86°07'10"W to a 1/2" iron rod with plastic cap marked "PLS 1974" set a point of tangency of this easement;

THENCE N68°17'57"W, a distance of 673.81 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at point of curvature of this easement;

CONTINUED ON SHEET 6 OF 6

Drawing file: P:\SURVEY\0000SOJCUNG\ LD file: SAT_RUNWOOSOJCUNG; Drawn by: Gene M. Rodriguez, Scale: 1"=300', Date: 3/1/2016, Revised: 9/1/16 by GMR

EXHIBIT "A"–PROPOSED OCCIDENTAL PARKWAY

LEGAL DESCRIPTION OF A 44.59 ACRE EASEMENT LOCATED IN SECTIONS 9, 10, AND 11, BLOCK 39, T–1–S, T.&P. RR. CO. SURVEY, MIDLAND COUNTY, TEXAS

22809

CONTINUED FROM SHEET 5 OF 6

THENCE around a curve to the left in a Northwesterly direction with a radius of 940.00 feet, a delta angle of 36°32'59", an arc length of 599.64 feet and a chord distance of 589.52 feet which bears N86°34'27"W to a 1/2" iron rod with plastic cap marked "PLS 1974" set at a point of tangency of this easement;

THENCE S75°09'03"W, at 3653.65 feet pass the common line of said Sections 9 and 10 continuing for a total distance of 5131.47 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at a point of curvature of this easement;

THENCE around a curve to the left in a Southwesterly direction with a radius of 940.00 feet, a delta angle of 27°40'33", an arc length of 454.05 feet and a chord distance of 449.65 feet which bears S61°18'47"W to a 1/2" iron rod with plastic cap marked "PLS 1974" set a point of tangency of this easement;

THENCE S47°28'31"W, a distance of 100.43 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at point of curvature of this easement;

THENCE around a curve to the right in a Southwesterly direction with a radius of 1060.00 feet, a delta angle of 28°23'30", an arc length of 525.26 feet and a chord distance of 519.90 feet which bears S61°40'16"W to a 1/2" iron rod with plastic cap marked "PLS 1974" set at a point of tangency of this easement;

THENCE S75°52'01"W, at 2850.94 feet pass the common line of said Sections 9 and 10 continuing for a total distance of 2966.99 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an interior corner of this easement;

THENCE S30°43'21"W, a distance of 28.21 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an exterior corner of this easement;

THENCE S75°52'01"W, a distance of 120.00 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an exterior corner of this easement;

THENCE N59°16'39"W, a distance of 28.36 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at an interior corner of this easement;

THENCE S75°52'01"W, a distance of 4999.20 feet to a 1/2" iron rod with plastic cap marked "PLS 1974" set at the Southwest corner of this easement;

THENCE N14°21'10"W with the West line of said Section 9, a distance of 120.00 feet to the PLACE OF BEGINNING.

Easement contains 44.59 acres of land.

Bearings are relative to the State Plane Coordinate System 1983/86 NAD, Central Zone. Distances are Grid Distances.

I, J. Stan Piper, Professional Land Surveyor do hereby certify that this plat is true and correct to the best of my knowledge and ability as surveyed on the ground on February 18, 2016.

J. Stan Piper
Regeistered Professional Land Surveyor #1974

STATE OF TEXAS
REGISTERED
J. STAN PIPER
1974
PROFESSIONAL
LAND SURVEYOR

Prepared for:
City of Midland
%Parkhill, Smith & Cooper, Inc.
Attn.: Eric West
1700 W. Wall Street, Suite 100
Midland, Texas 79701

Drawing file: P:\SURVEYING\2016\16000SERIES\16022\DWG\16022_EXH_PARKWAY.dwg; Last Plotted: Jan 18, 2016 - 10:41am; Drawn by: Gene M. Rodriguez; Scale: 1"=300'; Date: 3/17/2016; Revised: 4/11/16 by GMR

City Council Meeting

Item Number: 28

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Elizabeth Shaughnessy, Senior Planner

Subject: AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE A 19.70-ACRE TRACT OF LAND OUT OF SECTION 30, BLOCK 39, T-1-S, T&P RR CO. SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS, FROM MF-16, MULTIPLE-FAMILY DWELLING DISTRICT TO PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT (GENERALLY LOCATED ON THE SOUTH SIDE OF PRINCETON AVENUE, APPROXIMATELY 824 FEET WEST OF NORTH MIDLAND DRIVE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Purpose:

The applicant, Midland Community Development Corporation, is requesting a Zone Change from MF-16, Multiple Family Dwelling District, to PD, Planned Development District for a Housing Development, to advance the development of a master-planned community consisting of single-family houses and townhouses.

Recommended City Council Action:

Approve

Fiscal Impact:

This proposal does not have a significant financial impact to the city.

Discussion:

Current Zoning:

MF-16, Multiple Family Dwelling District (Ordinance No. 10040).

Surrounding Zoning and Land Use:

The properties to the north, east, and west are zoned SF-1, Single Family Dwelling District, and the location of vacant land and residences. The properties to the south are zoned SF-1, Single Family Dwelling District, and SF-2, Single Family Dwelling District, and the location of residences.

Analysis:

The applicant, Midland Community Development Corporation, is requesting to rezone this property to develop a master-planned community consisting of single-family dwellings and townhomes, known as Hillcrest Village. The applicant is requesting this zone change to adopt a new site plan (Exhibit B).

The proposed site plan illustrates 90 lots with one common area. The subdivision shows five (5) lots that will meet the lot dimensions of the SF-2 Single Family Dwelling District; sixty-three (63) lots that will meet the lot dimensions of the SF-3 Single Family Dwelling District; and twenty-two (22) lots that will meet the lot dimensions of the TH, Townhouse (Attached) Dwelling District. The original zoning before the last zone change was SF-1, in part, that would allow for a 4.8 dwellings per acre; however, they are proposing a residential density of 4.6 dwellings per acer. The proposed site plan shows two access points to the development, one off Princeton Avenue and the second off Cuthbert Avenue. The site plan also Off-street parking spaces will be provided per Zoning Ordinance requirements in addition to a two-car attached garage. However, the applicant is requesting the ability to provide either a one or two car garage. The proposed setbacks for each lot will be as follows:

Front yard setback: 20 feet
Front yard setback for cul-de-sac lot: 15 feet
Side yard setback for interior lot: 5 feet
Side yard setback for corner lot: 10 feet
Rear yard setback for one story structure: 10 feet
Rear yard setback for two-story structure: 15 feet

These setbacks are all in compliance with the Zoning Ordinance, except for the rear yard setback for a two-story structure, which requires a 20-foot setback, to which the applicant has stated that they will conform.

The maximum building height of the structures will be limited to 42 feet and 2 stories. The site plan also states that 6-feet wood fencing will be provided as screening. Per our current zoning ordinance, screening must consist of masonry and be at least 8-feet in height.

The applicant will be required to adhere to the site plan review standards outline within the City of Midland Zoning Ordinance Section 5.04: - Residential Zoning District Dimensional Regulations Chart as well as Chapter 9, Landscape Regulations for future landscaping.

This proposed project has been circulated to and reviewed by respective City departments for internal review and their comments, conditions, and requirements are as follows:

Building: (Approved)

No issues. All future structures must adhere to the 2018 International Building Codes, the 2015 International Energy Code, the 2017 NEC requirements, the 2015 International Fire Codes, local city ordinances, zoning requirements, established setbacks, and floodplain requirements if necessary.

Code: (Approved)

No Oil and Gas issues.

Engineering: (Approved)

No objection to zone change.

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

Fire: (Approved)

No objections.

Transportation: (Approved)

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

No objection to zone change.

Planning:

This request has circulated to and reviewed by all pertinent City departments for internal review and has received no objections.

The Tall City Tomorrow Comprehensive Plan future land use map calls for Urban-Medium Neighborhood Center uses at this location. The Urban-Medium Neighborhood Center classification calls for diverse complementary uses such as small-scale commercial, office, and civic, all being surrounded by a mix of housing types. This promotes the creation of neighborhood

centers or villages.

This request is in compliance with the Tall City Tomorrow Comprehensive Plan, Chapter 3 An Integrated Land Use Vision, Principle 4, “Land use policies and regulations should support diverse housing choices.” (Tall City Tomorrow, Page 58). This request will allow for more diverse housing types, which will help build a mix of entry-level housing options for the City of Midland.

This request was recommended for approval with a 5-2 vote at the October 19, 2020 Planning and Zoning Commission meeting with the amendment that the rear yard seatback be 20 feet to comply with current zoning ordinance requirements and that the developer shall have the option to provide one or two-car garages per lot; if a one-car garage is provided, an additional parking spot must also be provided. This request was approved at the November 17, 2020 City Council meeting.

Staff recommends approval of the zone change from MF-16, Multiple Family Dwelling District, to PD, Planned Development District for a Housing Development, subject to conditions A through H.

Conditions:

A. **That the use and development shall conform to the regulations of the SF-3, Single Family Dwelling District, except as stated below.**

B. **That the use and development of the property shall conform to the site plan, which is attached hereto and incorporated herein as Exhibit B.**

C. **That the use and development of Tract 1 as shown in Exhibit C shall conform to the regulations of the SF-2 Single Family Dwelling District.**

D. **That the use and development of Tract 2 as shown in Exhibit C shall conform to the regulations of the SF-3, Single Family Dwelling District.**

E. **That the use and development of Tract 3 as shown in Exhibit C shall conform to the regulations of the TH, Townhouse (Attached) Dwelling District.**

F. **That the rear yard setback for a two story structure shall be 20 feet.**

G. **That the residential structures shall not exceed two stories and 42 feet in height.**

H. **That each dwelling unit on the Property shall have a one- or two-car enclosed garage; provided, however, that if a dwelling unit has a one-car enclosed garage, the dwelling unit shall also have an additional off-street parking space.**

Letters of Objection:

As of November 11, 2020, staff has received nine (9) letters of objections, for a total of 6%

objections within the 200-foot notification area.

Attachments:

Metes and Bounds (Exhibit A)
Site Plan (Exhibit B)
Site Layout (Exhibit C)
Application
Maps
Letters of Objection
Objection Map
Ordinance No. 10040



City Manager's Office

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE A 19.70-ACRE TRACT OF LAND OUT OF SECTION 30, BLOCK 39, T-1-S, T&P RR CO. SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS, FROM MF-16, MULTIPLE-FAMILY DWELLING DISTRICT TO PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT (GENERALLY LOCATED ON THE SOUTH SIDE OF PRINCETON AVENUE, APPROXIMATELY 824 FEET WEST OF NORTH MIDLAND DRIVE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION

WHEREAS, the City Planning and Zoning Commission and the Governing Body of the City of Midland, in compliance with the City Charter, the City Code, and State law, have given the requisite notices by United States mail, publication and otherwise; and after a full and fair hearing to all of the property owners generally and particularly to those interested persons situated in the affected area and in the vicinity thereof, the Governing Body finds that the public health, safety and general welfare will be best served by rezoning a 19.70-acre tract of land out of Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas, said tract being more specifically described by metes and bounds in Exhibit "A", which is attached hereto and incorporated herein (the "Property") to PD, Planned Development District for a Housing Development and adopting a site plan therefor, as set out hereinafter;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Zoning District Map of the City of Midland, Texas, is hereby amended to rezone the Property from MF-16, Multiple-Family Dwelling District to PD, Planned Development District for a Housing Development.

SECTION TWO. That the base zoning districts to which the use and development of the Property shall conform, except as modified by Section Three of this ordinance, are as

follows:

A. For the portion of the Property identified as "Tract 1" in Exhibit "C", which is attached hereto and incorporated herein for all purposes, SF-2, Single-Family Dwelling District;

B. For the portion of the Property identified as "Tract 2" in Exhibit "C", SF-3, Single-Family Dwelling District;

C. For the portion of the Property identified as "Tract 3" in Exhibit "C", TH, Townhouse (Attached) Dwelling District; and

D. For the remainder of the Property that is not more specifically described above in this Section, SF-3, Single-Family Dwelling District.

SECTION THREE. That a site plan, which is attached hereto as Exhibit "B" and incorporated herein for all purposes, is hereby adopted, and the use and development of the Property shall be subject to the following conditions and restrictions:

A. That the Property shall conform to the site plan attached hereto as Exhibit "B".

B. That the minimum rear yard setback for a two-story structure shall be 20 feet.

C. That residential structures shall not exceed two stories and 42 feet in height.

D. That each dwelling unit on the Property shall have a one- or two-car enclosed garage; provided, however, that if a dwelling unit has a one-car enclosed garage, the dwelling unit shall also have an additional off-street parking space.

SECTION FOUR. That the definitions given in the zoning regulations contained in the City Code of the City of Midland, Texas, shall be applicable to such of those terms as are used herein.

SECTION FIVE. The provisions of this ordinance are to be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as that covered herein; provided, however, that all prior ordinances or parts of ordinances inconsistent with or in conflict with any of the provisions of this ordinance are hereby expressly repealed to the extent of any such inconsistency or conflict.

SECTION SIX. If any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of this ordinance. The Council of the City of

Midland hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SECTION SEVEN. The penalty for violation of this ordinance shall be in accordance with the general penalty provisions contained in Section 1-3-1 of the City Code of Midland, Texas, which provides for a fine not exceeding two thousand dollars ($2,000.00).

SECTION EIGHT. The City Secretary is hereby authorized and directed to publish the descriptive caption of this ordinance in the manner and for the length of time prescribed by the law as an alternative method of publication.

The above and foregoing ordinance was duly proposed, read in full and adopted on first reading, the _____ day of _____, A.D., 2020; and passed to second reading on motion of Council member _____, seconded by Council member _____, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

The above and foregoing ordinance was read in full and finally adopted by the following vote upon motion of Council member _____, seconded by Council member _____, on the _____ day of _____, A.D., 2020, at a regular meeting of the City Council:

Council members voting "AYE":

Council members voting "NAY":

PASSED AND APPROVED THIS _____ day of _____, A.D., 2020.

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

MAVERICK
ENGINEERING · SURVEY · WATER RESOURCES
1909 West Wall Street, Suite K · Midland, TX 79701
Tel: 432.262.0999 · Fax: 432.262.0989 · maverick-eng.com
ENGINEER FIRM #: F-15089 | SURVEY FIRM #: 10194514

METES & BOUNDS DESCRIPTION

Of a Proposed 19.70 Acre tract of land out of Hillcrest Acres, a subdivision of Midland County, Texas, recorded in Volume 87, page 272, Deed Records of Midland County, Texas, more precisely described as follows:

Beginning at a 1/2" IPF for the most Northeast Corner of Lot 24 of Hillcrest Acres, at the Right of Way of Princeton Avenue (N 10694755.64, E 1736678.11, Texas State Plane Coordinate System, Central Zone, NAD 1983);

Thence South 14°06'39" East 257.72 Feet along and with the west Boundary of Lot 23 to a 1/2" IPS Cap FIRM 10194514 for an "L" Corner of this survey;

Thence North 75°42'59" East at 164.51 Feet to a 1/2" IPF for an interior corner of this survey;

Thence North 75°28'27" East 163.79 Feet to a 1/2" IPF for the Northeast Corner of the remainder of the North half of Lot 22, at the Southwest corner of a tract described in Volume 1480, Page 376, DRMCT and the most Easterly Northeast Corner of this survey;

Thence South 14°06'49" East 367.68 Feet to a 1/2" IPF with broken cap for the Southeast Corner of the North Half of Lot 22 Hillcrest Acres;

Thence South 75°51'13" West 163.99 Feet to a 1/2" IPF at the Northwest Corner of the South half of Lot 22, Hillcrest Acres;

Thence South 14°04'23" East 374.07 Feet along and with the East Boundary of Lot 23 to a 1/2" IPF for the most Easterly Southeast Corner of this Survey at the Northeast Corner of a tract described in Document # 2018-OPRMCT;

Thence South 75°24'24" West 164.08 Feet to a 1/2" IPF for the Northwest Corner of a tract described Document # 2018-24381, and the Northeast Corner of a tract described in Document # 2018-24381, OPRMCT;

Thence South 75°46'11" West 163.29 Feet to a 1/2" IPF for the Northwest Corner of a tract described Document # 2018-24381 OPRMCT;

EXHIBIT "A"

Thence South 14°10'27" East 262.70 Feet to a 1/2" IPF for most Southerly Southeast Corner of this survey, also the Southwest corner of a tract described in Document # 2018-24381 OPRMCT; a 1/2 IRF bears South 14°10'27" East 2.88 Feet;

Thence South 75°12'12" West 66.69 Feet to a 1/2" IPF for a Point of Intersection on the South Line of this Survey, at the Southeast Corner of Lot 25, Hillcrest Acres and the Southeast corner of a 0.36 acre tract described in Volume 2440, Page 798 OPRMCT;

Thence North 13°35'42" West 165.04 Feet to a 1/2" IPF, bent, an interior corner of this survey, and the Northeast corner of 0.36 acre tract described in Volume 2440, Page 798 OPRMCT;

Thence South 75°042'59" West 95.92 Feet to a 1/2" IPF for the Northwest Corner of said 0.36 acre tract and the most Northerly Northwest Corner of the South Half of Lot 25 of Hillcrest Acres;

Thence South 14°15'45" East 165.13 Feet to a 1/2" IPF for the Southeast Corner of Lot 26 and the Southwest corner of said 0.36 acre tract;

Thence South 75°28'03" West 327.18 Feet to a 1/2" IRF W/faded Cap for the Southwest Corner of the South Half of Lot 27 Hillcrest Acres, and the most Southerly Southwestern Corner of this survey;

Thence North 14°18'53" West 238.28 Feet to a 1/2" IPS Cap FIRM 10194514 for an interior corner of this survey, and the Northeast corner of a 0.90 acre tract described in Volume 1317, Page 525 OPRMCT;

Thence South 75°42'59" West 162.18 Feet to a 1" Steel Pipe for the most Northerly Southwestern Corner of this survey and the Northwest Corner of said 0.90 acre tract;

Thence North 15°03'36" West 400.86 Feet to a 1/2" IPF for the Northwest Corner of the South Half of Lot 28, Hillcrest Acres, and the most Southerly Northwestern Corner of this survey;

Thence North 75°42'59" East 331.39 Feet to a 1/2" IPF with faded cap for an interior corner of this survey;

Thence North 14°18'53" West 488.99 Feet a 1/2" IPS Cap FIRM 10194514 for a Northwestern corner of this survey, and the Southwestern corner of a 0.52 acre tract described in Volume 2813, page 530 OPRMCT, from which a 1/2" IPF with Schumann Cap bears South 17°00'15" East 10.01 Feet;

Thence North 75°42'59" East 164.21 Feet to a 1/2" IPF with faded Cap for the most Southerly Northeastern Corner of this survey and the Northwest Corner of said 0.90 acre tract;

Thence South 14°15'45" East 55.23 Feet to a ½" IPS Cap FIRM 10194514 for an interior corner of this survey, and the Southwestern corner of a tract described in Volume 1531, Page 733, OPRMCT;

Thence North 75°42'59" East 162.65 Feet to a 1/2"IPS Cap FIRM 10194514 for an interior corner of this survey, and the Southeast corner of a tract described in Volume 1531, Page 733, OPRMCT;

Thence North 14°09'06" West 191.20 Feet to a 1/2" IPS Cap FIRM 10194514 for the Most Northerly Northwest Corner of this survey and Lot 24;

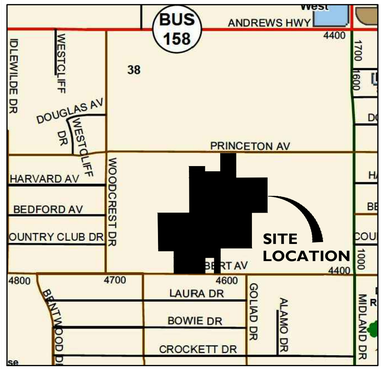
Thence North 75°45'51" East 164.00 Feet to the **Point of Beginning**, containing 19.70 acres, more or less.

25 September 2019



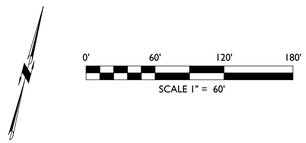
www.maverick-eng.com
Texas RPLS - No. 6135
Maverick Engineering (FIRM – No. 10194514)
1909 W. Wall St., Suite K
Midland, TX 79701
432-262-0999

EXHIBIT "B"



VICINITY MAP

N.T.S.



DIMENSIONAL NOTE:

- DIMENSIONS SHOWN ARE TYPICALLY TO BACK OF CURB UNLESS NOTED OTHERWISE.
- SIDEWALKS WILL BE 5 FT. IN WIDTH UNLESS NOTED OTHERWISE.

LANDSCAPE NOTES:

- LANDSCAPING ELEMENTS SHOWN ON THIS EXHIBIT ARE FOR ILLUSTRATIVE PURPOSES ONLY, AND DOES NOT NECESSARILY REFLECT THE FINAL DESIGN LANDSCAPING.
- THE LANDSCAPE PLAN THAT WILL BE SUBMITTED FOR CITY APPROVAL WILL BE IN COMPLIANCE WITH CITY STANDARDS.

LEGEND

- DENOTES PROPERTY CORNER
- DENOTES EXISTING FIRE HYDRANT
- DENOTES EXISTING GAS METER
- DENOTES EXISTING LIGHT POLE
- DENOTES EXISTING MANHOLE
- DENOTES EXISTING POWER POLE
- DENOTES EXISTING WATER METER
- DENOTES EXISTING WATER VALVE
- DENOTES BOUNDARY LINE
- DENOTES EXISTING EASEMENT LINE
- DENOTES BUILDING SETBACK LINE
- DENOTES PROPOSED FENCE LINE
- DENOTES EXISTING 6" SEWER LINE
- DENOTES EXISTING 6" WATER LINE
- DENOTES PROPOSED 8" SEWER LINE
- DENOTES PROPOSED 8" WATER LINE
- DENOTES PROPOSED WATER METER
- DENOTES PROPOSED WATER VALVE
- DENOTES PROPOSED FIRE HYDRANT
- DENOTES PROPOSED WATER CAP
- DENOTES PROPOSED MANHOLE

DEVELOPMENT NOTES:

- GENERAL: SITE PLAN IS FOR A PROPOSED MIXED RESIDENTIAL SUBDIVISION CONSISTING OF 90 LOTS SITUATED ON 19.70-ACRES OUT OF TRACTS 22 AND 28, HILLCREST ACRES ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS. THE SITE IS LOCATED BETWEEN WOODCREST DRIVE AND MIDLAND DRIVE, BETWEEN PRINCETON AND CUTHBERT AVENUES. THE DEVELOPMENT IS CURRENTLY ZONED AS MF-16.
- DEVELOPMENT: THE DEVELOPMENT WILL CONSIST OF;
  - (x5) 7,000SQFT SINGLE FAMILY LOTS
  - (x63) 5,500SQFT SINGLE FAMILY LOTS
  - (x22) 4,000SQFT TOWNHOME LOTS
- BUILDING HEIGHT: THE RESIDENTIAL STRUCTURES PLANNED FOR THE DEVELOPMENT WILL NOT EXCEED 2-STORIES OR A MAXIMUM HEIGHT OF 42 FEET.
- ACCESS: THE SITE IS PLANNED TO HAVE TWO (2) ACCESS POINTS, ONE TO THE NORTH ACCESSING PRINCETON AVE. AND ONE TO THE SOUTH ACCESSING CUTHBERT AVE. ALL ACCESS POINTS ARE PLANNED FOR BOTH INGRESS AND EGRESS AND WILL BE DEDICATED PUBLIC RIGHTS-OF-WAY. THE FOLLOWING EASEMENTS ARE PLANNED TO GRANT R.O.W. FOR ACCESS AND UTILITIES;
  - 7' GENERAL UTILITY EASEMENTS ALONG FRONTAGES OF ALL LOTS
  - DRAINAGE WAY AND STORMWATER DETENTION EASEMENTS
  - 60' PUBLIC R.O.W. FOR PUBLIC ACCESS AND UTILITIES INCLUDING SIDEWALK
- FIRE ACCESS: ACCESS FOR FIRE TRUCKS WILL BE ALONG THE PROPOSED 60' PUBLIC RIGHTS OF WAY.
- PARKING: OFF-STREET PARKING WILL BE PROVIDED IN CONFORMANCE WITH THE UNDERLYING ZONING CLASSIFICATIONS FOR THE SUBJECT LOTS. TWO-CAR ATTACHED GARAGES TO BE REQUIRED FOR ALL LOTS IN THE SUBDIVISION.
- TRASH: TRASH WILL BE PICKED UP IN FRONT OF STREET UTILIZING ROLL-OUT CARTS. THERE WILL BE NO ALLEYS IN THIS SUBDIVISION.
- UTILITIES: PUBLIC UTILITIES ARE NOT PRESENT. EXISTING WATER & SEWER SERVICE TAPS WILL BE UTILIZED WITH OFFSITE EXTENSIONS AS NEEDED, NEW WATER & SEWER SERVICE TAPS WILL BE REQUIRED.
- DRAINAGE: STORM WATER RUNOFF WILL BE DETAINED SO AS NOT TO INCREASE EXISTING PEAK RUNOFF VIA THE PUBLIC R.O.W. TO THE FACILITIES PROPOSED HEREON.
- SCREENING: ALL FENCING WILL BE 6' WOOD FENCING.
- LIGHTING: LIGHTING WILL CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
- SETBACKS:
  - 20' FRONT YARD SETBACKS WILL BE OBSERVED.
  - 15' FRONT YARD SETBACKS WILL BE OBSERVES AT CUL-DE-SACS
  - 5' SIDE YARD SETBACKS WILL BE OBSERVED ON INTERIOR LOTS. 10' WILL BE OBSERVED FOR CORNER LOTS
  - 10' REAR YARD SETBACKS WILL BE OBSERVED FOR SINGLE STORY STRUCTURES OR 15' FOR TWO-STORY STRUCTURES

FEMA FIRM NOTES:

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	ZONE	BASE FLOOD ELEVATION
48329	182	F	09/16/2005	X	N/A

MAVERICK ENGINEERING
1909 West Wall Street, Suite "K"
Midland, Texas 79701
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

REVISIONS	BY	APPR.	DATE
Δ			

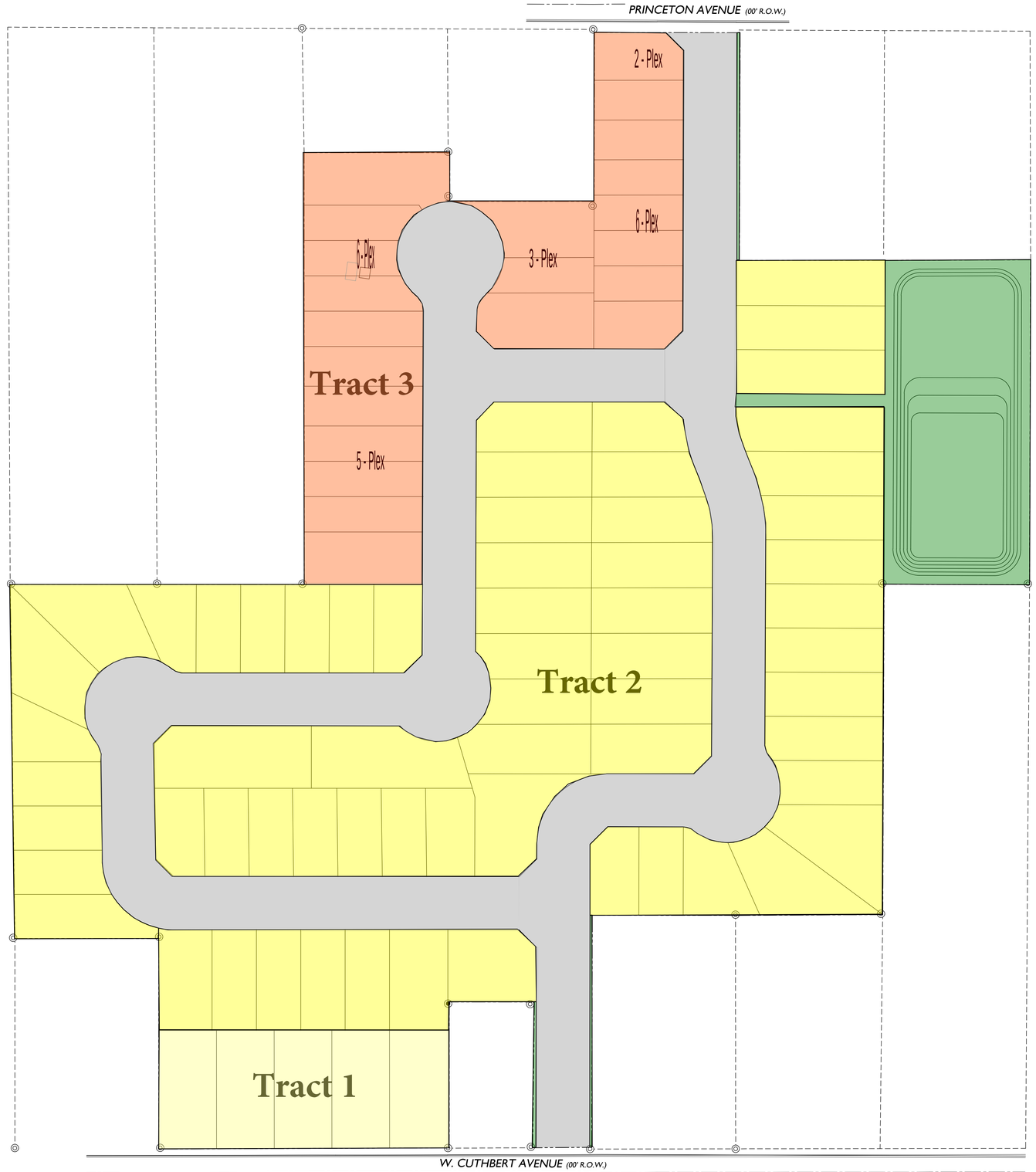
DRAWN BY: CD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 09/23/2020
JOB: 200120

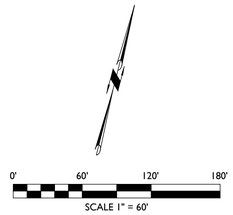
PD ZONING SITE PLAN
HILLCREST VILLAGE
BEING A 19.70-ACRE PORTION OF TRACTS 22 AND 28, HILLCREST ACRES ADDITION, CITY AND COUNTY OF MIDLAND TEXAS

PRELIMINARY REVIEW:
THESE PLANS ARE RELEASED FOR THE PURPOSES OF PLANNING AND PRELIMINARY REVIEW. THEY SHALL NOT BE USED FOR THE PURPOSES OF CONSTRUCTION.

SHEET **SP-01** OF 01

EXHIBIT "C"





LEGEND

- DENOTES SF 2 7000 S.F. 65'X100' MIN. LOTS 5 Lots
- DENOTES SF 3 5500 S.F. 50'X100' MIN LOTS 63 Lots
- DENOTES TOWN HOMES 4000 S.F. 40'X100 MIN. LOTS 22 Lots
- DENOTES COMMON AREA

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 W Wall St. Ste. "K" Midland, TX 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0989 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

REVISIONS

Δ				

DRAWN BY:	XXX
CHECKED BY:	XXX
APPROVED BY:	XXX
DATE:	XX/XX/20XX
JOB:	XXXX-XXXX

SITE LAYOUT 3

HILLCREST VILLAGE

BEING A 19.70-ACRE PORTION OF TRACTS 22 AND 28, HILLCREST ACRES ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS, ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOL. 102, PAGE 374, MIDLAND COUNTY DEED RECORDS

PRELIMINARY REVIEW:

THESE PLANS ARE RELEASED UNDER THE SEAL OF ANDREW L. MELLEN, P.E. #106572 AND MAVERICK ENGINEERING (FIRM # F-15089) ON THIS DAY DD/MM/YYYY, FOR THE PURPOSES OF INTERIM/PRELIMINARY REVIEW. THEY SHALL NOT BE USED FOR THE PURPOSES OF CONSTRUCTION.

SHEET XX OF XX

© COPYRIGHT 2018 ALL RIGHTS RESERVED

F:\2020\20120-MIDLAND COMMUNITY DEVELOPMENT CORPORATION-HILLCREST ACRES\DRAWINGS\BLOCKS\20120 X-SITE.DWG

MAVERICK
ENGINEERING · SURVEY · WATER RESOURCES
1909 West Wall Street, Suite K · Midland, TX 79701
Tel: 432.262.0999 · Fax: 432.262.0989 · maverick-eng.com
ENGINEER FIRM #: F-15089 | SURVEY FIRM #: 10194514

METES & BOUNDS DESCRIPTION

Of a Proposed 19.70 Acre tract of land out of Hillcrest Acres, a subdivision of Midland County, Texas, recorded in Volume 87, page 272, Deed Records of Midland County, Texas, more precisely described as follows:

Beginning at a 1/2" IPF for the most Northeast Corner of Lot 24 of Hillcrest Acres, at the Right of Way of Princeton Avenue (N 10694755.64, E 1736678.11, Texas State Plane Coordinate System, Central Zone, NAD 1983);

Thence South 14°06'39" East 257.72 Feet along and with the west Boundary of Lot 23 to a 1/2" IPS Cap FIRM 10194514 for an "L" Corner of this survey;

Thence North 75°42'59" East at 164.51 Feet to a 1/2" IPF for an interior corner of this survey;

Thence North 75°28'27" East 163.79 Feet to a 1/2" IPF for the Northeast Corner of the remainder of the North half of Lot 22, at the Southwest corner of a tract described in Volume 1480, Page 376, DRMCT and the most Easterly Northeast Corner of this survey;

Thence South 14°06'49" East 367.68 Feet to a 1/2" IPF with broken cap for the Southeast Corner of the North Half of Lot 22 Hillcrest Acres;

Thence South 75°51'13" West 163.99 Feet to a 1/2" IPF at the Northwest Corner of the South half of Lot 22, Hillcrest Acres;

Thence South 14°04'23" East 374.07 Feet along and with the East Boundary of Lot 23 to a 1/2" IPF for the most Easterly Southeast Corner of this Survey at the Northeast Corner of a tract described in Document # 2018-OPRMCT;

Thence South 75°24'24" West 164.08 Feet to a 1/2" IPF for the Northwest Corner of a tract described Document # 2018-24381, and the Northeast Corner of a tract described in Document # 2018-24381, OPRMCT;

Thence South 75°46'11" West 163.29 Feet to a 1/2" IPF for the Northwest Corner of a tract described Document # 2018-24381 OPRMCT;

Thence South 14°10'27" East 262.70 Feet to a 1/2" IPF for most Southerly Southeast Corner of this survey, also the Southwest corner of a tract described in Document # 2018-24381 OPRMCT; a 1/2 IRF bears South 14°10'27" East 2.88 Feet;

Thence South 75°12'12" West 66.69 Feet to a 1/2" IPF for a Point of Intersection on the South Line of this Survey, at the Southeast Corner of Lot 25, Hillcrest Acres and the Southeast corner of a 0.36 acre tract described in Volume 2440, Page 798 OPRMCT;

Thence North 13°35'42" West 165.04 Feet to a 1/2" IPF, bent, an interior corner of this survey, and the Northeast corner of 0.36 acre tract described in Volume 2440, Page 798 OPRMCT;

Thence South 75°042'59" West 95.92 Feet to a 1/2" IPF for the Northwest Corner of said 0.36 acre tract and the most Northerly Northwest Corner of the South Half of Lot 25 of Hillcrest Acres;

Thence South 14°15'45" East 165.13 Feet to a 1/2" IPF for the Southeast Corner of Lot 26 and the Southwest corner of said 0.36 acre tract;

Thence South 75°28'03" West 327.18 Feet to a 1/2" IRF W/faded Cap for the Southwest Corner of the South Half of Lot 27 Hillcrest Acres, and the most Southerly Southwestern Corner of this survey;

Thence North 14°18'53" West 238.28 Feet to a 1/2" IPS Cap FIRM 10194514 for an interior corner of this survey, and the Northeast corner of a 0.90 acre tract described in Volume 1317, Page 525 OPRMCT;

Thence South 75°42'59" West 162.18 Feet to a 1" Steel Pipe for the most Northerly Southwestern Corner of this survey and the Northwest Corner of said 0.90 acre tract;

Thence North 15°03'36" West 400.86 Feet to a 1/2" IPF for the Northwest Corner of the South Half of Lot 28, Hillcrest Acres, and the most Southerly Northwestern Corner of this survey;

Thence North 75°42'59" East 331.39 Feet to a 1/2" IPF with faded cap for an interior corner of this survey;

Thence North 14°18'53" West 488.99 Feet a 1/2" IPS Cap FIRM 10194514 for a Northwestern corner of this survey, and the Southwestern corner of a 0.52 acre tract described in Volume 2813, page 530 OPRMCT, from which a 1/2" IPF with Schumann Cap bears South 17°00'15" East 10.01 Feet;

Thence North 75°42'59" East 164.21 Feet to a 1/2" IPF with faded Cap for the most Southerly Northeastern Corner of this survey and the Northwest Corner of said 0.90 acre tract;

Thence South 14°15'45" East 55.23 Feet to a ½" IPS Cap FIRM 10194514 for an interior corner of this survey, and the Southwestern corner of a tract described in Volume 1531, Page 733, OPRMCT;

Thence North 75°42'59" East 162.65 Feet to a 1/2"IPS Cap FIRM 10194514 for an interior corner of this survey, and the Southeast corner of a tract described in Volume 1531, Page 733, OPRMCT;

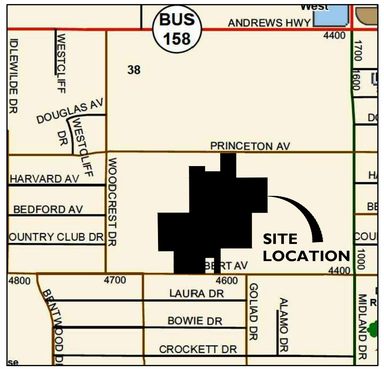
Thence North 14°09'06" West 191.20 Feet to a 1/2" IPS Cap FIRM 10194514 for the Most Northerly Northwest Corner of this survey and Lot 24;

Thence North 75°45'51" East 164.00 Feet to the **Point of Beginning**, containing 19.70 acres, more or less.

25 September 2019

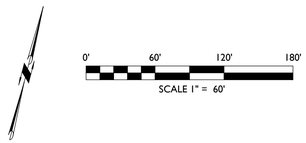


www.maverick-eng.com
Texas RPLS - No. 6135
Maverick Engineering (FIRM – No. 10194514)
1909 W. Wall St., Suite K
Midland, TX 79701
432-262-0999



VICINITY MAP

N.T.S.



DIMENSIONAL NOTE:

- DIMENSIONS SHOWN ARE TYPICALLY TO BACK OF CURB UNLESS NOTED OTHERWISE.
- SIDEWALKS WILL BE 5 FT. IN WIDTH UNLESS NOTED OTHERWISE.

LANDSCAPE NOTES:

- LANDSCAPING ELEMENTS SHOWN ON THIS EXHIBIT ARE FOR ILLUSTRATIVE PURPOSES ONLY, AND DOES NOT NECESSARILY REFLECT THE FINAL DESIGN LANDSCAPING.
- THE LANDSCAPE PLAN THAT WILL BE SUBMITTED FOR CITY APPROVAL WILL BE IN COMPLIANCE WITH CITY STANDARDS.

LEGEND

- DENOTES PROPERTY CORNER
- DENOTES EXISTING FIRE HYDRANT
- DENOTES EXISTING GAS METER
- DENOTES EXISTING LIGHT POLE
- DENOTES EXISTING MANHOLE
- DENOTES EXISTING POWER POLE
- DENOTES EXISTING WATER METER
- DENOTES EXISTING WATER VALVE
- DENOTES BOUNDARY LINE
- DENOTES EXISTING EASEMENT LINE
- DENOTES BUILDING SETBACK LINE
- DENOTES PROPOSED FENCE LINE
- 6SS DENOTES EXISTING 6" SEWER LINE
- 6W DENOTES EXISTING 6" WATER LINE
- 8WW DENOTES PROPOSED 8" SEWER LINE
- 8W DENOTES PROPOSED 8" WATER LINE
- DENOTES PROPOSED WATER METER
- DENOTES PROPOSED WATER VALVE
- DENOTES PROPOSED FIRE HYDRANT
- DENOTES PROPOSED WATER CAP
- DENOTES PROPOSED MANHOLE

DEVELOPMENT NOTES:

- GENERAL: SITE PLAN IS FOR A PROPOSED MIXED RESIDENTIAL SUBDIVISION CONSISTING OF 90 LOTS SITUATED ON 19.70-ACRES OUT OF TRACTS 22 AND 28, HILLCREST ACRES ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS. THE SITE IS LOCATED BETWEEN WOODCREST DRIVE AND MIDLAND DRIVE, BETWEEN PRINCETON AND CUTHBERT AVENUES. THE DEVELOPMENT IS CURRENTLY ZONED AS MF-16.
- DEVELOPMENT: THE DEVELOPMENT WILL CONSIST OF;
  - (x5) 7,000SQFT SINGLE FAMILY LOTS
  - (x63) 5,500SQFT SINGLE FAMILY LOTS
  - (x22) 4,000SQFT TOWNHOME LOTS
- BUILDING HEIGHT: THE RESIDENTIAL STRUCTURES PLANNED FOR THE DEVELOPMENT WILL NOT EXCEED 2-STORIES OR A MAXIMUM HEIGHT OF 42 FEET.
- ACCESS: THE SITE IS PLANNED TO HAVE TWO (2) ACCESS POINTS, ONE TO THE NORTH ACCESSING PRINCETON AVE. AND ONE TO THE SOUTH ACCESSING CUTHBERT AVE. ALL ACCESS POINTS ARE PLANNED FOR BOTH INGRESS AND EGRESS AND WILL BE DEDICATED PUBLIC RIGHTS-OF-WAY. THE FOLLOWING EASEMENTS ARE PLANNED TO GRANT R.O.W. FOR ACCESS AND UTILITIES;
  - 7' GENERAL UTILITY EASEMENTS ALONG FRONTAGES OF ALL LOTS
  - DRAINAGE WAY AND STORMWATER DETENTION EASEMENTS
  - 60' PUBLIC R.O.W. FOR PUBLIC ACCESS AND UTILITIES INCLUDING SIDEWALK
- FIRE ACCESS: ACCESS FOR FIRE TRUCKS WILL BE ALONG THE PROPOSED 60' PUBLIC RIGHTS OF WAY.
- PARKING: OFF-STREET PARKING WILL BE PROVIDED IN CONFORMANCE WITH THE UNDERLYING ZONING CLASSIFICATIONS FOR THE SUBJECT LOTS. TWO-CAR ATTACHED GARAGES TO BE REQUIRED FOR ALL LOTS IN THE SUBDIVISION.
- TRASH: TRASH WILL BE PICKED UP IN FRONT OF STREET UTILIZING ROLL-OUT CARTS. THERE WILL BE NO ALLEYS IN THIS SUBDIVISION.
- UTILITIES: PUBLIC UTILITIES ARE NOT PRESENT. EXISTING WATER & SEWER SERVICE TAPS WILL BE UTILIZED WITH OFFSITE EXTENSIONS AS NEEDED, NEW WATER & SEWER SERVICE TAPS WILL BE REQUIRED.
- DRAINAGE: STORM WATER RUNOFF WILL BE DETAINED SO AS NOT TO INCREASE EXISTING PEAK RUNOFF VIA THE PUBLIC R.O.W. TO THE FACILITIES PROPOSED HEREON.
- SCREENING: ALL FENCING WILL BE 6' WOOD FENCING.
- LIGHTING: LIGHTING WILL CONFORM TO THE CITY OF MIDLAND STANDARDS AND SPECIFICATIONS.
- SETBACKS:
  - 20' FRONT YARD SETBACKS WILL BE OBSERVED.
  - 15' FRONT YARD SETBACKS WILL BE OBSERVES AT CUL-DE-SACS
  - 5' SIDE YARD SETBACKS WILL BE OBSERVED ON INTERIOR LOTS. 10' WILL BE OBSERVED FOR CORNER LOTS
  - 10' REAR YARD SETBACKS WILL BE OBSERVED FOR SINGLE STORY STRUCTURES OR 15' FOR TWO-STORY STRUCTURES

FEMA FIRM NOTES:

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	ZONE	BASE FLOOD ELEVATION
48329	182	F	09/16/2005	X	N/A

MAVERICK ENGINEERING
1909 West Wall Street, Suite "K"
Midland, Texas 79701
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

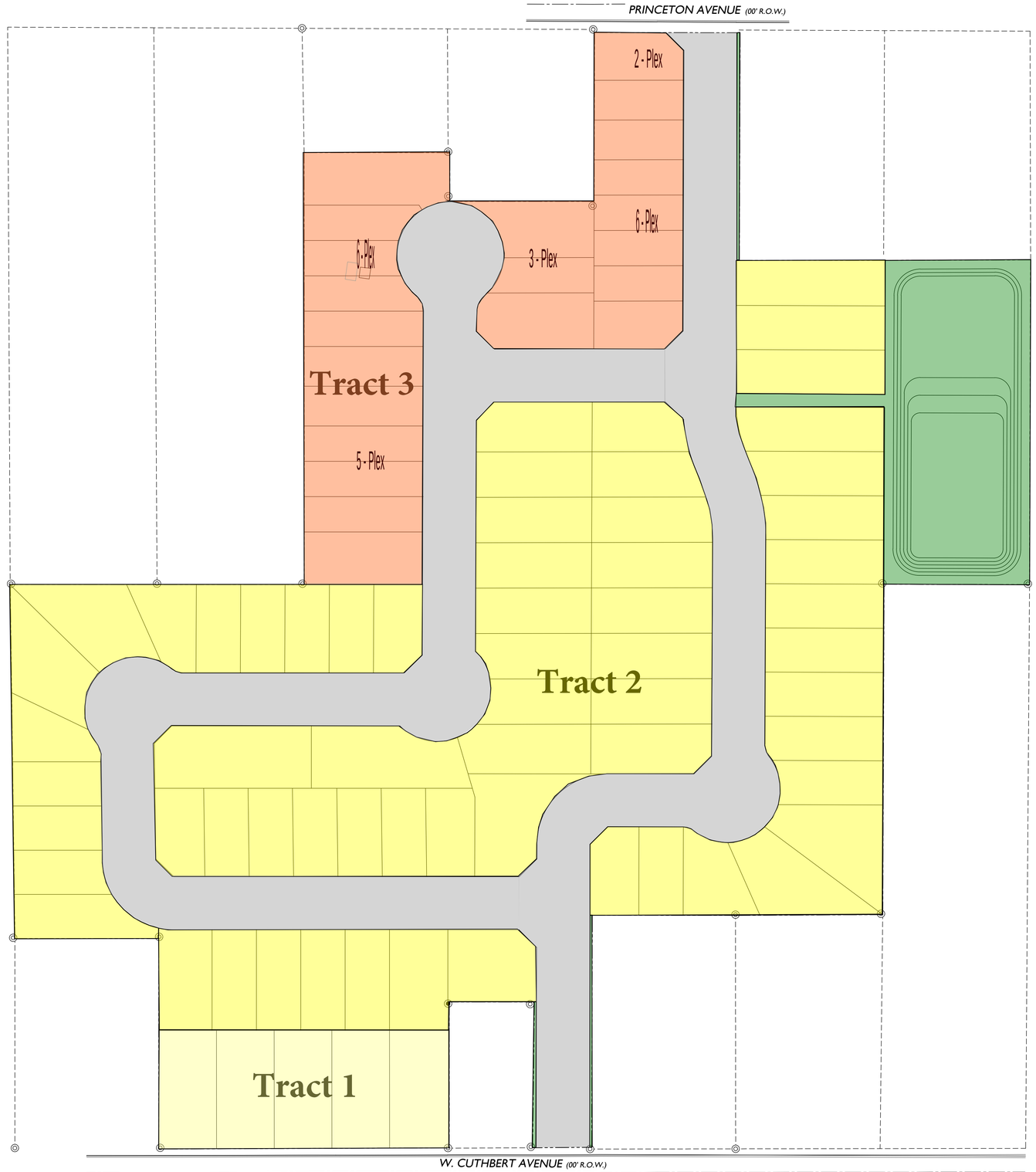
REVISIONS	BY	APPR.	DATE
1			

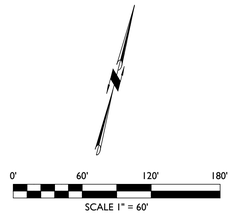
DRAWN BY: CD
CHECKED BY: ALM
APPROVED BY: ALM
DATE: 09/23/2020
JOB: 200120

PD ZONING SITE PLAN
HILLCREST VILLAGE
BEING A 19.70-ACRE PORTION OF TRACTS 22 AND 28, HILLCREST ACRES ADDITION, CITY AND COUNTY OF MIDLAND TEXAS

PRELIMINARY REVIEW:
THESE PLANS ARE RELEASED FOR THE PURPOSES OF PLANNING AND PRELIMINARY REVIEW. THEY SHALL NOT BE USED FOR THE PURPOSES OF CONSTRUCTION.

SHEET **SP-01** OF 01





LEGEND

- DENOTES SF 2 7000 S.F. 65'X100' MIN. LOTS 5 Lots
- DENOTES SF 3 5500 S.F. 50'X100' MIN LOTS 63 Lots
- DENOTES TOWN HOMES 4000 S.F. 40'X100 MIN. LOTS 22 Lots
- DENOTES COMMON AREA

MAVERICK
ENGINEERING / SURVEY / WATER RESOURCES
1909 W Wall St. Ste. "K" Midland, TX 79701
ENGINEER FIRM #: F-15089
SURVEY FIRM #: 10194514
Tel: (432) 262-0999 Fax: (432) 262-0989
www.Maverick-Eng.com

BY	APPR.	DATE

REVISIONS

DRAWN BY:	XXX
CHECKED BY:	XXX
APPROVED BY:	XXX
DATE:	XX/XX/20XX
JOB:	XXXX-XXXX

SITE LAYOUT 3

HILLCREST VILLAGE

BEING A 19.70-ACRE PORTION OF TRACTS 22 AND 28, HILLCREST ACRES ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS, ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOL. 102, PAGE 374, MIDLAND COUNTY DEED RECORDS

PRELIMINARY REVIEW:

THESE PLANS ARE RELEASED UNDER THE SEAL OF ANDREW L. MELLEN, P.E. #106572 AND MAVERICK ENGINEERING (FIRM # F-15089) ON THIS DAY DD/MM/YYYY, FOR THE PURPOSES OF INTERIM/PRELIMINARY REVIEW. THEY SHALL NOT BE USED FOR THE PURPOSES OF CONSTRUCTION.

SHEET XX OF XX

F:\2020\20120-MIDLAND COMMUNITY DEVELOPMENT CORPORATION-HILLCREST ACRES\DRAWINGS\BLOCKS\20120 X-SITE.DWG

© COPYRIGHT 2018 ALL RIGHTS RESERVED

MIDLAND
Planning Division

Zone Change/Planned District Amendment/Site Plan Approval

Project Number: 2-20-0196

Case Number: _____

Applicant *(if acting as Agent, see affidavit on page 2)* Printed Name: Maverick Engineering		Phone ( ) Email	
Address 1909 W Wall St Ste K	City Midland	State TX	Zip 79701
Property Owner Printed Name: Midland Community Development Corporation		Phone ( ) Email	
Address 208 S Marienfeld Ste 100	City Midland	State TX	Zip 79701
Representative *(if different from Applicant or Property Owner)* Firm: Maverick Engineering Printed Name: Paladin Huckaba		Phone (432) 262.0999 Email phuckaba@maverick-eng.com	
Address 1909 W Wall St Ste K	City Midland	State TX	Zip 79701

Street Address: 4601 Princeton Avenue

Legal Description Portions of Tracts 22-28 (See included Metes and Bounds
Lot: Block: Subdivision: Hillcrest Acres Addition

Current Zoning: MF-16

Proposed Zone: PDHD
(List by tracts if more than one district is requested)

Reason for Zone Change Request: Advance the development of a master-planned single and townhome residential district.

Present Use of Property: Vacant

Proposed Use of Property: Residential uses

How would this zone change affect the public health, safety and welfare?
Positively expand housing options within the City of Midland.

Describe how conditions affecting the property have changed since present zoning designation: No change.

Submittal and Fees

Items to be submitted with this application form:

- Application Fee – Payable to the 'City of Midland'
- Dimensioned Site Plan
- Digital Copies of Site Plan (PDF/JPEG)

Signature *(by property owner only – authorized agent must sign affidavit below)*	
Applicant (signature): David Diaz	Date: 9-23-2020
Applicant (printed): David Diaz for Midland CDC	
Property Owner (signature): Midland Community Dev Corp	Date: 9-23-2020
Property Owner (printed) : by David Diaz	

The Zone Change/Planned District Amendment/Site Plan Approval shall be considered officially received in the Planning office only when it has been submitted in full compliance with the provisions of Section 212 of the Texas Local Government Code and the Zoning Code of Ordinances of the City of Midland and when such required items for the application are also received.

All materials, including exhibits, submitted in support of an application, or displayed during a public hearing, shall remain the property of the City of Midland.

If an agent is authorized by the property owner to file and execute the application on behalf of the property owner, the agent must complete the affidavit below.

STATE OF TEXAS
COUNTY OF MIDLAND

Andrew L Mellen

Before me, the undersigned authority, on this day personally appeared David Diaz who, being by me duly sworn, upon oath says: That (s)he is authorized by Midland Community Dev the owner of the above described property, to fully represent him/her in this application and that (s)he had the legal right, power and authority to sign said owner's name hereto as his/her attorney in fact.

David Diaz Andrew L Mellen
Authorized Agent (*signature*)

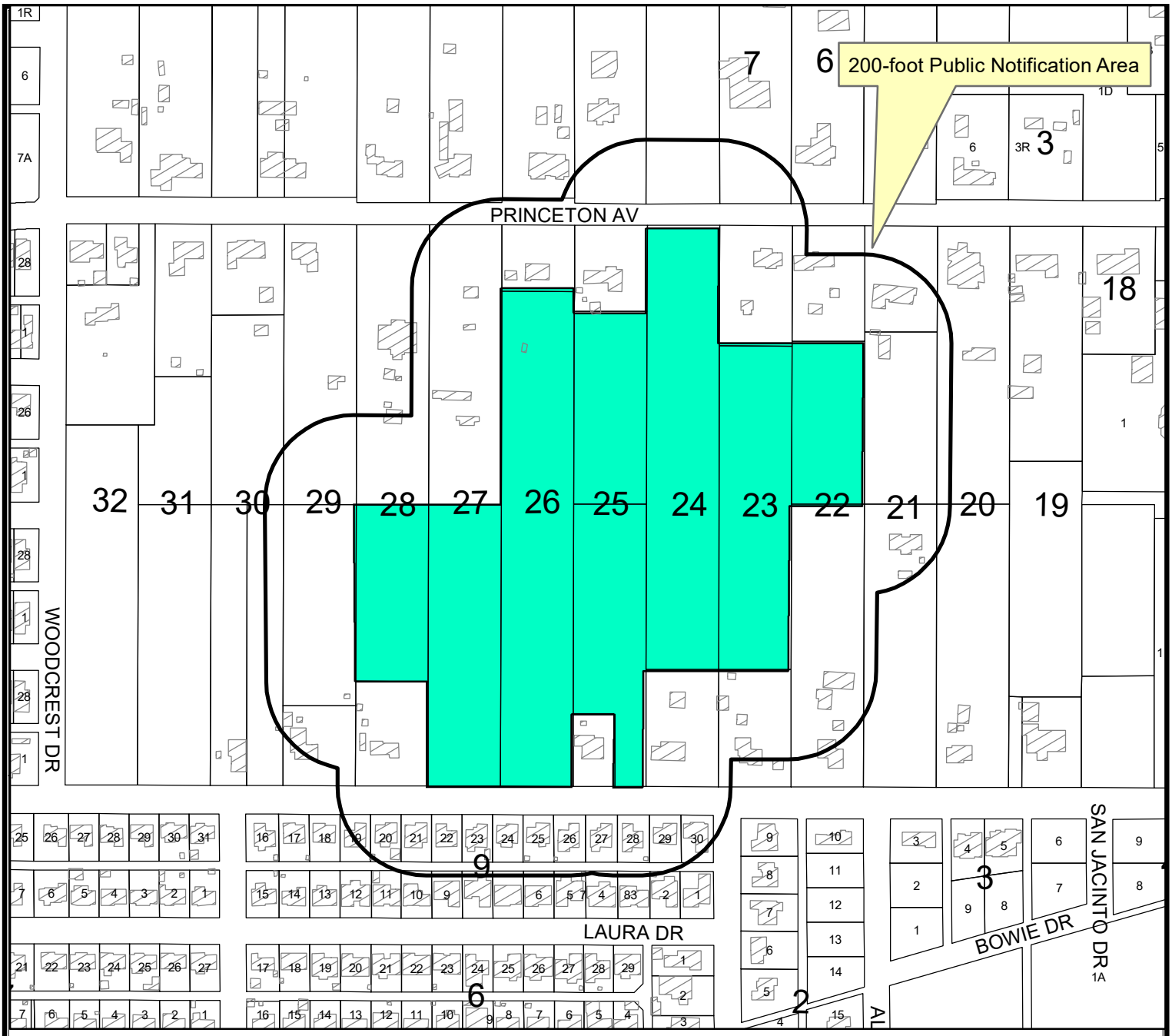
Subscribed and sworn to before me, this 23 day of Sept., 2020, to certify which witness my hand and seal of office.

Kelsey Ann Stine
NOTARY PUBLIC, MIDLAND COUNTY, TEXAS

NOTARY PUBLIC STATE OF TEXAS
Kelsey Ann Stine
My Commission Expires
02/19/2022
ID No. 131456388

FOR OFFICE USE ONLY	
☑ Property Owner Authorization	☑ Dimensioned Site Plan
☑ Application Fee	☑ Plans in Digital Format (PDF/JPEG)
Check # 3241	
Received By: Joseph Maynard	Date: RECEIVED SEP 23 2020 BY:

****Application will not be considered for scheduling until reviewed by a planner.****



LOCATION MAP

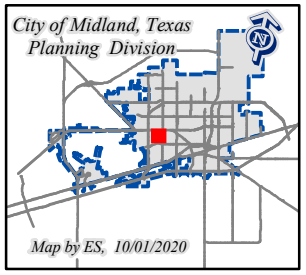
Z-19-0142 **Scale: 1" = 400'**

Consider a request by Midland Community Development Corporation, for a zone change from MF-16, Multiple-Family Dwelling District, to PD, Planned Development District for a Housing Development on a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

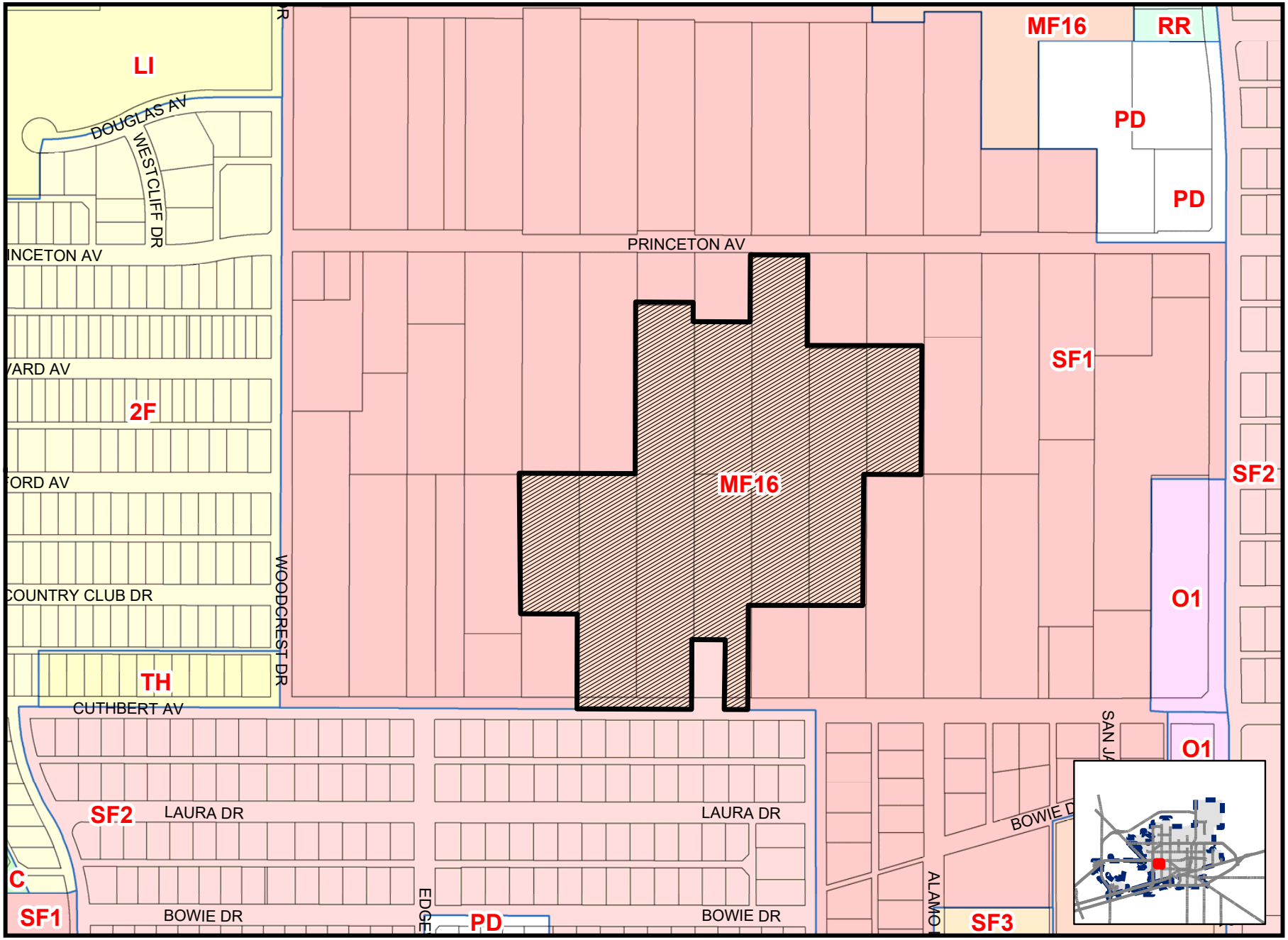
Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

LEGEND

- CITY LIMITS
- PARCEL
- PRIVATE BLDGS



©THE CITY OF MIDLAND - 2019
THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY NOR IS IT DESIGNED TO BE USED AS THE ONLY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.
THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.



Map By ES, 9/25/2020

Z-20-0196

Scale: 1" = 200'

ZONING MAP

PACKET
28.23
December 15, 2020

MIDLAND
Planning Division

RECEIVED
OCT 17 2020
BY: .....

SIKES HAROLD G
4505 PRINCETON AVE
MIDLAND TX 79703-4709

PUBLIC NOTICE

The **Planning and Zoning Commission** of the City of Midland, Texas, will hold a public hearing at **3:30 p.m.** on **Monday, October 19, 2020,** in the Council Chambers, City Hall, 300 N. Loraine, Midland, Texas 79701, and via videoconference, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.

To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request Yes **Comments:** Please-single family residences

Required Information:

Loretta Henderson
Property Owner's Signature

Loretta Henderson
Printed Name

4505 Princeton Ave
Property Address (**No P. O. Boxes**)

If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 9, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

The videoconference information can obtained by viewing the agenda for this meeting accessible at The City's website: http://www.midlandtexas.gov/967/primegov-meetings.

MIDLAND
Planning Division

OCT 15 2020

CORBELL TERRY
4615 W CUTHBERT AV
MIDLAND TX 79703

PUBLIC NOTICE

The **Planning and Zoning Commission** of the City of Midland, Texas, will hold a public hearing at **3:30 p.m.** on **Monday, October 19, 2020,** in the Council Chambers, City Hall, 300 N. Loraine, Midland, Texas 79701, and via videoconference, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.

To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request Yes X Comments: decress in Property Value decress in safty because of increase A traffic

Required Information:

Terry Corbell — Property Owner's Signature

Terry Corbell — Printed Name

4615 W. Cuthbert ave Midland, TX 79703 — Property Address (No P. O. Boxes)

If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 9, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

The videoconference information can obtained by viewing the agenda for this meeting accessible at The City's website: http://www.midlandtexas.gov/967/primegov-meetings.

MIDLAND
Planning Division

RECEIVED
OCT 19 2020
BY: .....

BOREN MICHAEL C
4608 PRINCETON AV
MIDLAND TX 79703

PUBLIC NOTICE

The **Planning and Zoning Commission** of the City of Midland, Texas, will hold a public hearing at **3:30 p.m.** on **Monday, October 19, 2020,** in the Council Chambers, City Hall, 300 N. Loraine, Midland, Texas 79701, and via videoconference, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.

To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request ✓ **Comments:** Need more information about PD

Required Information:

Property Owner's Signature — CHRIS BOREN (Printed Name) — 4608 Princeton Ave (Property Address (**No P. O. Boxes**))

If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 9, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

The videoconference information can obtained by viewing the agenda for this meeting accessible at The City's website: http://www.midlandtexas.gov/967/primegov-meetings.

MIDLAND
Planning Division

PUBLIC NOTICE

The **Planning and Zoning Commission** of the City of Midland, Texas, will hold a public hearing at **3:30 p.m.** on **Monday, October 19, 2020,** in the Council Chambers, City Hall, 300 N. Loraine, Midland, Texas 79701, and via videoconference, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.

To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request ✓ Comments: _____

Required Information:

Ashley Boren — Property Owner's Signature

Ashley Boren — Printed Name

4608 Princeton Ave. — Property Address (No P. O. Boxes)

If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 9, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

The videoconference information can obtained by viewing the agenda for this meeting accessible at The City's website: http://www.midlandtexas.gov/967/primegov-meetings.

www.MidlandTexas.gov

Planning Division • 300 N. Loraine, Midland TX 79702 • 432-685-7400

MIDLAND
Planning Division

WALLACE ROBERT R
4623 W CUTHBERT AV
MIDLAND TX 79703

PUBLIC NOTICE

The **Planning and Zoning Commission** of the City of Midland, Texas, will hold a public hearing at **3:30 p.m.** on **Monday, October 19, 2020,** in the Council Chambers, City Hall, 300 N. Loraine, Midland, Texas 79701, and via videoconference, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.

To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request ____ **Comments:** The amount of homes?

Required Information:

Robert Wallace / Robert R Wallace / 4623 W Cuthbert Ave Midland TX 79703

Property Owner's Signature / Printed Name / Property Address (**No P. O. Boxes**)

If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 9, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

The videoconference information can obtained by viewing the agenda for this meeting accessible at The City's website: http://www.midlandtexas.gov/967/primegov-meetings.

MIDLAND
Planning Division

KITTO FRANCIS KARL
4623 PRINCETON AVE
MIDLAND TX 79703-4601

PUBLIC NOTICE

The **Planning and Zoning Commission** of the City of Midland, Texas, will hold a public hearing at **3:30 p.m.** on **Monday, October 19, 2020,** in the Council Chambers, City Hall, 300 N. Loraine, Midland, Texas 79701, and via videoconference, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.

To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request X **Comments:** _____

Required Information:

Francis Karl
Property Owner's Signature

Francis Kitto
Printed Name

4623 Princeton
Property Address (No P. O. Boxes)

If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 9, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

The videoconference information can obtained by viewing the agenda for this meeting accessible at The City's website: http://www.midlandtexas.gov/967/primegov-meetings.

MIDLAND
Planning Division

VALVERDE CHARLES
4622 W CUTHBERT AV
MIDLAND TX 79703

PUBLIC NOTICE

The **Planning and Zoning Commission** of the City of Midland, Texas, will hold a public hearing at **3:30 p.m.** on **Monday, October 19, 2020,** in the Council Chambers, City Hall, 300 N. Loraine, Midland, Texas 79701, and via videoconference, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.

To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request ____ **Comments:** what is their water source? Material (Brick)? homes fenci

Required Information:

Property Owner's Signature — Printed Name: Priscilla Valverde, Charles Valverde — Property Address (No P. O. Boxes)

If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 9, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

The videoconference information can obtained by viewing the agenda for this meeting accessible at The City's website: http://www.midlandtexas.gov/967/primegov-meetings.

www.MidlandTexas.gov

MIDLAND
Planning Division

NOV 03 2020

CORBELL TERRY
4615 W CUTHBERT AV
MIDLAND TX 79703

PUBLIC NOTICE

The **City Council** of the City of Midland, Texas will hold a public hearing at **10:00 a.m.** on **Tuesday, November 17, 2020**, in the Council Chambers, City Hall, 300 N. Loraine, Midland, TX 79701, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.
To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request ✓

Comments: property value will go down, high traffic

Required Information:

Jerry Corbell — Property Owner's Signature
Terry Corbell — Printed Name
4615 W. Cuthbert ave Midland, 79703 — Property Address (**No P. O. Boxes**)
Betsy Corbell

If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 30, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

www.MidlandTexas.gov

MIDLAND
Planning Division

RECEIVED
NOV 06 2020
BY: .....

SIKES HAROLD G
4505 PRINCETON AVE
MIDLAND TX 79703-4709

PUBLIC NOTICE

The **City Council** of the City of Midland, Texas will hold a public hearing at **10:00 a.m.** on **Tuesday, November 17, 2020**, in the Council Chambers, City Hall, 300 N. Loraine, Midland, TX 79701, on a request by **Midland Community Development Corporation** for approval of a **Zone Change** on the following described property:

LEGAL DESCRIPTION: On a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

LOCATION: Generally located on the south side of Princeton Avenue, approximately 824-feet west of N. Midland Drive. (Council District 4)

PROPOSED ZONING:

From: MF-16, Multiple-Family Dwelling District.
To: PD, Planned Development District for a Housing Development.

Not to be considered a part of the Public Notice: 1) See reverse side for location map; 2) In order to be considered as an official objection to this request a response **must be submitted by mail or delivered *in writing*** to the Planning Division at the address listed above. An official objection may be filed by completing this notice and returning it to the address listed above.

I object to this request ✓

Comments: Please consider single family homes similar to the area

Required Information:

Loretta Henderson — Property Owner's Signature
Loretta Henderson — Printed Name
4505 Princeton Ave — Property Address (**No P. O. Boxes**)

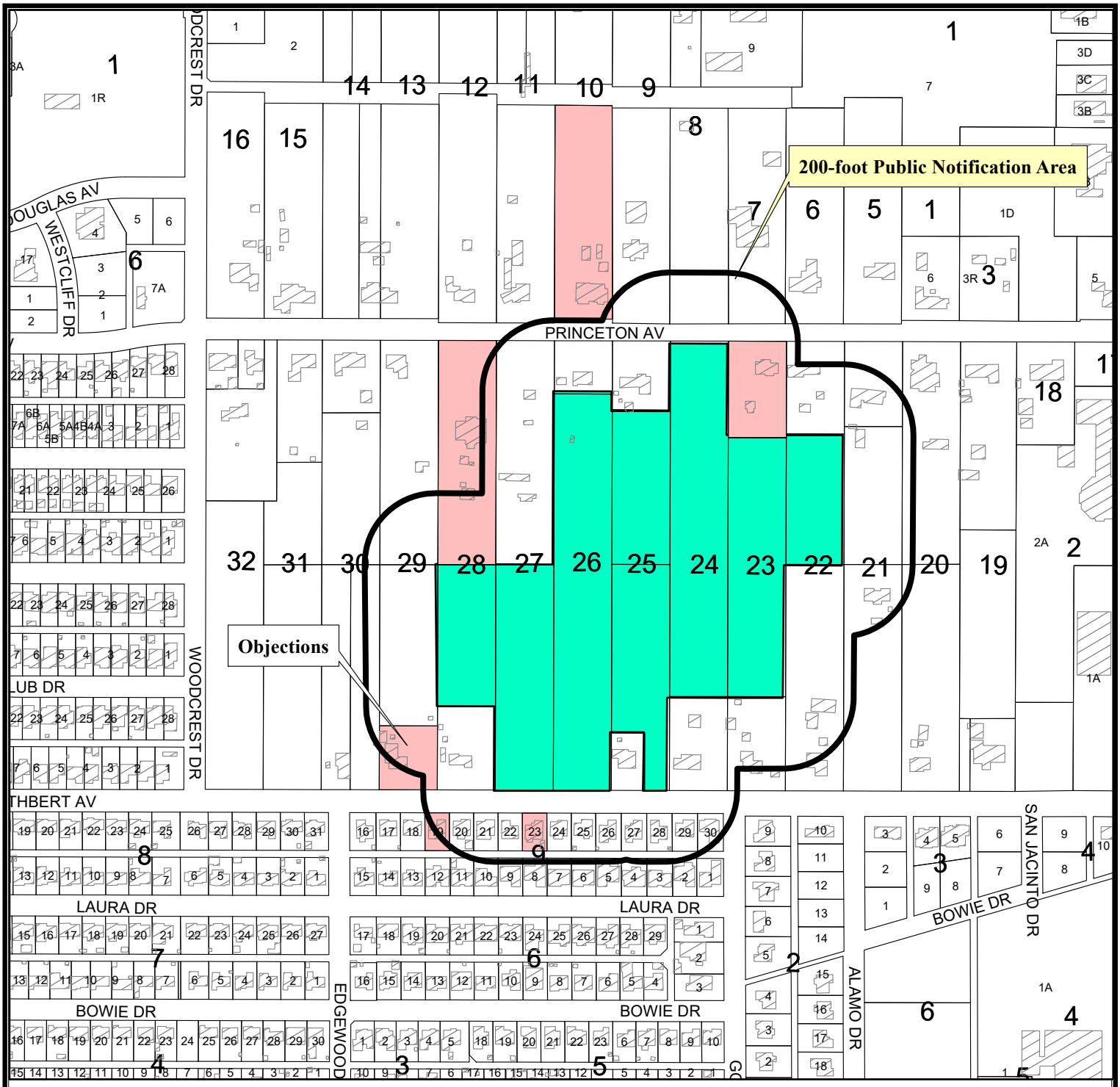
If any further information is desired, please contact the Planning Division, at 685-7400. Si ud. desea más información en Español sobre esta cuestión, llame al : 685-7400.

Notices Mailed: 49
Date Mailed: October 30, 2020
Case Number: Z-20-0196
Case Name: MCDC
ES Planner's Initials

Cristina Odenborg Burns
Planning Division Manager
Department of Development Services

The meeting facility is accessible to disabled persons. A wheelchair entry ramp is located at the southeast entrance to City Hall. A parking space designated for use by disabled persons is available near the southeast entrance doors. Any disabled person needing special accommodations or hearing impaired persons wishing to have an interpreter should request services through the Administrative Services Department at least 48 hours prior to the scheduled meeting by contacting Compliance Coordinator for the City of Midland at (432) 685-7251. If communication via TDD is required, please call 1-800-735-2989.

www.MidlandTexas.gov



LOCATION MAP

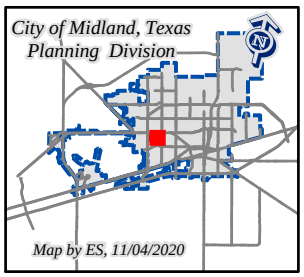
Z-20-0196 **Scale: 1" = 250'**

Consider a request by Midland Community Development Corporation, for a zone change from MF-16, Multiple-Family Dwelling District, to PD, Planned Development District for a Housing Development on a 19.70-acre tract of land located in Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas.

Generally located on the south side of Princeton Avenue, approximately 624 feet west of N. Midland Drive. (Council District 4)

LEGEND

- CITY LIMITS
- PARCEL
- PRIVATE BLDGS
- 6% OBJECTIONS



December 15, 2020

ORDINANCE NO. 10040

AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE A 19.70-ACRE TRACT OF LAND OUT OF SECTION 30, BLOCK 39, T-1-S, T&P RR CO. SURVEY, CITY AND COUNTY OF MIDLAND, TEXAS, FROM SF-1, SINGLE-FAMILY DWELLING DISTRICT, IN PART, AND MF-22, MULTIPLE-FAMILY DWELLING DISTRICT, IN PART, TO MF-16, MULTIPLE-FAMILY DWELLING DISTRICT (GENERALLY LOCATED ON THE SOUTH SIDE OF PRINCETON AVENUE, APPROXIMATELY 824 FEET WEST OF NORTH MIDLAND DRIVE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION

WHEREAS, the City Planning and Zoning Commission and the Governing Body of the City of Midland, in compliance with the City Charter, the City Code, and State law, have given the requisite notices by United States mail, publication and otherwise; and after a full and fair hearing to all of the property owners generally and particularly to those interested persons situated in the affected area and in the vicinity thereof, the Governing Body finds that the public health, safety and general welfare will be best served by rezoning a 19.70-acre tract of land out of Section 30, Block 39, T-1-S, T&P RR Co. Survey, City and County of Midland, Texas, said tract being more specifically described by metes and bounds in Exhibit "A", which is attached hereto and incorporated herein (the "Property"), to MF-16, Multiple-Family Dwelling District and adopting a site plan therefor, as set out hereinafter;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Zoning District Map of the City of Midland, Texas, is hereby amended to rezone the Property from SF-1, Single-Family Dwelling District, in part, and MF-22, Multiple-Family Dwelling District, in part, to MF-16, Multiple-Family Dwelling District.

SECTION TWO. That a site plan, which is attached hereto as Exhibit "B" and

incorporated herein for all purposes, is hereby adopted, and the use and development of the Property shall be subject to the following conditions and restrictions:

That the use and development of the Property shall conform to the regulations of the MF-16, Multiple-Family Dwelling District and the conditions shown on Exhibit "B".

SECTION THREE. That the definitions given in the zoning regulations contained in the City Code of the City of Midland, Texas, shall be applicable to such of those terms as are used herein.

SECTION FOUR. The provisions of this ordinance are to be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as that covered herein; provided, however, that all prior ordinances or parts of ordinances inconsistent with or in conflict with any of the provisions of this ordinance are hereby expressly repealed to the extent of any such inconsistency or conflict.

SECTION FIVE. If any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of this ordinance. The Council of the City of Midland hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SECTION SIX. The penalty for violation of this ordinance shall be in accordance with the general penalty provisions contained in Section 1-3-1 of the City Code of Midland, Texas, which provides for a fine not exceeding two thousand dollars ($2,000.00).

SECTION SEVEN. The City Secretary is hereby authorized and directed to publish the descriptive caption of this ordinance in the manner and for the length of time prescribed by the law as an alternative method of publication.

The above and foregoing ordinance was duly proposed, read in full and adopted on first reading, the 14th day of January, A.D., 2020; and passed to second reading

on motion of Council member Robnett, seconded by Council member Love, by the following vote:

Council members voting "AYE": Blong, Trost, Love, Payton, Dufford, Robnett, Ladd

Council members voting "NAY": None

The above and foregoing ordinance was read in full and finally adopted by the following vote upon motion of Council member Love, seconded by Council member Robnett, on the 28th day of January, A.D., 2020, at a regular meeting of the City Council:

Council members voting "AYE": Blong, Trost, Love, Payton, Dufford, Robnett, Ladd

Council members voting "NAY": None

PASSED AND APPROVED THIS 28th day of January, A.D., 2020.

Patrick N. Payton, Mayor

ATTEST:

Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

Robert Patrick, Assistant City Manager

Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

John Ohnemiller, City Attorney

MAVERICK
ENGINEERING · SURVEY · WATER RESOURCES
1909 West Wall Street, Suite K • Midland, TX 79701
Tel: 432.262.0999 • Fax: 432.262.0989 • maverick-eng.com
ENGINEER FIRM #: F-15089 | SURVEY FIRM #: 10194514

METES & BOUNDS DESCRIPTION

Of a Proposed 19.70 Acre tract of land out of Hillcrest Acres, a subdivision of Midland County, Texas, recorded in Volume 87, page 272, Deed Records of Midland County, Texas, more precisely described as follows:

Beginning at a 1/2" IPF for the most Northeast Corner of Lot 24 of Hillcrest Acres, at the Right of Way of Princeton Avenue (N 10694755.64, E 1736678.11, Texas State Plane Coordinate System, Central Zone, NAD 1983);

Thence South 14°06'39" East 257.72 Feet along and with the west Boundary of Lot 23 to a 1/2" IPS Cap FIRM 10194514 for an "L" Corner of this survey;

Thence North 75°42'59" East at 164.51 Feet to a 1/2" IPF for an interior corner of this survey;

Thence North 75°28'27" East 163.79 Feet to a 1/2" IPF for the Northeast Corner of the remainder of the North half of Lot 22, at the Southwest corner of a tract described in Volume 1480, Page 376, DRMCT and the most Easterly Northeast Corner of this survey;

Thence South 14°06'49" East 367.68 Feet to a 1/2" IPF with broken cap for the Southeast Corner of the North Half of Lot 22 Hillcrest Acres;

Thence South 75°51'13" West 163.99 Feet to a 1/2" IPF at the Northwest Corner of the South half of Lot 22, Hillcrest Acres;

Thence South 14°04'23" East 374.07 Feet along and with the East Boundary of Lot 23 to a 1/2" IPF for the most Easterly Southeast Corner of this Survey at the Northeast Corner of a tract described in Document # 2018-OPRMCT;

Thence South 75°24'24" West 164.08 Feet to a 1/2" IPF for the Northwest Corner of a tract described Document # 2018-24381, and the Northeast Corner of a tract described in Document # 2018-24381, OPRMCT;

Thence South 75°46'11" West 163.29 Feet to a 1/2" IPF for the Northwest Corner of a tract described Document # 2018-24381 OPRMCT;

EXHIBIT A

Thence South 14°10'27" East 262.70 Feet to a 1/2" IPF for most Southerly Southeast Corner of this survey, also the Southwest corner of a tract described in Document # 2018-24381 OPRMCT; a 1/2 IRF bears South 14°10'27" East 2.88 Feet;

Thence South 75°12'12" West 66.69 Feet to a 1/2" IPF for a Point of Intersection on the South Line of this Survey, at the Southeast Corner of Lot 25, Hillcrest Acres and the Southeast corner of a 0.36 acre tract described in Volume 2440, Page 798 OPRMCT;

Thence North 13°35'42" West 165.04 Feet to a 1/2" IPF, bent, an interior corner of this survey, and the Northeast corner of 0.36 acre tract described in Volume 2440, Page 798 OPRMCT;

Thence South 75°042'59" West 95.92 Feet to a 1/2" IPF for the Northwest Corner of said 0.36 acre tract and the most Northerly Northwest Corner of the South Half of Lot 25 of Hillcrest Acres;

Thence South 14°15'45" East 165.13 Feet to a 1/2" IPF for the Southeast Corner of Lot 26 and the Southwest corner of said 0.36 acre tract;

Thence South 75°28'03" West 327.18 Feet to a 1/2" IRF W/faded Cap for the Southwest Corner of the South Half of Lot 27 Hillcrest Acres, and the most Southerly Southwestern Corner of this survey;

Thence North 14°18'53" West 238.28 Feet to a 1/2" IPS Cap FIRM 10194514 for an interior corner of this survey, and the Northeast corner of a 0.90 acre tract described in Volume 1317, Page 525 OPRMCT;

Thence South 75°42'59" West 162.18 Feet to a 1" Steel Pipe for the most Northerly Southwestern Corner of this survey and the Northwest Corner of said 0.90 acre tract;

Thence North 15°03'36" West 400.86 Feet to a 1/2" IPF for the Northwest Corner of the South Half of Lot 28, Hillcrest Acres, and the most Southerly Northwestern Corner of this survey;

Thence North 75°42'59" East 331.39 Feet to a 1/2" IPF with faded cap for an interior corner of this survey;

Thence North 14°18'53" West 488.99 Feet a 1/2" IPS Cap FIRM 10194514 for a Northwestern corner of this survey, and the Southwestern corner of a 0.52 acre tract described in Volume 2813, page 530 OPRMCT, from which a 1/2" IPF with Schumann Cap bears South 17°00'15" East 10.01 Feet;

Thence North 75°42'59" East 164.21 Feet to a 1/2" IPF with faded Cap for the most Southerly Northeastern Corner of this survey and the Northwest Corner of said 0.90 acre tract;

Thence South 14°15'45" East 55.23 Feet to a ½" IPS Cap FIRM 10194514 for an interior corner of this survey, and the Southwestern corner of a tract described in Volume 1531, Page 733, OPRMCT;

Thence North 75°42'59" East 162.65 Feet to a 1/2"IPS Cap FIRM 10194514 for an interior corner of this survey, and the Southeast corner of a tract described in Volume 1531, Page 733, OPRMCT;

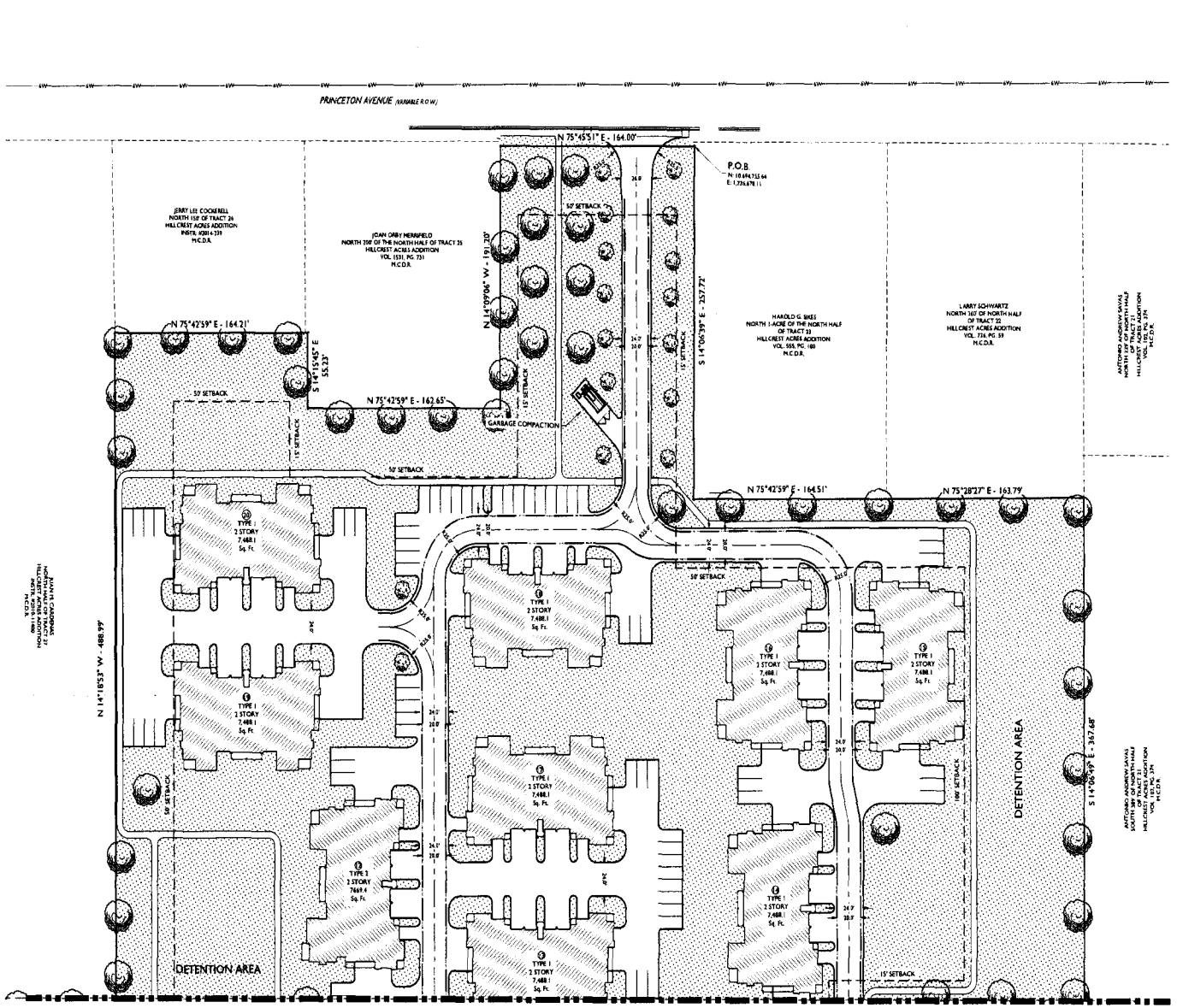
Thence North 14°09'06" West 191.20 Feet to a 1/2" IPS Cap FIRM 10194514 for the Most Northerly Northwest Corner of this survey and Lot 24;

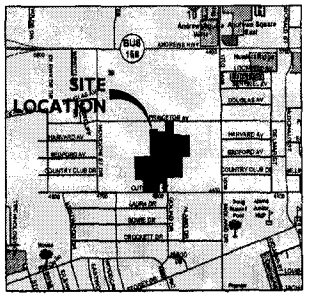
Thence North 75°45'51" East 164.00 Feet to the **Point of Beginning**, containing 19.70 acres, more or less.

25 September 2019



www.maverick-eng.com
Texas RPLS - No. 6135
Maverick Engineering (FIRM – No. 10194514)
1909 W. Wall St., Suite K
Midland, TX 79701
432-262-0999





VICINITY MAP

N.T.S.

LEGEND

- DENOTES BOUNDARY CORNER
- DENOTES EXISTING FIRE HYDRANT
- DENOTES EXISTING GAS METER
- DENOTES EXISTING LIGHT POLE
- DENOTES EXISTING MANHOLE
- DENOTES EXISTING POWER POLE
- DENOTES EXISTING WATER METER
- DENOTES EXISTING WATER VALVE
- DENOTES BOUNDARY LINE
- DENOTES EXISTING EASEMENT LINE
- DENOTES EXISTING FENCE
- DENOTES EXISTING GAS LINE
- DENOTES EXISTING OVERHEAD ELECTRIC LINE
- DENOTES EXISTING 8" SEWER LINE
- DENOTES EXISTING 12" SEWER LINE
- DENOTES EXISTING UNDERGROUND PIPELINE
- DENOTES EXISTING 6" WATER LINE
- DENOTES EXISTING 8" WATER LINE
- DENOTES CONCRETE
- DENOTES PROPOSED FIRE LANE

DEVELOPMENT NOTES:

GENERAL: SITE PLAN IS FOR A 19.78-ACRE PROPOSED MULTIFAMILY HOUSING DEVELOPMENT COMPOSED OF TWO BUILDING TYPES WITH FIRST FLOOR BUILDING FOOTPRINTS OF ±7,516-7,680 SQFT. SITE IS LOCATED ON PORTIONS OF TRACTS 22 AND 28 HILLCREST ACRES ADDITION CITY AND COUNTY OF MIDLAND, TEXAS ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOL. 102, PAGE 374, MIDLAND COUNTY DEED RECORDS. THE SITE IS LOCATED TO THE WEST OF THE INTERSECTIONS OF MIDLAND DRIVE WITH PRINCETON AND CUTHBERT AVENUES. THE DEVELOPMENT IS CURRENTLY ZONED IN PART AS A MF-22 FOR MULTIFAMILY HOUSING DISTRICT AND IN PART AS AN SF-1, SINGLE FAMILY HOUSING DISTRICT.

DEVELOPMENT: THE DEVELOPMENT WILL CONSIST OF ± 20 TWO-STORY STORY MULTI-FAMILY APARTMENT BUILDINGS WITH A PROPOSED DENSITY OF 11-UNITS PER ACRE.

BUILDING HEIGHT: THE STRUCTURES PLANNED ARE TO BE TWO-STORY, WITH A MAXIMUM BUILDING HEIGHT NOT TO EXCEED THE PROPOSED MF-16 ZONING DISTRICT MAXIMUMS OF 42'.

ACCESS: THE SITE IS PLANNED TO HAVE TWO (2) ACCESS POINTS. ONE TO THE NORTH ACCESSING PRINCETON AVENUE AND ONE TO THE SOUTH ACCESSING CUTHBERT AVENUE. ALL ACCESS POINTS ARE PLANNED FOR BOTH INGRESS AND EGRESS. THE FOLLOWING EASEMENTS ARE PLANNED FOR INCLUSION:

- ** BLANKET UTILITY ACCESS EASEMENT FOR LOCATION AND MAINTENANCE OF PUBLIC FACILITIES
- ** STANDARD CITY OF MIDLAND DRAINAGE EASEMENT PROVISION
- ** VARIOUS PRIVATE UTILITY EASEMENTS

FIRE ACCESS: ACCESS FOR FIRE TRUCKS WILL BE ALONG THE PROVIDED 24 FT. WIDE CORRIDOR WITH MINIMUM 25 FT. RADII THROUGHOUT.

PARKING: PROVIDED WITH 216 PARKING SPACES, OF WHICH 18 WILL BE ACCESSIBLE, AND AN ADDITIONAL 240 GARAGE UNITS AT THE FLOOR LEVEL OF BUILDING TYPES I AND II. SEE TABLE FOR PROPOSED UNIT-TO-PARKING TABULATIONS. STANDARD SIZING WILL BE 9'X20'.

TRASH: TRASH ENCLOSURES WILL BE IN COMPLIANCE WITH THE CITY OF MIDLAND REQUIREMENTS. PROPOSED TO BE COLLECTED BY THE CITY OF MIDLAND UTILIZING SIDE LOADING TRUCKS.

UTILITIES: PUBLIC UTILITIES ARE NOT PRESENT ON SITE. NEW WATER & SEWER SERVICE TAPS WILL BE REQUIRED WITHIN THE EXISTING FACILITIES IN THE ABUTTING RIGHTS-OF-WAY.

DRAINAGE: STORM WATER RUNOFF WILL BE RETAINED WITHIN THE DRAINAGE FACILITIES AS DESIGNED TO NOT INCREASE EXISTING 25-YR RUNOFF.

DIMENSIONAL NOTE:

- DIMENSIONS SHOWN ARE TYPICALLY TO FACE OF CURB UNLESS NOTED OTHERWISE.
- SIDEWALKS WILL BE 5 FT. IN WIDTH UNLESS NOTED OTHERWISE.

LANDSCAPE NOTES:

- LANDSCAPING ELEMENTS SHOWN ON THIS EXHIBIT ARE FOR ILLUSTRATIVE PURPOSES ONLY, AND DOES NOT NECESSARILY REFLECT THE FINAL DESIGN LANDSCAPING.
- THE LANDSCAPE PLAN THAT WILL BE SUBMITTED FOR CITY APPROVAL WILL BE IN COMPLIANCE WITH CITY STANDARDS.
- 430,475 SQFT (9.882 ACRES) OF LANDSCAPING AREA AS PROPOSED

FEMA FIRM NOTES:

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	ZONE	BASE FLOOD ELEVATION
48329	182	F	09/16/2005	X	N/A

AMENITIES NOTE:

AMENITIES INTENDED SHALL INCLUDE BUT MAY NOT BE LIMITED TO:

- POOL AREA
- COVERED TELLIS OR GAZEBOS
- OUTDOOR SEATING & LOUNGE AREA
- DOG PARK
- SCORED AND COLORED CONCRETE FEATURES

0' 40' 80' 120'
SCALE: 1"=40'

28.44

MAVERICK ENGINEERING
1909 West Wall Street, Suite "K"
Midland, Texas 79701
Tel: (432) 263-0999 Fax: (432) 263-0999
www.MaverickEng.com

REVISIONS	Δ	BY	DATE

DRAWN BY: TE
CHECKED BY: PMH
APPROVED BY: JXX
DATE: 11/08/2019
JOB: 190172

ZONING SITE PLAN
HILLCREST VILLAGE

BEING A 19.70-ACRE PORTION OF TRACTS 22 AND 28, HILLCREST ACRES ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS, ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOL. 102, PAGE 374, MIDLAND COUNTY DEED RECORDS.

PRELIMINARY REVIEW:
FOR THE PURPOSES OF INTERDEPARTMENTAL REVIEW ONLY. THEY SHALL NOT BE USED FOR THE PURPOSES OF CONSTRUCTION.

SHEET SP-01 OF 02

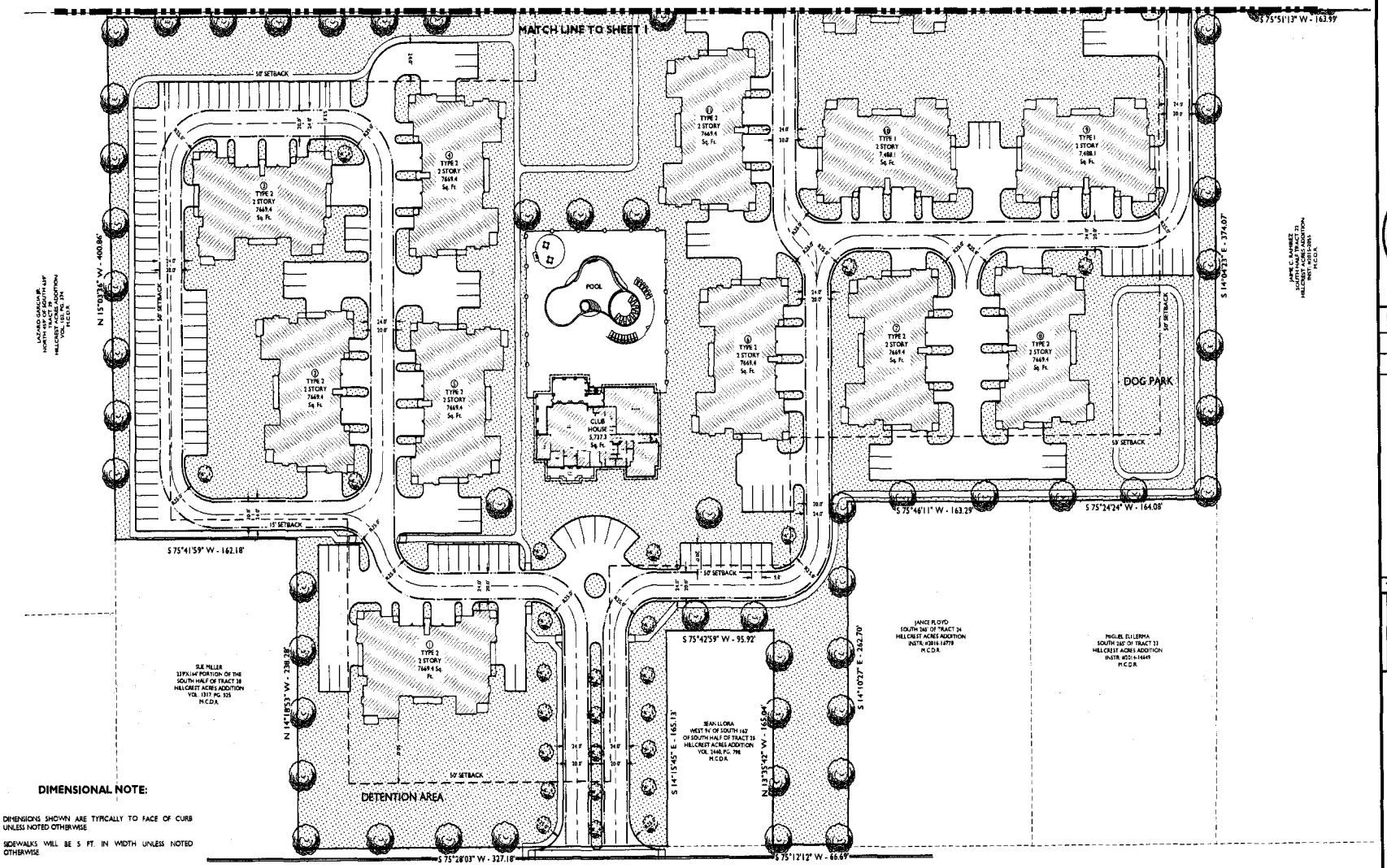
EXHIBIT B

25.12

PAGE

EXHIBIT B

December 16, 2020



DIMENSIONAL NOTE:

- DIMENSIONS SHOWN ARE TYPICALLY TO FACE OF CURB UNLESS NOTED OTHERWISE
- SIDEWALKS WILL BE 5 FT. IN WIDTH UNLESS NOTED OTHERWISE

LEGEND

- DENOTES BOUNDARY CORNER
- DENOTES EXISTING FIRE HYDRANT
- DENOTES EXISTING GAS METER
- DENOTES EXISTING LIGHT POLE
- DENOTES EXISTING MANHOLE
- DENOTES EXISTING POWER POLE
- DENOTES EXISTING WATER METER
- DENOTES EXISTING WATER VALVE
- DENOTES BOUNDARY LINE
- DENOTES EXISTING EASEMENT LINE
- DENOTES EXISTING FENCE
- DENOTES EXISTING GAS LINE
- DENOTES EXISTING OVERHEAD ELECTRIC LINE
- DENOTES EXISTING 8" SEWER LINE
- DENOTES EXISTING 12" SEWER LINE
- DENOTES EXISTING UNDERGROUND PIPELINE
- DENOTES EXISTING 6" WATER LINE
- DENOTES EXISTING 8" WATER LINE
- DENOTES CONCRETE
- DENOTES PROPOSED FIRE LANE

SCALE 1" = 40'

UNIT TABULATIONS

VICINITY MAP

ZONING SITE PLAN

HILLCREST VILLAGE

BEING A 19.70-ACRE PORTION OF TRACTS 33, 34 AND 38, HILLCREST ACRES ADDITION, CITY OF MIDLAND, TEXAS, ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOL. 102, PAGE 374, MIDLAND COUNTY DEED RECORDS

PRELIMINARY REVIEW:

FOR THE PURPOSE OF INTERIM/PRELIMINARY REVIEW. THEY SHALL NOT BE USED FOR THE PURPOSE OF CONSTRUCTION

SHEET SP-02 OF 02

MAVERICK ENGINEERING
1909 West Wall Street, Suite "K"
Midland, Texas 79701
Tel: (432) 263-0999 Fax: (432) 263-0999
www.maverick-eng.com






4615
CHEVROLET











City Council Meeting

Item Number: 29

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Valerie A. Sherman, Senior Planner

Subject: AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 9, BLOCK 4, REPLAT OF WINDWOOD PARK, CITY AND COUNTY OF MIDLAND, TEXAS, FROM LR, LOCAL RETAIL DISTRICT TO 2F, TWO-FAMILY DWELLING (DUPLEX) DISTRICT (GENERALLY LOCATED ON THE EAST SIDE OF NORTH MAIN STREET, APPROXIMATELY 91 FEET NORTH OF ELM AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Purpose:

The applicant, Gregory Stine, is requesting a zone change from LR, Local Retail District to 2F, Two-Family Dwelling (Duplex) District, to construct a duplex.

Recommended City Council Action:

☒ Approve ☐ Deny ☐ Directional / Informational

Fiscal Impact:

This proposal does not have a significant financial impact to the city.

Discussion:

The properties to the north, east, and south are LR, Local Retail District, and the locations of vacant lots. The property to the west is zoned 2F, Two-Family Dwelling (Duplex) District, and the location of a vacant lot.

Analysis:

The applicant is requesting this zone change to be able to construct a duplex on the lot. The lot dimensions satisfy the minimum requirements for the 2F zoning district.

This proposed project has been circulated to and reviewed by respective City departments for internal review and their comments, conditions, and requirements are as follows:

Fire: (Approved)

No objections.

Building: (Approved)

No issues. All future structures must adhere to the 2018 International Building Codes, the 2015 International Energy Code, the 2017 NEC requirements, the 2015 International Fire Codes, local city ordinances, zoning requirements, established setbacks, and floodplain requirements if necessary.

Engineering: (Approve)

No objections to zoning/zone change.

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

Code: (Approved)

No Oil or Gas issues.

Transportation: (Approved)

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

No objection to zone change.

Planning:

This proposed development fits with Chapter 3, An Integrated Land Use Vision, “Future Land Use Map” of the Tall City Tomorrow comprehensive plan as this area is called for Urban Medium Neighborhood Center. This designation calls for a mix of housing types, including single-family and townhomes, along with a mix of traditional neighborhood businesses.

The prevailing land uses in this area are mostly residential.

This request was recommended for approval by a unanimous vote at the October 19, 2020 Planning and Zoning Commission meeting and approved at the November 17, 2020 City Council meeting.

Staff recommends approval of this zone change from LR, Local Retail District to 2F, Two-Family Dwelling (Duplex) District, subject to condition A.

Condition:

A. That the use and development of the property shall conform to the regulations of the 2F, Two-Family Dwelling (Duplex) District.

Letters of Objection:

Staff has not received any objections as of November 11, 2020.

Attachments:

Application
Maps

Robert Patrick

City Manager's Office

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 9, BLOCK 4, REPLAT OF WINDWOOD PARK, CITY AND COUNTY OF MIDLAND, TEXAS, FROM LR, LOCAL RETAIL DISTRICT TO 2F, TWO-FAMILY DWELLING (DUPLEX) DISTRICT (GENERALLY LOCATED ON THE EAST SIDE OF NORTH MAIN STREET, APPROXIMATELY 91 FEET NORTH OF ELM AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION

WHEREAS, the City Planning and Zoning Commission and the Governing Body of the City of Midland, in compliance with the City Charter, the City Code, and State law, have given the requisite notices by United States mail, publication and otherwise; and after a full and fair hearing to all of the property owners generally and particularly to those interested persons situated in the affected area and in the vicinity thereof, the Governing Body finds that the public health, safety and general welfare will be best served by rezoning Lot 9, Block 4, Replat of Windwood Park, City and County of Midland, Texas (the "Property") to 2F, Two-Family Dwelling (Duplex) District, as set out hereinafter;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Zoning District Map of the City of Midland, Texas, is hereby amended to rezone the Property from LR, Local Retail District to 2F, Two-Family Dwelling (Duplex) District.

SECTION TWO. That the definitions given in the zoning regulations contained in the City Code of the City of Midland, Texas, shall be applicable to such of those terms as are used herein.

SECTION THREE. The provisions of this ordinance are to be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as that covered herein; provided, however, that all prior ordinances or parts of ordinances

inconsistent with or in conflict with any of the provisions of this ordinance are hereby expressly repealed to the extent of any such inconsistency or conflict.

SECTION FOUR. If any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of this ordinance. The Council of the City of Midland hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SECTION FIVE. The penalty for violation of this ordinance shall be in accordance with the general penalty provisions contained in Section 1-3-1 of the City Code of Midland, Texas, which provides for a fine not exceeding two thousand dollars ($2,000.00).

SECTION SIX. The City Secretary is hereby authorized and directed to publish the descriptive caption of this ordinance in the manner and for the length of time prescribed by the law as an alternative method of publication.

The above and foregoing ordinance was duly proposed, read in full and adopted on first reading, the _____ day of _____, A.D., 2020; and passed to second reading on motion of Council member _____, seconded by Council member _____, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

The above and foregoing ordinance was read in full and finally adopted by the following vote upon motion of Council member _____, seconded by Council member _____, on the _____ day of _____, A.D., 2020, at a regular meeting of the City Council:

Council members voting "AYE":

Council members voting "NAY":

PASSED AND APPROVED THIS _____ day of _____, A.D., 2020.

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

MIDLAND
Planning Division

Zone Change/Planned District Amendment/Site Plan Approval

Project Number: 2-20-0195

Case Number: _____

Applicant *(if acting as Agent, see affidavit on page 2)* Printed Name: Schumann Engineering- Ed Aleman		Phone (432) 684-5548 Email ealeman@schumannonline.net	
Address 800 N. Marienfeld Suite 100	City Midland	State TX	Zip 79701

Property Owner Printed Name: Gregory Stine		Phone (541) 892-1360 Email ealeman@schuman	
Address 1513 Edwards Street	City Midland	State TX	Zip 79701

Representative *(if different from Applicant or Property Owner)* Firm: _____ Printed Name:		Phone ( ) Email	
Address	City	State	Zip

Street Address: 2102 N. Main Street

Legal Description
Lot: 9 Block: 4 Subdivision: Re-plat of Windwood Park Addition

Current Zoning: LR

Proposed Zone: ~~SF2~~ 2F
(List by tracts if more than one district is requested)

Reason for Zone Change Request: To build Duplex

Present Use of Property: Vacant Lot

Proposed Use of Property: Duplex Construction

How would this zone change affect the public health, safety and welfare? None

Describe how conditions affecting the property have changed since present zoning designation: None

Submittal and Fees
Items to be submitted with this application form:

- Application Fee – Payable to the 'City of Midland'
- Dimensioned Site Plan
- Digital Copies of Site Plan (PDF/JPEG)

Signature *(by property owner only – authorized agent must sign affidavit below)*	
Applicant (signature): Eduardo J. Aleman	Date: 9-22-20
Applicant (printed): Ed Aleman	
Property Owner (signature): Greg Stine	Date: 9-22-20
Property Owner (printed) :	

The Zone Change/Planned District Amendment/Site Plan Approval shall be considered officially received in the Planning office only when it has been submitted in full compliance with the provisions of Section 212 of the Texas Local Government Code and the Zoning Code of Ordinances of the City of Midland and when such required items for the application are also received.

All materials, including exhibits, submitted in support of an application, or displayed during a public hearing, shall remain the property of the City of Midland.

If an agent is authorized by the property owner to file and execute the application on behalf of the property owner, the agent must complete the affidavit below.

STATE OF TEXAS
COUNTY OF MIDLAND

Before me, the undersigned authority, on this day personally appeared Ed Aleman who, being by me duly sworn, upon oath says: That (s)he is authorized by Gregory Stine, the owner of the above described property, to fully represent him/her in this application and that (s)he had the legal right, power and authority to sign said owner's name hereto as his/her attorney in fact.

Eduardo J. Aleman
Authorized Agent (*signature*)

Subscribed and sworn to before me, this 22nd day of September, 20 20, to certify which witness my hand and seal of office.

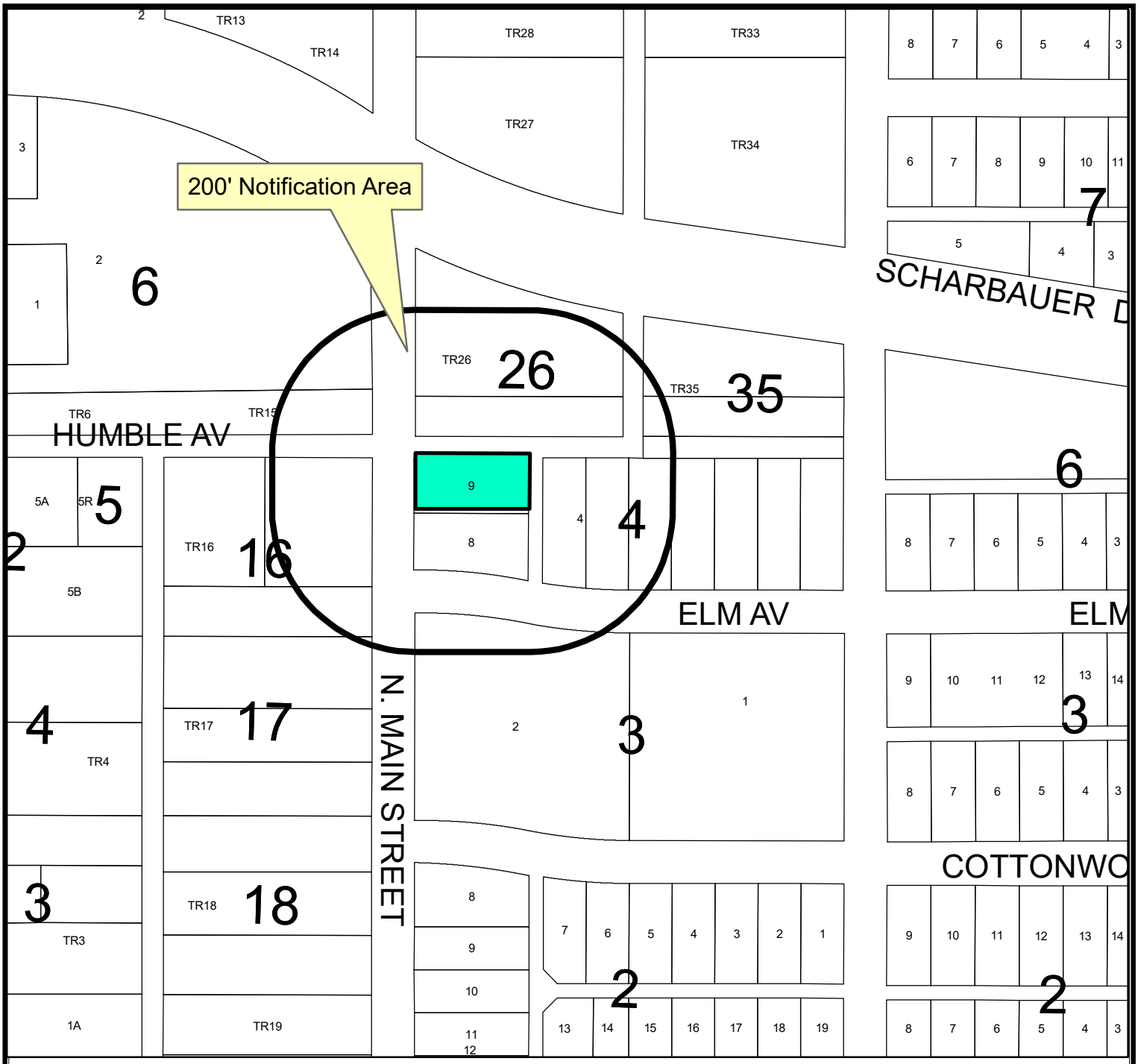
HUNTER WAYNE HALL
Notary Public, State of Texas
Comm. Expires 06-05-2024
Notary ID 132509132

NOTARY PUBLIC, MIDLAND COUNTY, TEXAS

FOR OFFICE USE ONLY

☐ Property Owner Authorization	☐ Dimensioned Site Plan
☐ Application Fee	☐ Plans in Digital Format (PDF/JPEG)
Check #_____	
Received By:	Date:

****Application will not be considered for scheduling until reviewed by a planner.****



LOCATION MAP

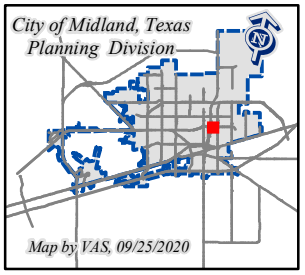
Z-20-0195 **Scale: 1" = 200**

Consider a request by Gregory Stine, for a zone change from LR, Local Retail District, to 2F, Two-Family Dwelling (Duplex) District on Lot 9, Block 4, Replat of Windwood Park, City and County of Midland, Texas.

Generally located on the east side of N. Main Street, approximately 211 feet north of Elm Avenue. (Council District 2)

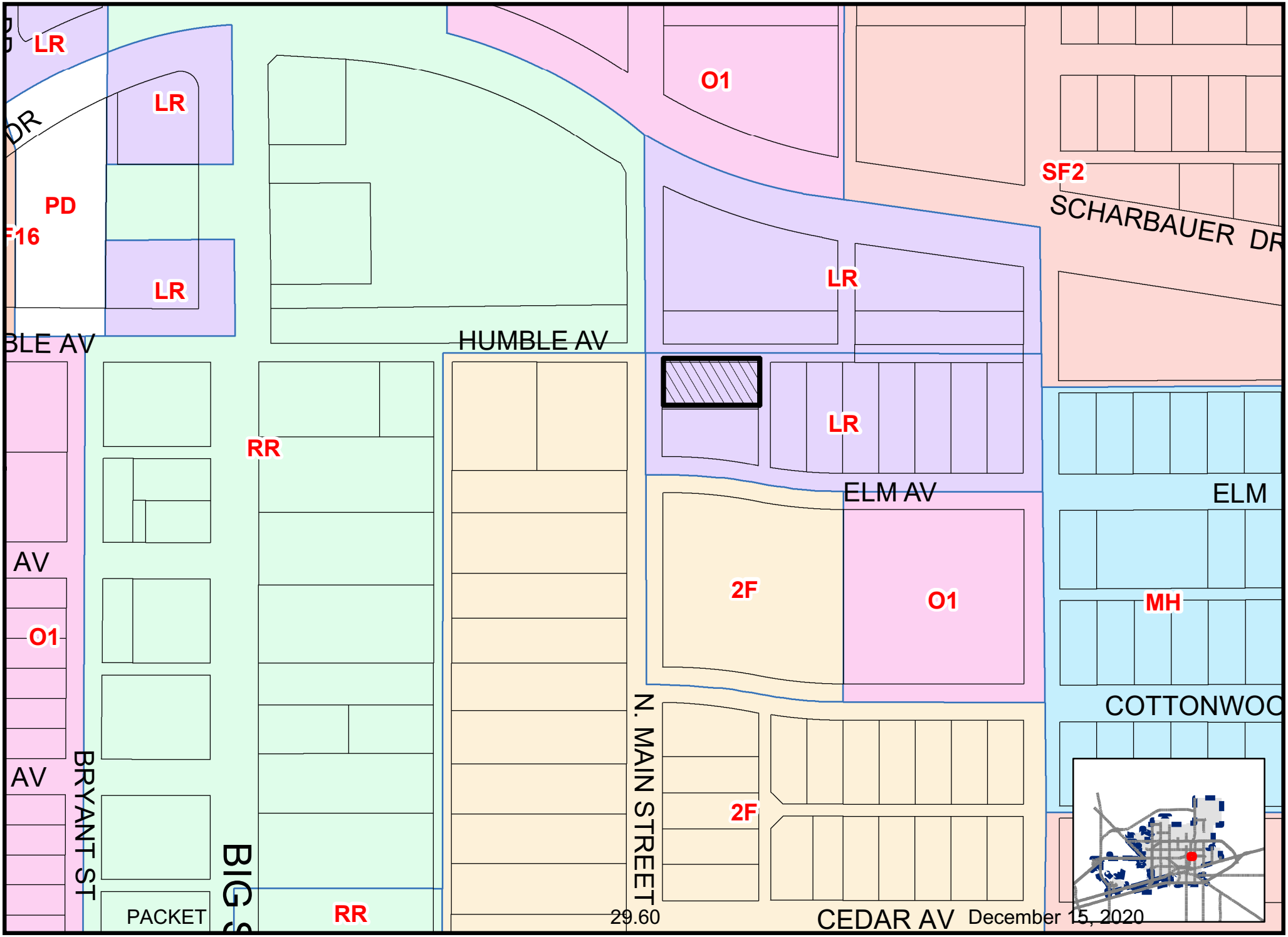
LEGEND

- CITY LIMITS
- PARCEL
- PRIVATE BLDGS



©THE CITY OF MIDLAND - 2020
THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY DOCUMENT NOR IS IT DESIGNED TO BE USED AS THE PRIMARY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.
THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.

December 15, 2020



Map By VAS, 09/25/2020

Z-20-0195

Scale: 1" = 200'

ZONING MAP

© THE CITY OF MIDLAND - 2020: THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY PRODUCT, NOR IS IT DESIGNED TO BE USED AS A PRIMARY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN. THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.









City Council Meeting

Item Number: 30

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Valerie A. Sherman, Senior Planner

Subject: **AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO GRANT A SPECIFIC USE DESIGNATION WITH TERM FOR A 3,588-SQUARE FOOT PORTION OF LOT 2, BLOCK 1, WALLACE HEIGHTS, SECTION 2, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE EAST SIDE OF NORTH LOOP 250 WEST, APPROXIMATELY 377 FEET SOUTH OF SINCLAIR AVENUE), WHICH IS PRESENTLY ZONED RR, REGIONAL RETAIL DISTRICT, ALLOWING SAID PROPERTY TO BE USED FOR THE SALE OF ALL ALCOHOLIC BEVERAGES IN A RESTAURANT FOR ON-PREMISES CONSUMPTION; MAKING SAID DESIGNATION SUBJECT TO CERTAIN CONDITIONS AND RESTRICTIONS CONTAINED HEREIN; CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)**

Purpose:

The applicant is requesting a Specific Use Designation with Term for the sale of all alcoholic beverages for on-premises consumption in a restaurant at 1910 N. Loop 250 West, Suite C, Midland, Texas 79707.

Recommended City Council Action:

☒ Approve ☐ Deny ☐ Direction/Informational

Fiscal Impact:

This proposal does not have a significant financial impact to the City.

Current Zoning:

RR, Regional Retail District.

Surrounding Zoning and Land Use:

The property is located at 1910 N. Loop 250 West, Suite C, in the RR, Regional Retail District. The property to the north is zoned PD, Planned Development District for a Transitional District, and the location of a Tracker Boating Center. The property to the east is zoned PD, Planned Development District for a Housing Development, and the location of Manor Park South. The property to the south is zoned RR, Regional Retail District, and the location of a Chick-fil-A Restaurant. The property to the west, across N. Loop 250 West, is zoned O-1, Office District, and the location of Health South Rehabilitation Center.

Discussion:

JE Midland Ops, LLC, is requesting a Specific Use Designation for the property located at 1910 N. Loop 250 West, Suite C, to be able to sell all alcoholic beverages for on premises consumption, within a restaurant. The property is zoned RR, Regional Retail District, which allows the consumption of alcoholic beverages with the approval of a Specific Use Designation.

The restaurant is currently in operation. The floor plan attached hereto as “Exhibit A” illustrates that the establishment, will have a total square footage of 3,588 square feet, with an alcohol serviceable area of 1,694 square feet.

The proposed site plan provides adequate access and internal circulation.

The restaurant has the following hours of operation:

Monday through Sunday from 6:00 a.m. to 2:00 p.m.

The restaurant is proposing the following hours of alcohol service:

Monday through Saturday from 7:00 a.m. to 2:00 p.m.
Sunday from 10:00 a.m. to 2:00 p.m.

Per Midland City Code, Section 5-4-4, Prohibited Places of Business:

The sale of any alcoholic beverage is hereby prohibited by any person, where the place of business of any such dealer is within 300 feet of any church, public school, public school ground, athletic stadium used by any public school or public hospital, the measurements to be along the property lines of the street fronts and from front door to front door and in a direct line across intersections where they occur.

There are no schools or churches within 300 feet of the property.

This request has been circulated to and reviewed by respective City departments for internal review and their comments, conditions, and requirements are as follows:

Engineering: (Approved)

No objections

Fire: (Approved)

No objections

Transportation: (Approved)

No objections.

Code Administration: (Approved)

The SUD for Jimmy's Egg is acceptable provided that no major changes have taken place including increased sizing of the dining/seating area or increases to the building footprint. The property must adhere to the current maximum occupant load of 115 as listed. Occupancy loads must be posted in accordance with section 1004.3 of the 2015 International Fire Code.

Planning:

This request is in compliance with the Tall City Tomorrow Comprehensive plan, Chapter 6 Character Plan - Goal 4, “Encourage the development of places where Midland residents can gather and socialize to build connections” (Tall City tomorrow, page 137).

This request was recommended for approval at the November 2, 2020 Planning and Zoning Commission Meeting and approved at the November 17, 2020 City Council meeting.

This request meets all requirements; therefore, staff recommends approval of the Specific Use Designation with Term for the sale of all alcoholic beverages, for on-premises consumption, in a restaurant, subject to Conditions A through E.

Conditions:

A. **That the serviceable area of the restaurant shall be limited to approximately 1,694 square feet as shown in Exhibit “A”, which is attached hereto and incorporated herein for all purposes.**

B. **That the days and hours of alcoholic beverages sales and consumption shall be limited to:**

Monday through Saturday from 7:00 a.m. to 2:00 p.m.
Sunday from 10:00 a.m. to 2:00 p.m.

C. **That the occupancy of the establishment shall not exceed the maximum occupancy determined by the Building Code and Fire Code.**

D. **That the establishment shall meet all requirements of the Fire Department and Code Administration.**

E. **That the sale and on-premises consumption of alcoholic beverages shall conform to applicable state and local laws.**

Letters of Objection:

As of November 11, 2020, staff has not received any letters of objections.

Attachments:

Floor Plan (Exhibit A)
Application
Maps

Robert Patrick

City Manager's Office

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO GRANT A SPECIFIC USE DESIGNATION WITH TERM FOR A 3,588-SQUARE FOOT PORTION OF LOT 2, BLOCK 1, WALLACE HEIGHTS, SECTION 2, CITY AND COUNTY OF MIDLAND, TEXAS (GENERALLY LOCATED ON THE EAST SIDE OF NORTH LOOP 250 WEST, APPROXIMATELY 377 FEET SOUTH OF SINCLAIR AVENUE), WHICH IS PRESENTLY ZONED RR, REGIONAL RETAIL DISTRICT, ALLOWING SAID PROPERTY TO BE USED FOR THE SALE OF ALL ALCOHOLIC BEVERAGES IN A RESTAURANT FOR ON-PREMISES CONSUMPTION; MAKING SAID DESIGNATION SUBJECT TO CERTAIN CONDITIONS AND RESTRICTIONS CONTAINED HEREIN; CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION

WHEREAS, the City Planning and Zoning Commission and the Governing Body of the City of Midland, Texas, in compliance with the City Charter, the City Code, and State law, have given the requisite notices by United States mail, publication and otherwise; and after holding due hearings affording a full and fair hearing to all of the property owners generally, and particularly to those interested persons situated in the affected area and in the vicinity thereof, the Governing Body of the City of Midland finds that the public convenience will be best served by granting a Specific Use Designation With Term for a 3,588-square foot portion of Lot 2, Block 1, Wallace Heights, Section 2, City and County of Midland, Texas (the "Property"), as set out hereinafter;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Zoning District Map of the City of Midland, Texas, is hereby amended to grant the Property a Specific Use Designation With Term for the sale of all alcoholic beverages for on-premises consumption in a restaurant (the "Establishment"), together with the uses permitted in the present RR, Regional Retail District.

SECTION TWO. That the Property shall be subject to the following conditions and

restrictions:

A. That the serviceable area of the Establishment shall be limited to approximately 1,694 contiguous square feet as shown in Exhibit "A", which is attached hereto and incorporated herein for all purposes.

B. That the sale and on-premises consumption of alcoholic beverages shall conform to all applicable state and local laws.

C. That the days and hours of alcoholic beverage sales and consumption shall be limited to the following:

Monday through Saturday from 7:00 a.m. to 2:00 p.m.; and
Sunday from 10:00 a.m. to 2:00 p.m.

D. That the occupancy of the Establishment shall not exceed the maximum occupancy determined by the Building Code and Fire Code.

E. That the Establishment shall meet the requirements of the Fire Department and the Code Administration Division.

SECTION THREE. The provisions of this ordinance are to be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as that covered herein; provided, however, that all prior ordinances or parts of ordinances, inconsistent with or in conflict with any of the provisions of this ordinance are hereby expressly repealed to the extent of any such inconsistency or conflict.

SECTION FOUR. If any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of this ordinance. The Council of the City of Midland hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SECTION FIVE. The penalty for violation of this ordinance shall be in accordance with the general penalty provisions contained in Section 1-3-1 of the City Code of Midland, Texas, which provides for a fine not exceeding two thousand dollars ($2,000.00).

SECTION SIX. The City Secretary is hereby authorized and directed to publish the descriptive caption of this ordinance in the manner and for the length of time prescribed by

the law as an alternative method of publication.

The above and foregoing ordinance was duly proposed, read in full and adopted on first reading, the _____ day of _____, A.D., 2020; and passed to second reading on motion of Council member _____, seconded by Council member _____, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

The above and foregoing ordinance was read in full and finally adopted by the following vote upon motion of Council member _____, seconded by Council member _____, on the _____ day of _____, A.D., 2020, at a regular meeting of the City Council:

Council members voting "AYE":

Council members voting "NAY":

PASSED AND APPROVED THIS _____ day of _____, A.D., 2020.

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

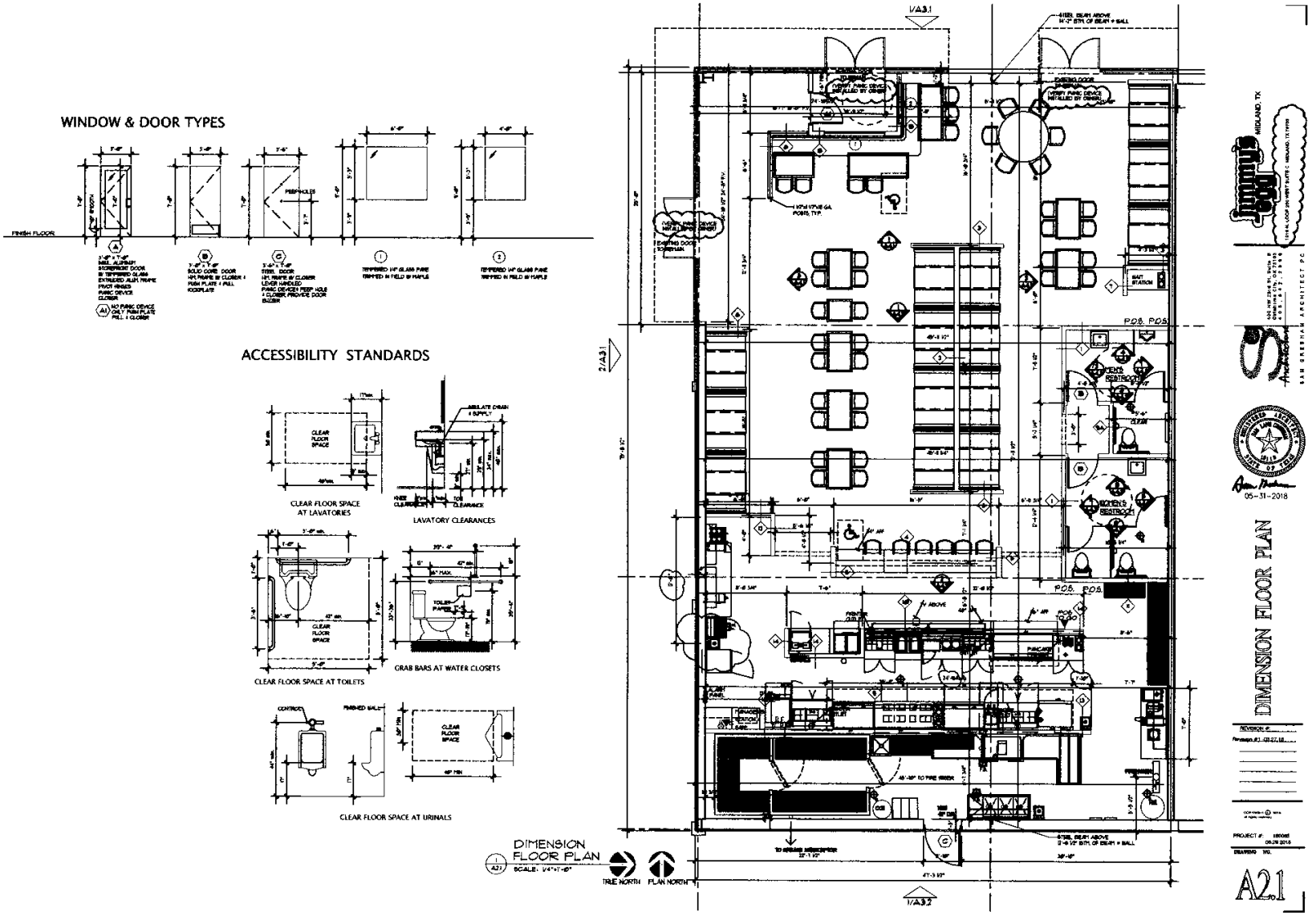
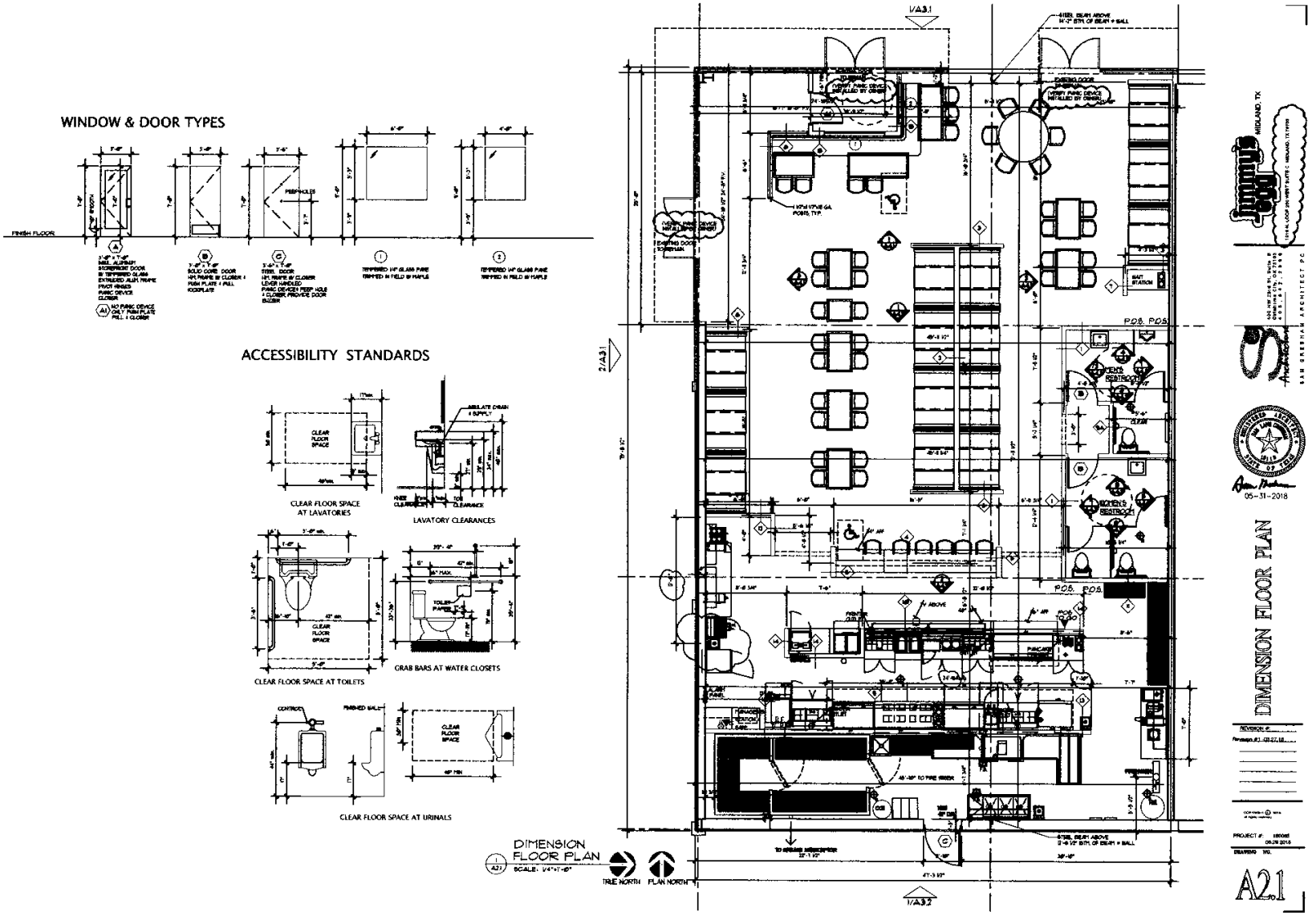
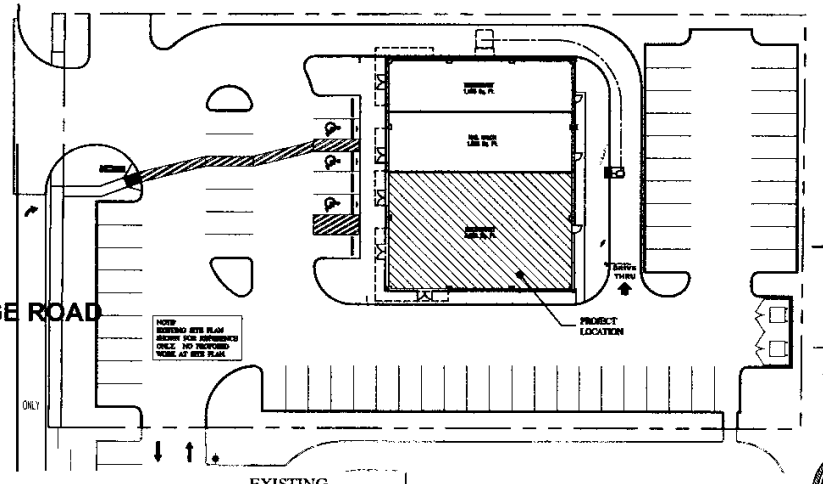

WINDOW & DOOR TYPES
ACCESSIBILITY STANDARDS
CLEAR FLOOR SPACE AT LAVATORIES
LAVATORY CLEARANCES
CLEAR FLOOR SPACE AT TOILETS
GRAB BARS AT WATER CLOSETS
CLEAR FLOOR SPACE AT URINALS
DIMENSION FLOOR PLAN
SCALE: 1/4"=1'-0"
TRUE NORTH
PLAN NORTH
DIMENSION FLOOR PLAN
A21

EXHIBIT "A"


WINDOW & DOOR TYPES
FINISH FLOOR
ACCESSIBILITY STANDARDS
CLEAR FLOOR SPACE AT LAVATORIES
LAVATORY CLEARANCES
CLEAR FLOOR SPACE AT TOILETS
GRAB BARS AT WATER CLOSETS
CLEAR FLOOR SPACE AT URINALS
DIMENSION FLOOR PLAN
SCALE: 1/4"=1'-0"
TRUE NORTH
PLAN NORTH
1/A3.1
2/A3.1
1/A3.2
MEN'S RESTROOM
WOMEN'S RESTROOM
DIMENSION FLOOR PLAN
05-31-2018
A21

jimmy's egg

1904 LOOP 250 FRONTAGE ROAD
MIDLAND, TX
79703



EXISTING SITE PLAN
1" = 20'-0"

True North

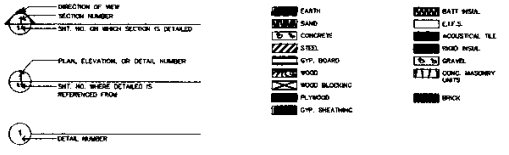
INDEX OF DRAWINGS

	ARCHITECTURAL		MEP		
CO	COVERSHEET	MEP1.1	SPECIFICATIONS		
A2.1	DIMENSION FLOOR PLAN	MEP1.2	SPECIFICATIONS		
A2.2	EQUIPMENT PLAN AND SCHEDULE	MEP1.3	MEP ROOF PLAN		
A2.3	REFLECTED CEILING PLAN	M1.1	TYPICAL MECHANICAL NOTES		
A2.4	FINISH FLOOR PLAN & SCHEDULE	M2.0	BLACK BOX OVERALL MECHANICAL		
		M2.1	MECHANICAL PLAN		
		M2.2	MECHANICAL EXHAUST	P1.1	ABBREVIATIONS AND SYMBOLS AND NOTES
A3.1	EXTERIOR ELEVATIONS	M3.1	MECHANICAL DETAILS	P2.0	BLACK BOX PLUMBING
A3.2	EXTERIOR ELEVATIONS	M4.1	MECHANICAL SCHEDULES	P2.1	UNDER FLOOR PLUMBING
		E1.1	ABBREVIATION AND SYMBOLS AND NOTES	P3.1	PLUMBING PLAN
A4.1	INTERIOR ELEVATIONS			P3.2	GAS PIPING PLAN
A4.2	INTERIOR ELEVATIONS	E2.0	BLACK BOX OVERALL ELECTRICAL	P4.1	PLUMBING DETAILS
A4.3	INTERIOR ELEVATIONS	E2.0A	SITE LIGHTING PLAN	P4.2	PLUMBING DETAILS
		E2.1	LIGHTING PLAN	P5.1	PLUMBING RISER
A5.1	PARTITION TYPES	E3.1	POWER PLAN	P6.1	PLUMBING SCHEDULES
		E4.1	ELECTRICAL DETAILS		
		E5.1	ELECTRICAL RISER		

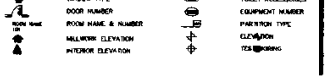
LEGAL DESCRIPTION:
FIELD NOTES OF A 1.098 ACRE TRACT OF LAND OUT OF THE EAST PART OF LOT 2, AND THE SOUTHEAST PART OF LOT 1, BLOCK 1, WALLACE HEIGHTS, SECTION 2, AND THE ADDITION TO THE CITY OF MIDLAND, RECORDED IN CABINET B, PATE 294, MIDLAND COUNTY PLAT RECORDS, OUT OF TRACT 18, WALLACE HEIGHTS.

05-31-2018

Section/Detail Mark/Material legend



Symbol Legend



Building Code

2015 IBC 2015 IMC
2015 IFC 2015 IFGC
2015 IPC 2014 NEC
2009 ICC A117.1 Accessible & Usable Buildings & Facilities (A117.1)

PROJECT INFORMATION

ARCHITECT: SAN GRESHAM
400 NW 23RD ST. SUITE B
OKLAHOMA CITY, OK 73103
TEL. 405-842-2998

MEP ENGINEER: RICHARD L. NORRIS,
ADD. 4720 WORCHESTER LANE
McKINNEY, TX. 75070
TEL. 214-548-5118

CONSTRUCTION TYPE 2B
OCCUPANCY A2
JIMMY'S EGG = 3,486 SQ./FT.
OCCUPANCY LOAD - JIMMY'S EGG
DINING ROOM=113
WAITING=24
KITCHEN=6
TOTAL= 143 OCCUPANTS

FULLY SPRINKLED AS PER NFPA 13

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO BUILDING CODES, ORDINANCES, AND LAWS HAVING JURISDICTION AT PROJECT SITE. NOTIFY ARCHITECT IN WRITING OF ALL CONFLICTS.
2. EXAMINATION OF SITE: THE CONTRACTOR SHALL VISIT THE PROJECT SITE AND EXAMINE FOR HIMSELF ALL CONDITIONS AFFECTING THE WORK. CONTRACTOR SHALL SATISFY HIMSELF AS TO LOCATION AND MATERIALS NECESSARY TO PREPARE THE SITE FOR EXECUTION OF THIS CONTRACT.
3. DIMENSIONS: DO NOT SCALE DRAWINGS. USE DIMENSIONS SHOWN ON DRAWINGS AND ACTUAL FIELD MEASUREMENTS. NOTIFY ARCHITECT IN WRITING OF DISCREPANCIES. VERIFY ALL DIMENSIONS AND CONDITIONS AND NOTIFY ARCHITECT OF ALL DISCREPANCIES IN WRITING BEFORE PROCEEDING WITH WORK. ANY ERRORS, OMISSIONS AND/OR CONFLICTS IN DRAWINGS AND SPECIFICATIONS SHALL BE REPORTED TO ARCHITECT FOR CORRECTION BEFORE ANY CONSTRUCTION IS PERFORMED. NO CHANGES SHALL BE MADE IN DRAWINGS OR SPECIFICATIONS WITHOUT WRITTEN APPROVAL OF ARCHITECT. ALL CHANGES SHALL BE APPROVED BY THE OWNER, ARCHITECT, AND CITY BUILDING OFFICIAL BEFORE CONSTRUCTION BEGINS. ANY CHANGES MADE WITHOUT THE PROPER APPROVALS MAY BE STRUCK AND CHARGES TO THE CONTRACTOR AT THE OWNER'S DISCRETION.
4. CONTRACTORS: IT SHALL BE ANY CONTRACTOR'S RESPONSIBILITY FOR PROPER COORDINATION OF THE WORK OF THE TRADES. CONTRACTORS SHALL BE RESPONSIBLE ONLY FOR THOSE ITEMS OF WORK WHICH IS REFERENCED UPON PROPER SUBMITTAL TO BE INSTALLED IN EXISTING INDIVIDUAL CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS BY TAKING MEASUREMENTS AT BUILDING SITE AND SHALL BE RESPONSIBLE FOR THEIR CORRECTNESS. ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND EXISTING CONDITIONS SHALL BE REFERRED TO THE ARCHITECT FOR ADJUSTMENT BEFORE ANY WORK AFFECTED THEREBY IS COMMENCED. ANY WORK DONE AFTER SUCH DISCREPANCY IS DISCOVERED SHALL BE DONE AT CONTRACTOR'S RISK.
5. QUALITY OF WORK: ALL WORK SHALL BE PERFORMED IN A FIRST CLASS WORKMANLIKE MANNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE QUALITY OF WORK OF ALL SUBCONTRACTORS AND SHALL REQUIRE ALL SUBCONTRACTORS TO PERFORM THEIR WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. QUALITY OF MATERIAL OR EQUIPMENT NOT SPECIFICALLY DESCRIBED SHALL BE OF A TYPE CONSISTENT WITH THE QUALITY OF THE MATERIAL OR EQUIPMENT SPECIFICALLY DESCRIBED. CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES: THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT, UNLESS THE CONTRACT DOCUMENTS GIVE OTHER SPECIFIC INSTRUCTIONS CONCERNING THESE MATTERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTS AND OMISSIONS OF THE CONTRACTOR'S EMPLOYEES AND SUBCONTRACTORS AND THEIR AGENTS AND EMPLOYEES, AND OTHER PERSONS PERFORMING PORTIONS OF THE WORK UNDER A CONTRACT WITH THE CONTRACTOR OR ANY OF ITS SUBCONTRACTORS.
6. MANUFACTURER'S DIRECTIONS: ALL MANUFACTURED ARTICLES, MATERIAL AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND CONDITIONED AS DIRECTED BY THE MANUFACTURERS, UNLESS OTHERWISE SPECIFIED TO THE CONTRARY.
7. GOOD AND MATERIAL: ANY ITEM OR MATERIAL NOT SPECIFICALLY MENTIONED IN THE PROJECT MANUAL BUT NECESSARY TO A PROPER AND COMPLETE INSTALLATION OR CONSTRUCTION OF THE WORK SHALL BE SUPPLIED AS IF SPECIFICALLY COVERED IN THE CONTRACT DOCUMENTS. ALL MATERIALS SHALL BE PURCHASED, IF IN MARKET DEMAND, GOOD PRACTICE OF THE TRADE INVOLVED. MATERIALS AND EQUIPMENT ANY SPECIFICALLY COVERED BY THE CONTRACT DOCUMENTS SHALL BE OF A STANDARD EQUAL TO GOOD TRADE PRACTICE FOR THE PURPOSE INTENDED. ALL CLASS OF STRUCTURE CONSTRUCTED AND TO THE MINIMUM STANDARD OF SPECIFIED HEREIN.
8. PERMITS, FEES AND NOTICES: THE OWNER SHALL SECURE AND PAY FOR THE BUILDING PERMIT UNLESS OTHER ARRANGEMENTS ARE MADE WITH THE OWNER. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL OTHER PERMITS RELATED TO HIS WORK. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, CODES AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING ON THE PERFORMANCE OF HIS WORK.
9. INSURANCE: OWNER AND ALL CONTRACTORS SHALL EFFECT AND MAINTAIN PROPER INSURANCE.
10. CHANGES IN WORK: ALL CHANGES IN THE DOCUMENTS ARE TO BE DOCUMENTED BY WRITTEN FIELD ORDER, OR CHANGE ORDER INITIATED BY THE ARCHITECT AND SIGNED BY OWNER AND CONTRACTOR.

COVERSHEET

REVISION #:

PROJECT #: 180309
09.21.2018

CO

MIDLAND
Planning Division

Specific Use Permit with Term for the Sale of Alcoholic Beverages for On-Premises Consumption

Project Number: SUP20-0016

Case Number: _____

Applicant *(if acting as Agent, see affidavit on page 2)* Printed Name: JE Midland Ops LLC		Phone ( ) Email	
Address 211 E. 7th St. Ste 620	City Austin	State TX	Zip 78701
Property Owner Printed Name: PUD Holdings, LLC		Phone (713) 956-6625 Email rdennard@crisscrosscg.com	
Address 12621 Featherwood Dr. #330	City Houston	State TX	Zip 77034
Representative *(if different from Applicant or Property Owner)* Firm: BrackinSchwartz PLLC Printed Name: Catherine Chamblee, Esq		Phone (512) 549-8906 Email catherine@txliquorlaw.com	
Address 511 W 7th Street	City Austin	State TX	Zip 78701

Street Address: 1910 N Loop 250 W, Ste C, Midland, TX 79707

Business Name: Jimmy's Egg

Legal Description
Lot: 0020 Block: 001 Subdivision: ADDN Wallace Heights Sec 2

Current Zoning: RR

Reason for Request: Addition of an MB permit for the on-premise sales of alcohol

Type of Business *(restaurant, bar, lounge, nightclub, etc.)*: Restaurant

Proposed/Current Days and Hours of Operation: 6am - 2pm 7 days a week

Proposed Days and Hours of Alcohol Service: Mon - Sat: 7am - 2pm; Sunday with food: 10am-12pm; Sunday with/without food: 12pm - 2pm

Total Square Footage of Business: 3588 sq ft

Square Footage of Alcohol Serviceable Area: 1750 sq ft

Restroom Fixtures: *Men*	**Toilets/Urinals:** 1 / 1	**Bathroom Sinks:** 1
Women	**Toilets:** 2	**Bathroom Sinks:** 1

Submittal and Fees

Items to be submitted with this application form:

- Application Fee – Payable to the 'City of Midland'
- Dimensioned Floor Plan showing:
  - Seating
  - Exits
  - Restrooms
  - Kitchen
  - Total Square Footage
  - Serviceable Square Footage
- Dimensioned Site Plan showing:
  - Parking
  - Business Footprint
- Digital Copies of Floor Plan & Site Plan (PDF/JPEG)

Signatures

Applicant (signature): Date:

Applicant (printed):

Property Owner (signature): Ryan Dennard Date: 9/21/20

Property Owner (printed): Ryan Dennard, Manager, PWD Holdings LLC

The Specific Use Permit with Term for the sale of all alcoholic beverages shall be considered officially received in the Planning office only when it has been submitted in full compliance with the provisions of Section 212 of the Texas Local Government Code and the Zoning Code of Ordinances of the City of Midland and when such required items for the application are also received.

All materials, including exhibits, submitted in support of an application, or displayed during a public hearing, shall remain the property of the City of Midland.

If an agent is authorized by the property owner to file and execute the application on behalf of the property owner, the agent must complete the affidavit below.

STATE OF TEXAS
COUNTY OF MIDLAND

Before me, the undersigned authority, on this day personally appeared Catherine Crandle who, being by me duly sworn, upon oath says: That (s)he is authorized by Ryan Dennard, the owner of the above described property, to fully represent him/her in this application and that (s)he had the legal right, power and authority to sign said owner's name hereto as his/her attorney in fact.

Authorized Agent (*signature*)

Subscribed and sworn to before me, this 10th day of September, 20 20, to certify which witness my hand and seal of office.

JESSICA REEDY SOLE
My Notary ID # 126422744
Expires February 25, 2024

NOTARY PUBLIC, MIDLAND COUNTY, TEXAS

****Application will not be considered for scheduling until reviewed by a planner.****

Submittal and Fees
Items to be submitted with this application form:

- Application Fee – Payable to the 'City of Midland'
- Dimensioned Floor Plan showing:
  - Seating
  - Exits
  - Restrooms
  - Kitchen
  - Total Square Footage
  - Serviceable Square Footage
- Dimensioned Site Plan showing:
  - Parking
  - Business Footprint
- Digital Copies of Floor Plan & Site Plan (PDF/JPEG)

Signatures

Applicant (signature): [signature]	Date: 9/3/2020
Applicant (printed): William C. Liedtke III Manager	
Property Owner (signature):	Date:
Property Owner (printed) : _____	

The Specific Use Permit with Term for the sale of all alcoholic beverages shall be considered officially received in the Planning office only when it has been submitted in full compliance with the provisions of Section 212 of the Texas Local Government Code and the Zoning Code of Ordinances of the City of Midland and when such required items for the application are also received.

All materials, including exhibits, submitted in support of an application, or displayed during a public hearing, shall remain the property of the City of Midland.

If an agent is authorized by the property owner to file and execute the application on behalf of the property owner, the agent must complete the affidavit below.

STATE OF TEXAS
COUNTY OF MIDLAND

Before me, the undersigned authority, on this day personally appeared _____ who, being by me duly sworn, upon oath says: That (s)he is authorized by _____, the owner of the above described property, to fully represent him/her in this application and that (s)he had the legal right, power and authority to sign said owner's name hereto as his/her attorney in fact.

_____
Authorized Agent (*signature*)

Subscribed and sworn to before me, this _____ day of _____, 20 ___, to certify which witness my hand and seal of office.

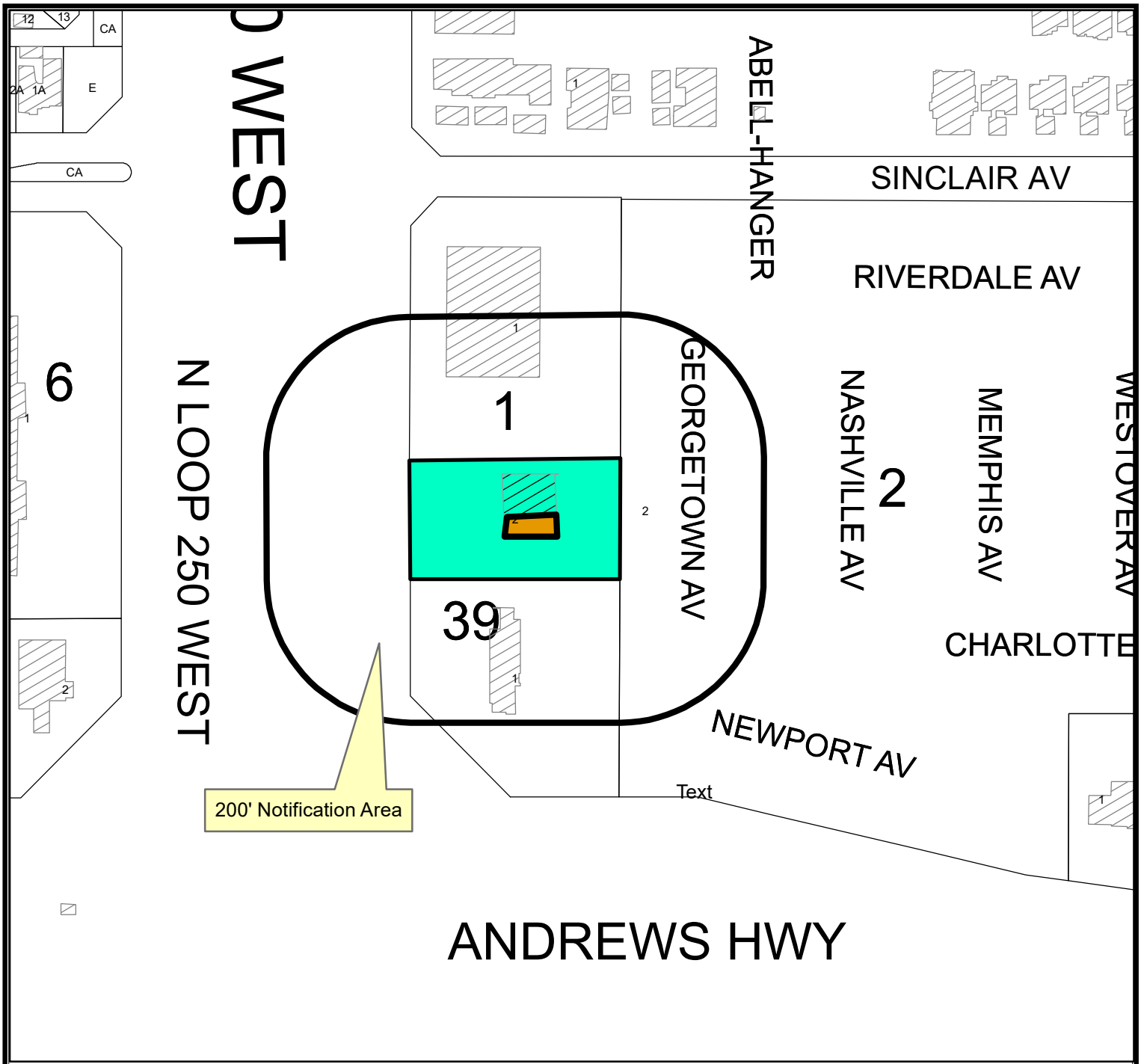
_____
NOTARY PUBLIC, MIDLAND COUNTY, TEXAS

****Application will not be considered for scheduling until reviewed by a planner.****

FOR OFFICE USE ONLY		
☑ Property Owner Authorization	☑ Dimensioned Floor Plan	
☑ Application Fee	☑ Site Plan	
Check # 4408	☐ Plans in Digital Format (PDF/JPEG)	
Received By:		Date:

RECEIVED
SEP 15 2020
BY: .....

****Application will not be considered for scheduling until reviewed by a planner.****



LOCATION MAP

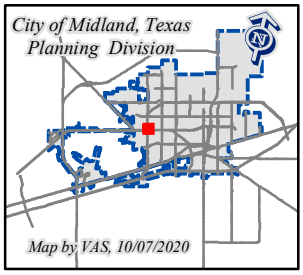
SUD-20-0086 **Scale: 1" = 200'**

Consider a request by JE Midland Ops, LLC for a Specific Use Designation with Term for the Sale of all Alcoholic Beverages, for on premises consumption in a restaurant, on a 3,588 square foot portion of Lot 2, Block 1, Wallace Heights, Section 2, City and County of Midland, Texas.

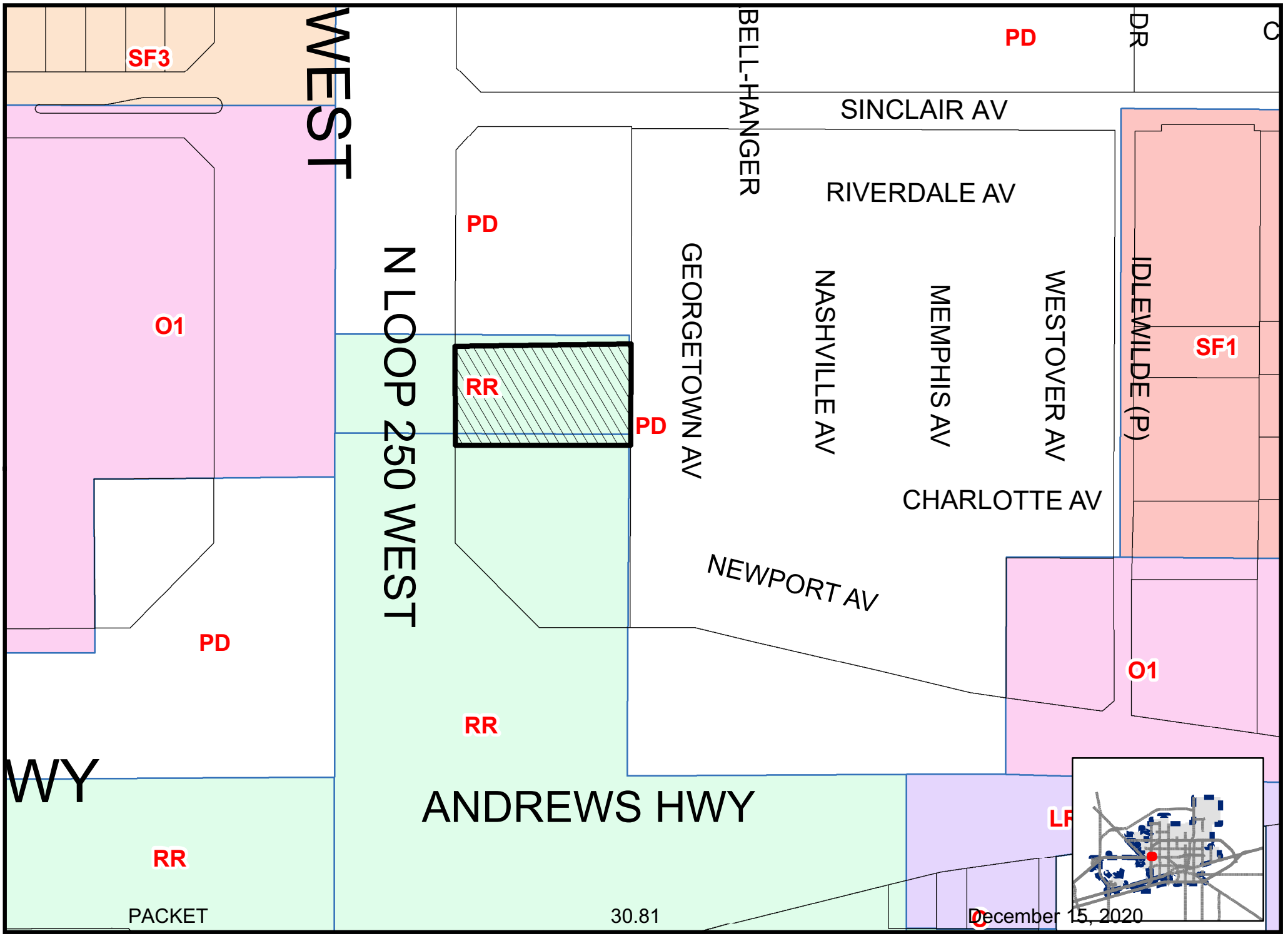
Generally located on the east side of N. Loop 250 West, approximately 377 feet south of Sinclair Avenue. (Council District 4)

LEGEND

- CITY LIMITS
- PARCEL
- PRIVATE BLDGS
- SUD LOCATION



©THE CITY OF MIDLAND - 2020
THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY NOR IS IT DESIGNED TO BE USED AS THE ONLY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.
THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.



Map By VAS, 10/7/2020

SUD-20-0086

Scale: 1" = 200'

ZONING MAP

© THE CITY OF MIDLAND - 2020: THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY PRODUCT, NOR IS IT DESIGNED TO BE USED AS A PRIMARY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN. THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.


TRACKER
BOATING CENTER
Chevy
TRACKER
NITRO
TAHOE


tropical CAFE
SMOOTHIE
DRIVE THRU
SKY
NAILS
jimmy's egg





City Council Meeting

Item Number: 31

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Glenda Arroyo-Cruz, Planner

Subject: AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOTS 1, 2, AND 3, BLOCK 1, JADEN KATE ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS, FROM AE, AGRICULTURAL ESTATE DISTRICT, IN PART, AND PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT, IN PART, TO PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT (GENERALLY LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF NORTH ELKINS ROAD AND ARAPAHOE ROAD); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Purpose:

The applicant, Patrick Brown, is requesting approval of a zone change to amend the current planned district and add additional property to the development.

Recommended City Council Action:

Approve

Fiscal Impact:

This request has no significant impact on the City's Budget.

Discussion:

Surrounding Zoning and Land Use:

The properties to the north, east, south and west are zoned AE, Agricultural Estate District and the location of a residence and vacant land, respectively.

Analysis:

The property is located at 3801 Arapahoe Road and at 6611 and 6709 Elkins Road and zoned PD, Planned Development District for a Housing Development, and AE, Agriculture Estate District. The Planned Development District is regulated by Ordinance No. 10,082, which was recently approved at May 26, 2020 City Council meeting, and allows for an additional twenty-six (26) homes that would be able to house up to 80 adults and their children.

The applicant, Patrick Brown, is requesting to amend the existing planned district as well as include the adjoining 18-acres north of the property. There are three (3) existing houses that would be utilized by staff as well as an existing paddock and storage buildings.

The development would consist of an approximately 40-acre Peer Supportive Recovery Residence Village for substance use disorder and concurrent psychiatric issues. The purpose of the project is to provide homes and a village community that assists each other in recovering from drug, alcohol and other addictions. The living quarters are based on model homes. The property would be developed in two phases as shown on the site plan hereto known as, Exhibit A.

In Phase 1, a total of 45,177 square feet of living space and will be able to house up to 40 adults and their children. It would consist of the following:

Single Mom Homes:

Four (4) 4 – Bedroom homes that are 2,464 square feet.
Two (2) 3 – Bedroom homes that are 1,708 square feet.
Two (2) 2 – Bedroom homes that are 1,008 square feet.

These homes will accommodate about 16 moms and their children.

General Member Section:

Two (2) 4 – Bedroom homes that are 1,952 square feet.
Three (3) 3 – Bedroom homes that are 1,708 square feet.
Seven (7) 2 – Bedroom homes that are 1,008 square feet.
Four (4) buildings that are 1,664 square feet that will serve as a laundry and meeting building.

General Membership will be single dads and two-parent families and their children. These homes will accommodate about 20 adults and their children.

In Phase 2, a total of 57,700 square feet of living space and will be able to house up to about 52

adults and their children. It would consist of the following:

Single Mom Homes:

Eight (8) 4 – Bedroom homes that are 2,464 square feet.
Four (4) 3 – Bedroom homes that are 1,708 square feet.
Four (4) 2 – Bedroom homes that are 1,008 square feet.

These homes will accommodate about 32 moms and their children.

General Member Section:

Two (2) 4 – Bedroom homes that are 1,952 square feet.
Five (5) 3 – Bedroom homes that are 1,708 square feet.
Three (3) 2 – Bedroom homes that are 1,008 square feet.
Four (4) buildings that are 1,664 square feet that will serve as a laundry and meeting building.

General Membership will be single dads and two-parent families and their children. These homes will accommodate about 20 adults and their children.

In total, fifty-four (54) homes, in addition to the three existing residences, are proposed for a total of 102,877 square feet of living space. These will be able to house a maximum of 92 adults and their children.

All of the proposed model homes will have a minimum separation of 10-feet. Proposed roads will be approximately 25-feet wide and parking accommodations for residents and guests will be provided.

The development is proposing a variety of amenities within the village. It would include a greenhouse and community garden, petting zoo, playground, volleyball court and playing field. There are also plans to utilize the existing buildings and develop a community meeting hall, recreating hall and a dining hall. Other proposed ideas include a swimming pool and a splash pad.

This proposed zone change has been circulated to and reviewed by respective City departments and their comments, conditions, and requirements are as follows:

Engineering: (Approved)

No objections to zoning/zone change.

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

Fire: (Approved)

No objections.

Building: (Approved)

No issues. All future structures must adhere to the 2018 International Building Codes, the 2015 International Energy Code, the 2017 NEC requirements, the 2015 International Fire Codes, local city ordinances, zoning requirements, established setbacks, and floodplain requirements if necessary.

Code Compliance: (Approved)

No Oil or Gas wells identified within 500 ft. permitted well radius or in the 135 ft. non-permitted well radius of location on plat.

Transportation: (Approved)

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

No objection to zone change.

Planning:

As listed in our Tall City Tomorrow Section 3.24. PD, Planned Development District, the purpose of the PD, Planned Development District is to create innovative concepts in land utilization or diversification. This means the property can encompass residential, commercial, light industrial, public or recreational uses.

This request is in compliance with the Tall City Tomorrow Comprehensive Plan, Chapter 4, Housing & Neighborhoods, Goal 3, “Provide adequate housing opportunities for the diverse needs of Midland’s population.” (Tall City Tomorrow, Page 10). This request will aid in Midland housing needs by providing affordable and adequate housing, along with a diverse option of housing stock for the community of Midland. This request is also promotes various land uses within the plans.

This request was recommended for approval at the October 19, 2020 Planning and Zoning meeting and approved at the November 17, 2020 City Council meeting.

Staff recommends approval of the zone change from AE, Agricultural Estate District in part, and PD, Planned Development District for a Housing Development to PD, Planned Development District for a Housing Development, subject to conditions A through E.

Conditions:

A. **That the use and development shall conform to the regulations of the MF-16, Multiple-Family Dwelling District, except as stated below.**

B. **That the property shall significantly conform to the site plan attached hereto as Exhibit "A".**

C. **That the homes located on the Property shall be modular units; provided, however, that this condition shall not apply to the structures identified on the site plan as "Pre-existing Homes for Thriving United Staff."**

D. **That one off-street parking space shall be provided on the Property for each person 18 years of ages or older who resides on the Property.**

E. **That the landscaping shown in Exhibit "A" shall be considered illustrative. The landscaping shall conform to the regulations set forth in Title XI, Chapter 9 of the City Code.**

Letters of Objection:

As of November 11, 2020, staff has not received any letters of objection.

Attachments:

Site Plan (Exhibit A)
Angel Haven Project Description
Application
Maps
Ordinance No. 10082

Robert Patrick

City Manager's Office

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOTS 1, 2, AND 3, BLOCK 1, JADEN KATE ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS, FROM AE, AGRICULTURAL ESTATE DISTRICT, IN PART, AND PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT, IN PART, TO PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT (GENERALLY LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF NORTH ELKINS ROAD AND ARAPAHOE ROAD); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION

WHEREAS, the City Planning and Zoning Commission and the Governing Body of the City of Midland, in compliance with the City Charter, the City Code, and State law, have given the requisite notices by United States mail, publication and otherwise; and after a full and fair hearing to all of the property owners generally and particularly to those interested persons situated in the affected area and in the vicinity thereof, the Governing Body finds that the public health, safety and general welfare will be best served by rezoning Lots 1, 2, and 3, Block 1, Jaden Kate Addition, City and County of Midland, Texas (the "Property") to PD, Planned Development District for a Housing Development and adopting a site plan therefor, as set out hereinafter;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Zoning District Map of the City of Midland, Texas, is hereby amended to rezone the Property from AE, Agricultural Estate District, in part, and PD, Planned Development District for a Housing Development, in part, to PD, Planned Development District for a Housing Development.

SECTION TWO. That the base zoning district to which the use and development of the Property shall conform, except as modified by Section Three of this ordinance, is the

MF-16, Multiple-Family Dwelling District.

SECTION THREE. That a site plan, which is attached hereto as Exhibit "A" and incorporated herein for all purposes, is hereby adopted, and the use and development of the Property shall be subject to the following conditions and restrictions:

A. That the Property shall significantly conform to the site plan attached hereto as Exhibit "A".

B. That the homes located on the Property shall be modular units; provided, however, that this condition shall not apply to the structures identified on the site plan as "Pre-existing Homes For Thriving United Staff."

C. That one off-street parking space shall be provided on the Property for each person 18 years of age or older who resides on the Property.

D. That the landscaping shown in Exhibit "A" shall be considered illustrative. The landscaping shall conform to the regulations set forth in Title XI, Chapter 9 of the City Code.

SECTION FOUR. That the definitions given in the zoning regulations contained in the City Code of the City of Midland, Texas, shall be applicable to such of those terms as are used herein.

SECTION FIVE. The provisions of this ordinance are to be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as that covered herein; provided, however, that all prior ordinances or parts of ordinances inconsistent with or in conflict with any of the provisions of this ordinance are hereby expressly repealed to the extent of any such inconsistency or conflict.

SECTION SIX. If any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of this ordinance. The Council of the City of Midland hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SECTION SEVEN. The penalty for violation of this ordinance shall be in

accordance with the general penalty provisions contained in Section 1-3-1 of the City Code of Midland, Texas, which provides for a fine not exceeding two thousand dollars ($2,000.00).

SECTION EIGHT. The City Secretary is hereby authorized and directed to publish the descriptive caption of this ordinance in the manner and for the length of time prescribed by the law as an alternative method of publication.

The above and foregoing ordinance was duly proposed, read in full and adopted on first reading, the _____ day of _____, A.D., 2020; and passed to second reading on motion of Council member _____, seconded by Council member _____, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

The above and foregoing ordinance was read in full and finally adopted by the following vote upon motion of Council member _____, seconded by Council member _____, on the _____ day of _____, A.D., 2020, at a regular meeting of the City Council:

Council members voting "AYE":

Council members voting "NAY":

PASSED AND APPROVED THIS _____ day of _____, A.D., 2020.

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

Thriving United Inc. Angel Haven Village Recovery Residence Community



EXHIBIT "A"

Thriving United Inc. Angel Haven Village Recovery Residence Community



THRIVING UNITED INC.

Site plan for Planned Development District (PD) Amendment for 6611 Elkins Road

We at Thriving United are proposing a Planned District (PD) Amendment for the property at 6611 Elkins Road. The property at 6611 Elkins Road and 3801 Arapahoe Road is approximately 22 acres. We have recently secured a contract for 6709 Elkins Road and 3808 Jaden Kate Road that is the adjoining 18 acres. Under the current zone for 6709 Elkins Road, which is Agricultural Estate (AE), we would not be able to develop it into the expanded Planned Housing Development. However, if we are granted the amended PD then we can use the property to develop a 40-acre Peer Supportive Recovery Residence Village for substance use disorder and concurrent psychiatric issues.

The proposed homes will be a networking of eco-friendly, highly efficient homes. These Peer Supportive Recovery Residences are called "Long Term Recovery Homes" by the National Alliance of Recovery Residences (NARR). The purpose of these homes and for the village community is to assist each other in recovering from drug, alcohol, or other addictions. They are based on other model homes that are highly successful in assisting people obtain long term recovery. These homes use the Social Model which is the practice of many people helping many people recover. Peers with recovery experience share their knowledge and support with the people new to recovery. Helping others is a key factor to long term recovery. The fact is the strong connection between people in recovery and an environment that is conducive and affordable for recovery is beneficial to not only the long-term recovery of the individual and others recovering, but society as a whole.

The recovery residence members follow guidelines, rules, and requirements for living in these homes. One of the rules is that people cannot use any alcohol, illicit drugs, or abuse any medications while living there. The evidence based NAAR standards serve as guidelines for successful operation and successful citizenry. We will continue to participate with such organizations to ensure that we meet their standards and other standards of recovery homes to be a safe, productive, and reasonably priced environment for those needing such assistance.

The total proposed acreage is a 40.8 Acre tract of land out of a 128.08 acre tract of land out of the SE/4 of Section 8, Block 38, T-1-S, T&P RR Co Survey, Martin and Midland counties, Texas. We would continue to use the main entrance off Elkins Road and an entrance off Jaden Kate Road. There are three homes that are currently on the property and they will house Thriving United staff. There are 4 water wells and a septic system that is already in use in the property and we plan on adding more water wells and septic tanks as needed. There are several storage buildings and a large warehouse that will be remodeled for an activity center for the residents.

If the PD is passed, we plan on developing homes in 2 phases.

In Phase 1 we will develop:

- Single Mom Homes:
  - four (4) 4-bedroom homes that are 2,464 square feet
  - two (2) 3-bedroom homes that are 1,708 square feet
  - two (2) 2-bedroom homes that are 1,008 square feet.

  These homes will accommodate about 16 moms and their children.

- General Membership Section:

- two (2) 4-bedroom homes that are 1,952 square feet
- three (3) 3-bedroom homes that are 1,708 square feet
- seven (7) 2-bedroom homes that are 1,008 square feet
- four (4) buildings that are 1,664 square feet that will serve as a laundry and meeting building.

General Membership will be single dads and two-parent families and their children. These homes will accommodate about 20 adults and their children.

In Phase One we will have a total of 45,177 square feet of living space and will be able to house up to about 40 adults and their children.

All homes will be located so that none are closer than 10 feet apart. Roads will be 25-foot-wide paved, or chip sealed and parking lots to accommodate parking for the residences and guests will be paved or chip sealed. We plan on developing a greenhouse and community garden, which will provide the community with some food and an agricultural experience. We will utilize the existing stables and a paddock for a petting zoo for the residents. We will install a playground, volleyball court and a playing field. On the northern property will be a community meeting hall where there the whole community will host meetings, church, or any group activities that are needed. We will remodel the existing warehouse for a recreation hall and a dining hall. We want to build a swimming pool and splash pad for the residents.

Phase two will complete all phases of development and will have the following totals:

In Phase 2 we will develop:

- Single Mom Homes:
  - Eight (8) 4-bedroom homes that are 2,464 square feet
  - four (4) 3-bedroom homes that are 1,708 square feet
  - four (4) 2-bedroom homes that are 1,008 square feet.

  These homes will accommodate about 32 moms and their children.

- General Membership Section:
  - two (2) 4-bedroom homes that are 1,952 square feet
  - five (5) 3-bedroom homes that are 1,708 square feet
  - three (3) 2-bedroom homes that are 1,008 square feet
  - four (4) buildings that are 1,664 square feet that will serve as a laundry and meeting building.

  General Membership will be single dads and two-parent families and their children. These homes will accommodate about 20 adults and their children.

In Phase Two we will have a total of 57,700 square feet of living space and will be able to house up to about 52 adults and their children.

THRIVING UNITED INC.

Site plan for Planned Development District (PD) Amendment for 6611 Elkins Road

In Total we will have a total of 102,877 square feet of living space and will be able to house up to about 92 adults and their children.

Thriving United will provide all adequate infrastructure not limited to the proposal above. Any additions that we may need to do to gain approval for the requested PD will be made. We are here so that not only the recovery community can thrive, but so the community we live in can thrive too. We want to be an asset to the community. To do so we are attempting to pave the road for a healthy future for generations to come. We are working together to alleviate the stigma that is attached to people in recovery. We want our presence to make a positive impact on the people and community we live in. So that together we do not just live, but thrive!

MIDLAND Planning Division

Zone Change/Planned District Amendment/Site Plan Approval

Project Number: Z-20-0199

Case Number: _____

Applicant *(if acting as Agent, see affidavit on page 2)*
Printed Name: Patrick Brown
Phone (432) 557-6352
Email PatBrown@thrivingunited.org
Address 212 Bayberry Parkway | City Midland | State TX | Zip 79705

Property Owner
Printed Name: Stacking Stones LLC
Phone (432) 557-6352
Email PatBrown@thrivingunited.org
Address 212 Bayberry Parkway | City Midland | State TX | Zip 79705

Representative *(if different from Applicant or Property Owner)*
Firm: _____
Printed Name:
Phone ( )
Email
Address | City | State | Zip

Street Address: 6611 Elkins Road and 6709 Elkins Road

Legal Description
Lot: 1, 2 & 3 Block: 1 Subdivision: Jaden Kate

Current Zoning: PD & AE

Proposed Zone: Planned Development District
(List by tracts if more than one district is requested)

Reason for Zone Change Request: Multifamily Housing

Present Use of Property: AE

Proposed Use of Property: Planned Housing Development

How would this zone change affect the public health, safety and welfare? No negative affect. Provide improved living conditions for the residents.

Describe how conditions affecting the property have changed since present zoning designation: The neighborhood has many more commercial entities

Submittal and Fees
Items to be submitted with this application form:

- Application Fee – Payable to the 'City of Midland'
- Dimensioned Site Plan
- Digital Copies of Site Plan (PDF/JPEG)

RECEIVED
SEP 23 2020
BY: .....

Signature *(by property owner only – authorized agent must sign affidavit below)*	
Applicant (signature): Patrick Brown	Date: 9-23-20
Applicant (printed): Patrick Brown	
Property Owner (signature): Patrick Brown	Date: 9-23-20
Property Owner (printed) : Stacking Stones LLC - Patrick Brown	

The Zone Change/Planned District Amendment/Site Plan Approval shall be considered officially received in the Planning office only when it has been submitted in full compliance with the provisions of Section 212 of the Texas Local Government Code and the Zoning Code of Ordinances of the City of Midland and when such required items for the application are also received.

All materials, including exhibits, submitted in support of an application, or displayed during a public hearing, shall remain the property of the City of Midland.

If an agent is authorized by the property owner to file and execute the application on behalf of the property owner, the agent must complete the affidavit below.

STATE OF TEXAS
COUNTY OF MIDLAND

Before me, the undersigned authority, on this day personally appeared _____ who, being by me duly sworn, upon oath says: That (s)he is authorized by _____, the owner of the above described property, to fully represent him/her in this application and that (s)he had the legal right, power and authority to sign said owner's name hereto as his/her attorney in fact.

_____
Authorized Agent (*signature*)

Subscribed and sworn to before me, this _____ day of _____, 20 ___, to certify which witness my hand and seal of office.

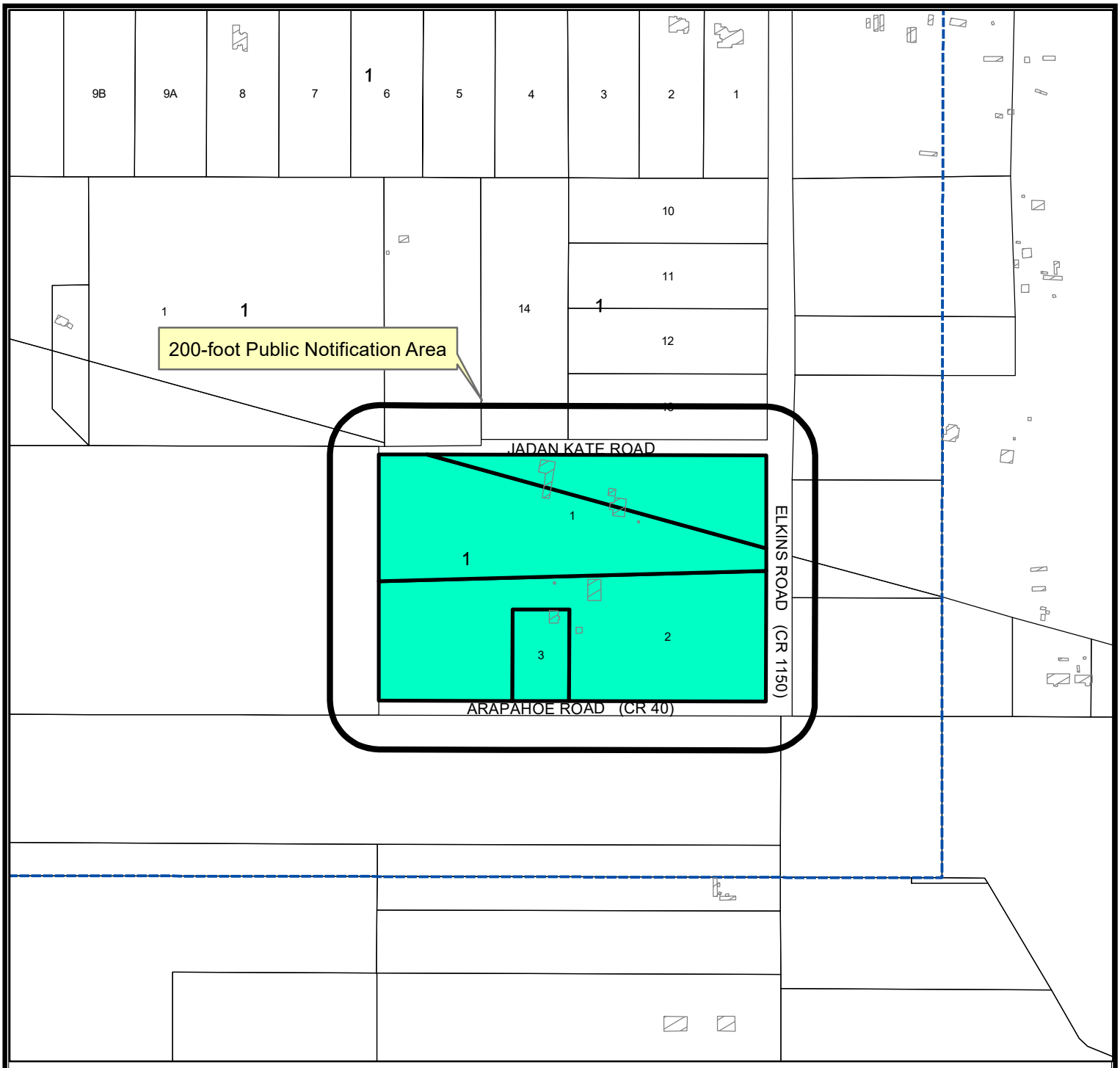
_____
NOTARY PUBLIC, MIDLAND COUNTY, TEXAS

FOR OFFICE USE ONLY

☒ Property Owner Authorization	☒ Dimensioned Site Plan
☒ Application Fee	☐ Plans in Digital Format (PDF/JPEG)
Check # 2350	
Received By: DK	Date: RECEIVED SEP 23 2020

BY: .....

****Application will not be considered for scheduling until reviewed by a planner.****



LOCATION MAP

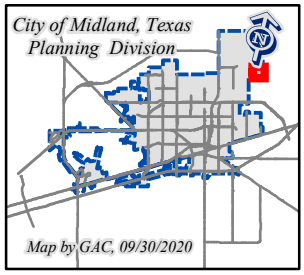
Z-20-0197 **Scale: 1" = 200'**

Consider a request by Patrick Brown for a zone change from AE, Agricultural Estate District, in part, and PD, Planned Development District for a Housing Development, in part; to PD, Planned Development District for a Housing Development, on Lots 1, 2 and 3, Block 1, Jaden Kate Addition, City and County of Midland, Texas.

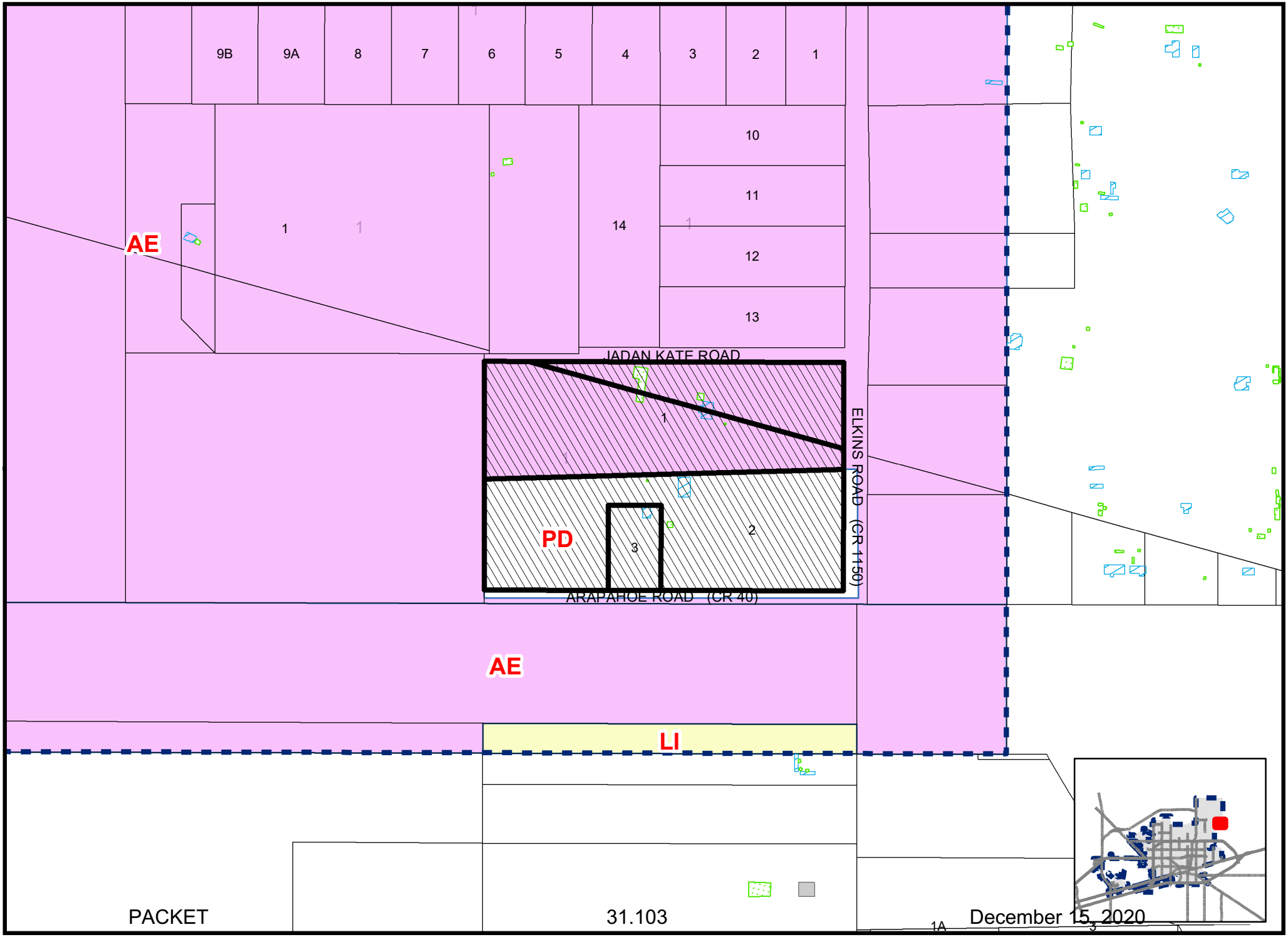
(Generally located on the northwest corner of the intersection of Elkins Road and Arapahoe Road. Council District 1)

LEGEND

- CITY LIMITS
- PARCEL
- PRIVATE BLDGS



©THE CITY OF MIDLAND - 2020
THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY NOR IS IT DESIGNED TO BE USED AS THE ONLY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.
THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.



Map By GAC, 03/19/2020

Z-20-0197

Scale: 1" = 200'

ZONING MAP

© **THE CITY OF MIDLAND - 2020:** THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY PRODUCT, NOR IS IT DESIGNED TO BE USED AS A PRIMARY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.

ORDINANCE NO. 10082

AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOTS 2 AND 3, BLOCK 1, JADEN KATE ADDITION, CITY AND COUNTY OF MIDLAND, TEXAS, FROM AE, AGRICULTURAL ESTATE DISTRICT TO PD, PLANNED DEVELOPMENT DISTRICT FOR A HOUSING DEVELOPMENT (GENERALLY LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF NORTH ELKINS ROAD AND ARAPAHOE ROAD); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION

WHEREAS, the City Planning and Zoning Commission and the Governing Body of the City of Midland, in compliance with the City Charter, the City Code, and State law, have given the requisite notices by United States mail, publication and otherwise; and after a full and fair hearing to all of the property owners generally and particularly to those interested persons situated in the affected area and in the vicinity thereof, the Governing Body finds that the public health, safety and general welfare will be best served by rezoning Lots 2 and 3, Block 1, Jaden Kate Addition, City and County of Midland, Texas (the "Property") to PD, Planned Development District for a Housing Development and adopting a site plan therefor, as set out hereinafter;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Zoning District Map of the City of Midland, Texas, is hereby amended to rezone the Property from AE, Agricultural Estate District to PD, Planned Development District for a Housing Development.

SECTION TWO. That the base zoning district to which the use and development of the Property shall conform, except as modified by Section Three of this ordinance, is the MF-16, Multiple-Family Dwelling District.

SECTION THREE. That a site plan, which is attached hereto as Exhibit "A" and

incorporated herein for all purposes, is hereby adopted, and the use and development of the Property shall be subject to the following conditions and restrictions:

A. That the Property shall significantly conform to the site plan attached hereto as Exhibit "A".

B. That the homes located on the Property shall be modular units; provided, however, that this condition shall not apply to the structures identified on the site plan as "Pre-existing Homes For Managing Residents."

C. That one off-street parking space shall be provided on the Property for each person 18 years of age or older who resides on the Property.

D. That the landscaping shown in Exhibit "A" shall be considered illustrative. The landscaping shall conform to the regulations set forth in Title XI, Chapter 9 of the City Code.

SECTION FOUR. That the definitions given in the zoning regulations contained in the City Code of the City of Midland, Texas, shall be applicable to such of those terms as are used herein.

SECTION FIVE. The provisions of this ordinance are to be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as that covered herein; provided, however, that all prior ordinances or parts of ordinances inconsistent with or in conflict with any of the provisions of this ordinance are hereby expressly repealed to the extent of any such inconsistency or conflict.

SECTION SIX. If any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of this ordinance. The Council of the City of Midland hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SECTION SEVEN. The penalty for violation of this ordinance shall be in accordance with the general penalty provisions contained in Section 1-3-1 of the City Code of Midland, Texas, which provides for a fine not exceeding two thousand dollars

($2,000.00).

SECTION EIGHT. The City Secretary is hereby authorized and directed to publish the descriptive caption of this ordinance in the manner and for the length of time prescribed by the law as an alternative method of publication.

The above and foregoing ordinance was duly proposed, read in full and adopted on first reading, the 12th day of May, A.D., 2020; and passed to second reading on motion of Council member Ladd, seconded by Council member Blong, by the following vote:

Council members voting "AYE": Blong, Trost, Robnett, Payton, Dufford, Ladd, Norman

Council members voting "NAY": None

The above and foregoing ordinance was read in full and finally adopted by the following vote upon motion of Council member Ladd, seconded by Council member Norman, on the 26th day of May, A.D., 2020, at a regular meeting of the City Council:

Council members voting "AYE": Blong, Trost, Robnett, Payton, Dufford, Ladd, Norman

Council members voting "NAY": None

PASSED AND APPROVED THIS 26th day of May, A.D., 2020.

Patrick N. Payton, Mayor

ATTEST:

Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

Robert Patrick, Assistant City Manager

Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

John Ohnemiller, City Attorney

EXHIBIT "A"

Thriving United Inc. Angel Haven 6611 Elkins Road Recovery Residence Community

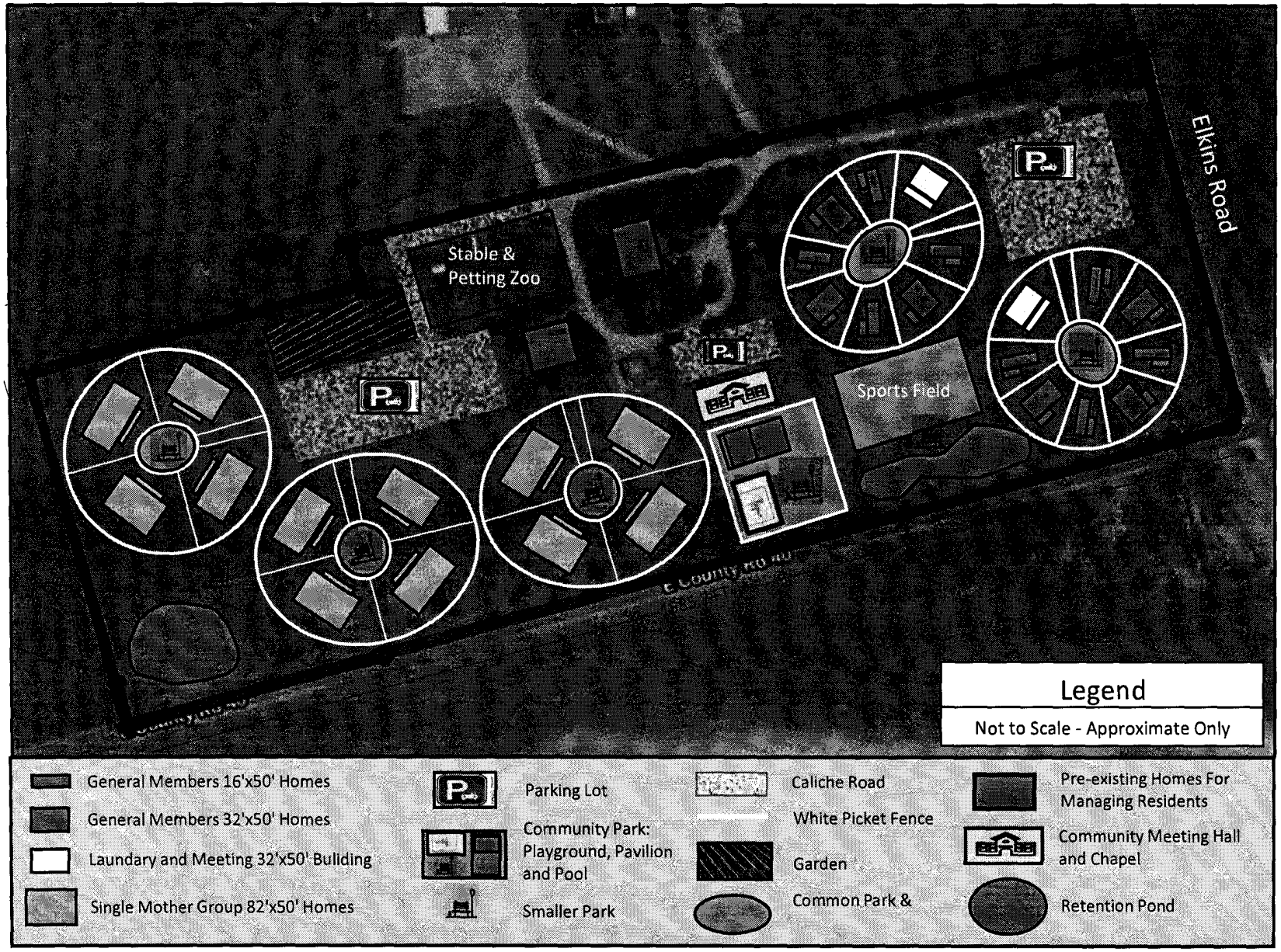
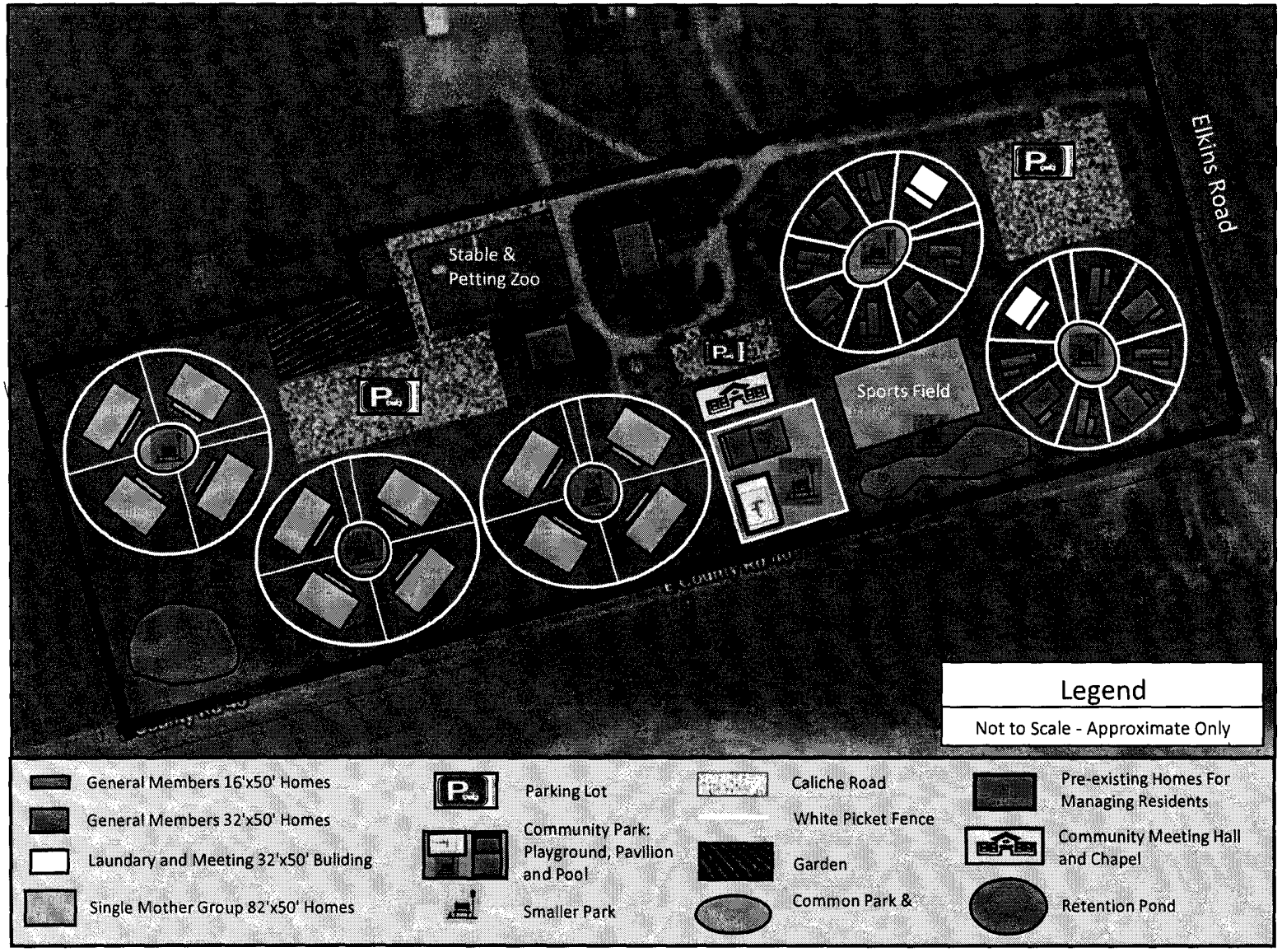


EXHIBIT "A"

Thriving United Inc. Angel Haven 6611 Elkins Road Recovery Residence Community



City Council Agenda

MIDLAND
Feel the Energy!

10082
Approved for Agenda:
City Manager's Office

APPROVED

MEETING DATE: May 26, 2020

TO: CITY COUNCIL

FROM: Taslima Khandaker, Senior Planner

SUBJECT: **Consider an ordinance on a second reading on a request by Patrick Brown, for a zone change from AE, Agricultural Estate District, to PD, Planned Development District for a Housing Development on Lots 2 and 3, Block 1, Jaden Kate Addition, City and County of Midland, Texas. (Generally located on northwest corner of the intersection of N. Elkins Road and Arapahoe Road. Council District 1)**

Purpose:
The applicant, Patrick Brown, is requesting a Zone Change from AE, Agricultural Estate District to PD, Planned Development District for a Housing Development at 6611 Elkins Road and 3801 Arapahoe Road, for a recovery residence community.

Recommended City Council Action

☒ Approve ☐ Deny ☐ Directional / Informational

Fiscal Impact:

This proposal does not have a significant financial impact to the city.

Discussion:

The property is currently zoned AE, Agricultural Estate District. The properties to the north, east, south, and west are zoned AE, Agricultural Estate District, and are the locations of a residence and vacant land, respectively.

The applicant, Patrick Brown, is requesting to rezone the property from AE, Agricultural Estate District, to PD, Planned Development District for a Housing Development, to create a transitional housing community for individuals living a life of recovery. The property will need to be re-platted prior to development.

In addition to the two existing residences on the property, the site plan (Exhibit A) shows an additional twenty-six (26) homes, of which eight (8) are 16 feet by 50 feet, six (6) are 32 feet by

50 feet, and twelve (12) are 82 feet by 50 feet.

The 82-foot by 50-foot units will be six bedroom pre-manufactured homes that will each accommodate four single mothers and their children. The 32-foot by 50-foot units will be four bedroom pre-manufactured homes that will each accommodate an average of two adults and their children. The 16-foot by 50-foot units will be a combination of two bedroom and three bedroom pre-manufactured homes that will each accommodate two adults with their children and three adults, respectively.

The management staff, which will consist of a maximum of four adults and their children, will reside in the existing residences. A community meeting hall, a community park with a playground, a smaller park, sports field, pavilion, and a pool, a garden, and a stable and petting zoo are also proposed. The proposed density of the development will be approximately 1.5 units per acre.

Phase I will consist of one home group for single mothers and their children and one home group for two parent families, single fathers and their children, and single adults. The first phase of the development will be able to house up to 32 adults and their children. The completed development will consist of a total of three home groups for single mothers and their children and two home groups for two parent families, single fathers and their children, and single adults. The home groups for two parent families, single fathers and their children, and single adults will each include a laundry and meeting building. In total, the completed development will be able to house up to 80 adults and their children.

This proposed project has been circulated to and reviewed by respective City departments for internal review and their comments, conditions, and requirements are as follows:

Fire: (Approved)

No objection to zoning change.

Building: (Approved)

No issues. All future structures must adhere to the 2018 International Building Codes, the 2015 International Energy Code, the 2017 NEC requirements, the 2015 International Fire Codes, local city ordinances, zoning requirements, established setbacks, and floodplain requirements if necessary.

Engineering: (Approved)

No objection to zone change.

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

Code: (Approved with Conditions)

No PERMITTED Oil or Gas wells identified within 500 ft. radius of location. There are Pioneer non-permitted wells on this property that need to be identified and include a 135 ft radius which no building permits will be allowed in this area. Flow lines will need to be identified as they go across the property and access for operator to maintain wells. If the Pioneer wells have been

plugged and abandoned then that will need to be identified.

Transportation: (Approved)

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

No objection to zone change.

Planning:

As listed in our Tall City Tomorrow Section 3.24. PD, Planned Development District, the purpose of the PD, Planned Development District is to create innovative concepts in land utilization or diversification. This means the property can encompass residential, commercial, light industrial, public or recreational uses.

This request is in compliance with the Tall City Tomorrow Comprehensive Plan, Chapter 4, Housing & Neighborhoods, Goal 3, "Provide adequate housing opportunities for the diverse needs of Midland's population." (Tall City Tomorrow, Page 10). This request will aid in Midland housing needs by providing affordable and adequate housing, along with a diverse option of housing stock for the community of Midland. This request is also promotes various land uses within the plans.

This request was recommended for approval on the April 20, 2020 Planning and Zoning Commission Meeting.

This request was approved on the May 12, 2020 City Council Meeting.

Staff recommends approval of the zone change from AE, Agricultural Estate District to PD, Planned Development District for a Housing Development, subject to conditions A through E.

Conditions:

A. That the use and development shall conform to the regulations of the MF-16, Multiple Family Dwelling District, except as stated below.

B. That this property shall significantly conform to the site plan, attached hereto and incorporated herein, as Exhibit A.

C. That the proposed "pre-manufactured homes" must be modular units.

D. That one off-street parking space shall be required for each person over 18 years of age.

E. That the Landscape Plan shall be considered illustrative. Landscaping shall conform to the regulations set forth in Title XI, Chapter 9 of the City code.

Letters of Objection:

Staff has not received any objections as of May 6, 2020.

Attachments:

Site Plan (Exhibit A)
Angel Haven Project Description
Site Plan – Phase I
Angel Haven Policies and Procedures
Angel Haven Member Contract
Application
Maps

Angel Haven 6611

Thriving United

Project Description
Planned Development District for 6611 Elkins Road

501 N. Loraine St.
Midland, Texas 79707
432-701-8678

Thriving United Inc. (Thriving United) proposes a Specific Use Designation (SUD) for the property at 6611 Elkins Road, Lot 2 & 3, Block 1, 22+/- Acres; Jaden Kate, City of Midland, Midland County. Thriving United proposes that the current **Agricultural Estate (AE) Zoning** for this property be designated as a **Designated Development District**.

Concept

Thriving United is developing Angel Haven 6611 as permanent supportive housing for individuals living a life of recovery. The proposed homes will be a small network of premanufactured homes to be used as affordable recovery residences. The Substance Abuse and Mental Health Services Administration (SAMHSA) defines recovery as a process of change through which individuals improve their health and wellness, live self-directed lives and strive to reach their full potential.

Our mission is to provide affordable housing for individuals who want to live a balanced, healthy lifestyle as members of a supportive, loving family and community through use of evidence-based practices, standards, support services, research, education, and advocacy.

Recovery residences provide safe, healthy, abstinent living environments based on a social model of recovery. The emphasis is on developing mutual support and skills for people in recovery that will enable them to lead productive lives in communities.

The National Alliance for Recovery Residences (NARR) established a National Standard for recovery residences in 2011. Thriving United utilizes the NARR standards as guidelines, rules, and requirements for living in these homes. Angel Haven 6611 will undergo the process to achieve accreditation from NARR for this facility. The residents sign a family membership contract that details the requirements of abstinence and a code of citizenship ethics. Violation results in immediate action. The Angel Haven 6611 guidelines and contract are included with the submission.

The social model approach is the foundation of all recovery residences. NARR terms these type of homes as "Long Term Recovery Homes". The purpose of these homes is to assist each other in a community of people who are recovering from drug, alcohol, or other addictions. Oxford House and Sober Living are examples of other model recovery homes. DePaul University performed a statistical survey of 795 participants in the Oxford House program and found that extended participation in recovery residency improved the probability of long-term sobriety significantly, approaching 87%. The recovery residence provides a strong connection between recovery people and provides an environment that is affordable and conducive for recovery. The principles of recovery are spirituality and altruism. People in recovery benefit the whole society by providing increased productivity and better citizenship.

Location

The site plan is based on a survey provided by our Real Estate Agent. The dimensions are approximately 1585.7 feet on the South border, approximately 523.9 feet on the West border, approximately 1588.4 ft., and the East border is approximately 583.2 feet. The total acreage is approximately 21 to 22 acres. The entrance is on Elkins Road. There are two homes currently on the property and they will house the Property Management. There are 3 water wells and a septic system

501 N. Loraine St.
Midland, Texas 79707
432-701-8678

that is already in use on the property. Thriving United plans on adding more water wells and septic systems as needed. If cost effective, Thriving United will bring City Water to the property. Thriving United will provide any additional infrastructure required, not limited to the proposal above.

Elkins Road, (County Road 1150), is a collector road that runs from north of Loop 250 to south of State Highway 158 in northeastern Midland County. There are numerous commercial developments and some agricultural estates and farms in the proximity of 6611 Elkins Road. The casual commuting traffic from our site would not have a serious impact on the existing traffic.

Development

All buildings will be no closer than 10 feet apart or closer than 15' from a property line. The homes will be constructed in an ellipse around a grass lawn over a septic field. The center of the ellipse will provide the children with a play area. The roads will consist of 25-foot-wide caliche-based asphalt that will connect to uncovered caliche-based asphalt parking lots to accommodate parking for the residences and guests. The property will be landscaped with new trees and flower beds.

The property will contain:

- Community garden, which will provide the community with some food and an agricultural experience
- Meeting hall/chapel where there the whole community will host meetings, church, and group activities
- Community park that is comprised of a playground, a covered pavilion and an indoor, inground pool
- Sports field
- Stables and a petting zoo with a variety of domesticated wildlife.

Thriving United plans on developing the homes in two phases.

Phase 1:

A) Single mothers and children division with one (1) home group:
   a. Four (4) six-bedroom premanufactured homes that are 82' x 50', 4,100 square feet, that each will accommodate four (4) single mothers and their children
B) Two-parent families, single fathers and children, and singles (General members) division with one (1) home group:
   a. three (3) four-bedroom premanufactured homes that are 32' x 50', 1,600 square feet, that each is intended to accommodate two adults and their children
   b. two (2) two-bedroom premanufactured homes that are 16'x50', 800 square feet, that each is intended accommodate two adult(s) with children
   c. two (2) three-bedroom premanufactured homes that are 16'x50', 800 square feet, that each is intended accommodate three singles
   d. one (1) 32'x50', 1,600 square feet, premanufactured building that will serve as a laundry and meeting building for the home group.

Thriving United

501 N. Loraine St.
Midland, Texas 79707
432-701-8678

Project Description
Planned Development District for 6611 Elkins Road

In phase 1, the property will have a total of 21,200 square feet of recovery-residence living space and will be able to house up to 32 adults and their children. The management staff will consist of a maximum of 4 adults and their children in a total of 2,800 square feet of existing residences. The Community Meeting Hall is planned to be 5,000 square feet.

Phase 2 will complete all phases of development.

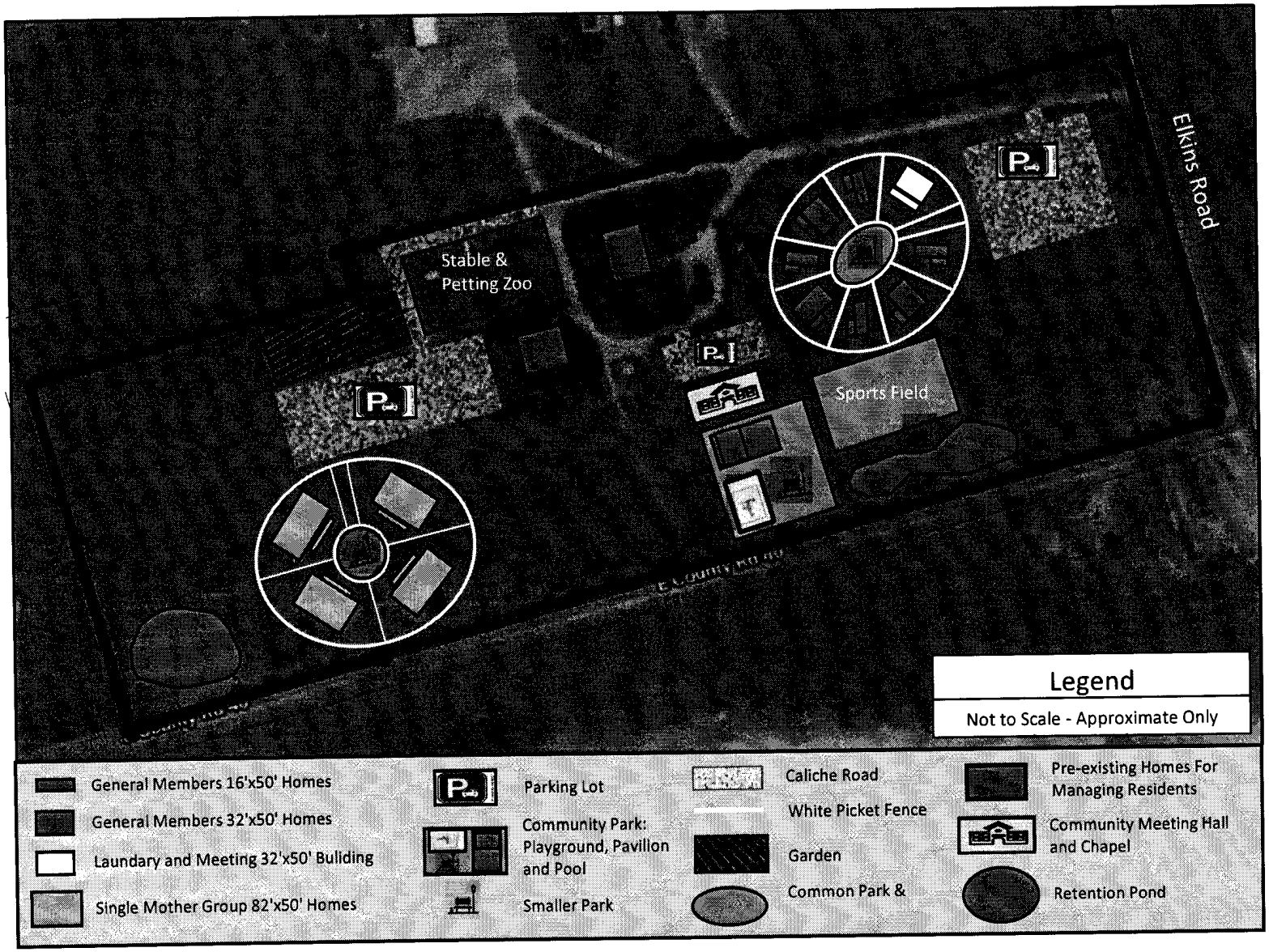
Phase 2:

A) Single mothers and children division with three (3) home groups:
   a. Four (4) six-bedroom premanufactured homes that are 82' x 50', 4,100 square feet, that each will accommodate four (4) single mothers and their children
B) General members division with two (2) home groups:
   a. three (3) four-bedroom premanufactured homes that are 32' x 50', 1,600 square feet, that each is intended to accommodate two adults and their children
   b. two (2) two-bedroom premanufactured homes that are 16'x50', 800 square feet, that each is intended accommodate two adult(s) with children
   c. two (2) three-bedroom premanufactured homes that are 16'x50', 800 square feet, that each is intended accommodate three singles
   d. one (1) 32'x50', 1,600 square feet, premanufactured building that will serve as a laundry and meeting building for the home group.

After Phase 2, the property will have a total of 58,800 square feet of recovery-residence living space and will be able to house up to 80 adults and their children. The management staff will consist of a maximum of 4 adults and their children in a total of 2,800 square feet of existing residences. The Community Meeting Hall is planned to be 5,000 square feet.

The layout and placement of said structures and roads is subject to change as the design and permitting process progresses.

Thriving United Inc. **Angel Haven 6611 Elkins Road** Recovery Residence Community



Thriving United

501 N. Loraine St.
Midland, Texas 79707
432-701-1489

AngelHaven6611@thrivingunited.org

Angel Haven 6611

Policies and Procedures

1. There is a 30 to 90 day clean and sober requirement prior to admission into Angel Haven 6611. If a member relapses and is released they will need to acquire an additional 30 to 90 days of sobriety in order to reenter. This rule is for the welfare of all house members and their sobriety.

2. There is a minimum requirement of a 3-month paid commitment.

3. All members are required to be working a recovery program and living a healthy lifestyle. All members must be willing to disclose their program and be willing to be held accountable to that program. For example:

a.) An individual working an AA/NA program will attend so many meetings a week and have a sponsor. They must be willing to be held accountable by their family to attend the meetings and provide the name/number of their sponsor.

b.) An individual working a program through Celebrate Recovery will attend a weekly meeting and have a sponsor. They too must be willing to be held accountable by their family to attend their meetings and provide the name/number of their sponsor.

Every resident must be working on their recovery and demonstrating to their family that they are living a recovery lifestyle (i.e.; volunteer work, participation in program activities, meditation, language, healthy lifestyle choices, etc..) because recovery and healthy living is our primary purpose.

Note: Members are required to discuss their program and how it is working at weekly family meetings.

4. Any House member who is found to be using any narcotics, synthetics or alcohol will be released immediately. You may visit with a Program Facilitator about treatment options if you so desire.

Any member who has knowledge of another member's relapse and withholds this information from the House could be removed.

If you provide urine or tamper with urine or have knowledge or other's tampering with a specimen will be grounds for removal.

5. Drug/Alcohol testing may be required from any member at any time and without notice.

Failure to submit to testing for any reason will be viewed as an admission of relapse that will require immediate release and removal of the member.

Urine specimen collection shall be performed by a Program Facilitator or a family member at the direction of the Program Facilitator using a direct observation collection method.

Thriving United

501 N. Loraine St.
Midland, Texas 79707
432-701-1489

AngelHaven6611@thrivingunited.org

6. An individual who is on prescription medication for Mental Illness or Emotional Wellbeing must disclose this information prior to becoming a member. A medication plan will be implemented on an individual basis.

Misuse or sharing of narcotic medication may be ground for dismissal.

Types of misuse may include:

a) Taking any medication not prescribed to the individual by a physician or otherwise not approved

b) Taking any prescription narcotic medication that has not been disclosed and implemented through a medication plan (NO EXCEPTIONS)

c) Not taking medicine as prescribed and required by a physician.

If there is any misuse of any medication prescribed or over the counter in any way that is grounds for immediate dismissal. If there is ANY question, do not take it and ask a Program Facilitator.

Member must notify a Program Facilitator within 24 hours of any prescribed medication changes.

7. In order to obtain membership at Angel Haven 6611 a full month membership fee of $750 and a $150.00 security fee are required.

The security fee is due prior to admission, unless otherwise discussed with a Program Facilitator. The membership fee is due the 1st of the month following admission. Future membership fees will be due on the 1st of every month. The option to pay weekly is available as well. The membership plan will be discussed and agreed upon prior to move in of resident.

All payments may be made by cash or money order payable to Thriving United. Membership fees are considered a paid fee toward an individual's commitment of time to stay a member of the house.

8. All members are required to have verifiable employment. If a member is struggling to obtain work, then they are required to work with a Peer Support Specialist to find work.

9. Disruptive behavior is grounds for release and described below:

a) Any physical or verbally antisocial behavior;

b) Stealing (eating someone else's food or using their toiletries is considered stealing);

c) Lying;

d) Being in another members room without permission;

e) Constantly complaining or bringing negativity into the home.

Behaviors that jeopardize the well-being of the family and community will be initially discussed by the family and continued disruption can be grounds for dismissal.

Thriving United

501 N. Loraine St.
Midland, Texas 79707
432-701-1489

AngelHaven6611@thrivingunited.org

10. Family meetings are mandatory! As a member of this home everyone is expected to actively participate as a member of their choice family.

11. Weekly chore lists will be discussed and planned at the weekly family meeting. As a member you are expected to do your chores daily.

12. Be clean! Bedroom needs to be clean! No leaving dishes in the sink, leaving personal items in living room or common areas (kitchen, bath, etc.), not bathing, not changing bed sheets weekly or being unsanitary in any way are all issues that will be discussed and handled at the discretion of each family.

13. Each family will determine how their family budget will be established, maintained and dispersed according to their family's needs. Each family unit is responsible for purchasing and cooking their own food, supplying their own personal hygiene items (toothbrush, toothpaste, bath soap, shampoo, razors, shave cream, etc.), or any other items for health issues (prescriptions, medical care, etc), laundry soap, dish soap, dishwasher soap, toilet paper, paper towels and other common household supplies.

14. No active alcoholics or addicts are allowed on premises – no exceptions!!

15. If you are the last to leave the House, you are responsible for locking both the front and back door. Failure to lock up will be discussed and handled at the discretion of each family.

16. Each family unit will decide how their family unit will operate according their family's needs and establish a set of family guidelines that will be provided to a Program Facilitator with Thriving United. The following are some examples of things families could address:

a. The living room television is to be off between the hours of 12:00 a.m. to 7:00 a.m., Sun.-Thurs. This is considered QUIET TIME.
b. Curfews or being absent from home for overnights or extended lengths of time.
c. Laundry schedule and respectful rules: Members are responsible for doing their own laundry. Laundry must be done and put up immediately. Other members have the right to move your laundry to a clean out of the way location if you are unavailable.
d. Grocery shopping should be done on a weekly basis vs. a monthly basis.
e. After 1:00 am, kitchen is considered a quiet area for cooking, including microwave. If you are hungry eat cereal, sandwich or fruit if available. This is out of respect for members sleeping in rooms close to the kitchen.
f. No visitors are allowed in any rooms for any reason alone, they must be accompanied by a member of that room, as well as the other members of the family being comfortable with the visitor.
g. Moms work together to assist and support each other's responsibility for watching their children. Each Mom is responsible for keeping an eye on their own children, while a schedule or team effort can be put in place to assist each other with childcare while attending meetings. Respect must be shown, and communication must be established for each other to prevent one person from always being shouldered with the responsibility.

Always be respectful of your family and fellow community members!

Thriving United

501 N. Loraine St.
Midland, Texas 79707
432-701-1489

AngelHaven6611@thrivingunited.org

17. All family members are responsible for ensuring anonymity and friendliness within the neighborhood.

18. All family business remains within the family and we do not air our business with the neighbors or other community members. (Every resident will sign a HIPPAA agreement.)

19. No soliciting in the neighborhood for any reason or loitering in front of the home.

20. Vehicles must be parked in parking allotted for Thriving United and Angel Haven 6611. Do not park in front of neighbor's house. There will be no broken-down cars or vehicles allowed on premises unless approved by Program Facilitator for immediate repair purposes only.

21. There is absolutely no smoking in the home and that includes vaping. Dipping is allowed with proper containers (i.e., plastic bottles with lids – not dishes) and not to be left out.

22. All rooms are initially assigned by a Program Facilitator. If you want to change rooms then this can be discussed at family meeting and will then be up to the discretion of the family and family guidelines.

23. No weapons of any kind are allowed. If a weapon is found in a member's possession, the member may be asked to leave immediately!

24. Surfing pornography or distasteful websites on a family computer is not allowed.

25. Gaming consoles, laptops, and iPads are allowed but at your own risk. Thriving United is not responsible for keeping of such items. A Program Facilitator may search browser history of related equipment to ensure house standards are upheld.

26. Thriving United does have working monitoring security cameras outside of the house

27. Once a member departs, all mail will be returned to sender. Please put in a change of address!!!

28. Thriving United is not responsible for any member's lost or stolen items.

29. Breach in contract for any reason (i.e., relapse on alcohol or drugs, one month late on membership fees without seeking assistance from a Peer Support Specialist, excessive rule infractions, stealing, disruptive behavior, etc...) will result in the immediate removal from property.

If the member fails to immediately leave the House, Thriving United will be entitled to $5,000.00 in liquidated damages for the disruption to business operations and the threats posed to the recovery and mental well-being of the other members remaining on site.

30. The security fee for membership is non-refundable.

31. Members that have had financial support to pay membership fee(s) and breaches contract for any reason will have their family or payee contacted by Thriving United, letting them know that you are no longer under our care.

Thriving United

501 N. Loraine St.
Midland, Texas 79707
432-701-1489

AngelHaven6611@thrivingunited.org

32. This Agreement is not a lease and does not create a landlord-tenant relationship of any kind. Member expressly acknowledges that this Agreement does not create any of the rights afforded to residential tenants pursuant to Chapter 92, Texas Property Code. Member expressly acknowledges that:

a) Fees do not constitute rent

b) If a member remains on Thriving United property without consent of a Program Facilitator, and after receiving oral or written notice to depart, member may be arrested for criminal trespass.

c) The House may change the code without notice for any violation of this Agreement. The member must contact a Program Facilitator to seek a new code.

d) A Program Facilitator may remove any member's non-exempt property for violation of the terms of this Agreement.

33. The policies and procedures are suggested guidelines and subject to change. Thriving United reserves the right at any time to:

a) Modify the consequences and can move straight to a behavioral contract and/or dismissal as necessary and appropriate.

b) Revoke the membership of any member who is deemed a threat to the sobriety and recovery of members at their sole discretion.

Revocation of membership will result in immediate removal from the property at the request of a Program Facilitator.

34. Pat Brown, Jennifer Priddy, Kelli Lax or Rhett Lax have full authority over Angel Home 6611 as needed at any time.

Thriving United

501 N. Loraine St.
Midland, Texas 79701
432-701-1489

Angel Haven 6611

Residential Membership Contract

I, _____, as a member of Angel Haven 4516, located at 4516 Robin Lane, Midland, Texas 79707 I agree to abide by the Policies and Procedures set forth for Angel Haven 4516 by Thriving United.

_____ I understand this contract is binding in that I requested a financial agreement by agreeing to pay and paying a security deposit and monthly membership fees.

_____ I understand that if I am delinquent in membership dues and have made no attempts to gain a reasonable budget assistance or communication for assistance from a Program Facilitator of Thriving United this may be reason for dismissal from the home.

_____ I understand that this financial contract compounds under said Angel Haven 4516 Policies and Procedures.

_____ I agree to pay the scheduled monthly membership dues of $750 a month, in addition to a non-refundable $150 deposit.

_____ I understand that failure to meet requirements of the Policies and Procedures of Angel Haven 4516, I will have 72-hours to remove myself and personals from Angel Haven 4516 property for breach of contract.

_____I understand that if I am found to be using alcohol or drugs of any type, I will be expelled from the house immediately.

_____ I understand that if I am found to be in violation of house rules by a Program Facilitator, including but not limited to non-payment of membership fees, disruptive behavior, I can be expelled from the house immediately by a Program Facilitator of Thriving United.

_____ I understand that I am expected to have a recovery plan that has been discussed with a Program Facilitator or Peer Support Specialist and that staying on my personal recovery plan is part of what is required to live in this home.

_____ I understand and agree to the following terms should I be asked to leave the house for violation of this agreement:

- Personal items will be removed from the property and the area around the property within 72 hours.
- If personal items are not removed from the property within 30 days of my departure all of these items will be donated to charity on the 31st day.

Thriving United

501 N. Loraine St.
Midland, Texas 79701
432-701-1489

Signature of House Member Date

Printed Name of House Member

Signature of Program Facilitator Date

Printed Name of Program Facilitator

MIDLAND
Planning Division

Zone Change/Planned District Amendment/Site Plan Approval

Project Number: Z-20-0177
Case Number:

Applicant *(if acting as Agent, see affidavit on page 2)* Printed Name: Patrick Brown		Phone (432) 557-6352 Email PatBrown@thrivingunited.org	
Address 212 Bayberry Pkwy	City Midland	State TX	Zip 79705
Property Owner Printed Name: Cathy and Larry Stasney		Phone (432) 528-6333 Email cathystasney@aol.com	
Address 6611 Elkins Road	City Midland	State TX	Zip 79705
Representative *(if different from Applicant or Property Owner)* Firm: Printed Name:		Phone ( ) Email	
Address	City	State	Zip

Street Address: 6611 Elkins Road

Legal Description
Lot: 2 & 3 Block: 1 Subdivision: Jaden Kate

Current Zoning: AE

Proposed Zone: Planned Development District
(List by tracts if more than one district is requested)

Reason for Zone Change Request: Multifamily Housing

Present Use of Property: AE

Proposed Use of Property: Planned Housing Development

How would this zone change affect the public health, safety and welfare? No negative affect, Provide improved living conditions for the residents.

Describe how conditions affecting the property have changed since present zoning designation: The neighborhood has many more commercial entities.

Submittal and Fees
Items to be submitted with this application form:
- Application Fee – Payable to the 'City of Midland'
- Dimensioned Site Plan
- Digital Copies of Site Plan (PDF/JPEG)

Signatures

Applicant (signature): Patrick A Brown	Date: 3-13-20
Applicant (printed): Patrick A. Brown	
Property Owner (signature): Cathy Stasny & Larry Stasny	Date: 3-13-20
Property Owner (printed): Cathy and Larry Stasny	

The Specific Use Designation shall be considered officially received in the Planning office only when it has been submitted in full compliance with the provisions of Section 212 of the Texas Local Government Code and the Zoning Code of Ordinances of the City of Midland and when such required items for the application are also received.

All materials, including exhibits, submitted in support of an application, or displayed during a public hearing, shall remain the property of the City of Midland.

If an agent is authorized by the property owner to file and execute the application on behalf of the property owner, the agent must complete the affidavit below.

STATE OF TEXAS
COUNTY OF MIDLAND

Before me, the undersigned authority, on this day personally appeared Patrick Brown who, being by me duly sworn, upon oath says: That (s)he is authorized by Cathy and Larry Stasny the owner of the above described property, to fully represent him/her in this application and that (s)he had the legal right, power and authority to sign said owner's name hereto as his/her attorney in fact.

Patrick A Brown
Authorized Agent (*signature*)

Subscribed and sworn to before me, this 13 day of March, 20 20, to certify which witness my hand and seal of office.

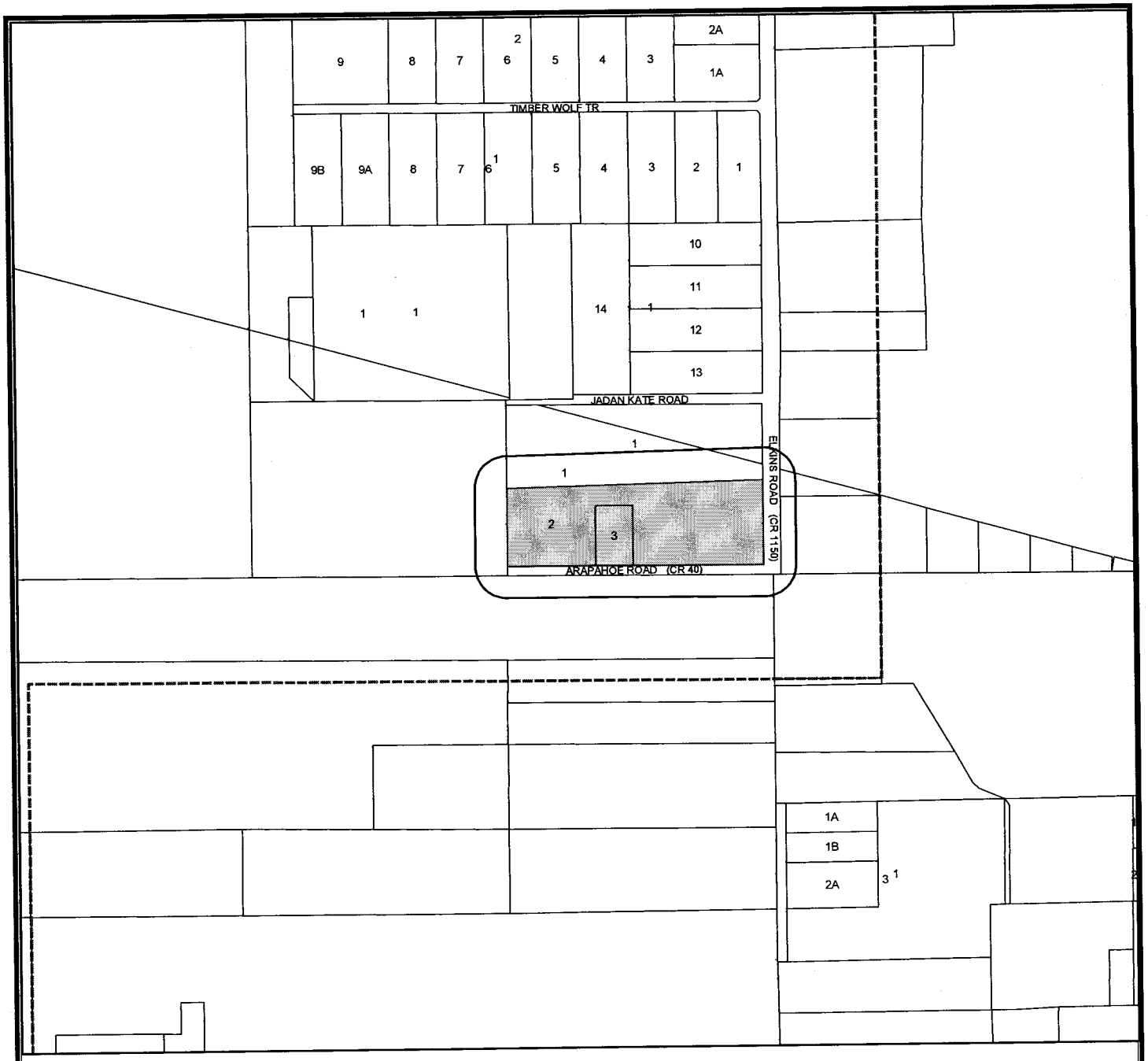
MIRNA A. GRANADOS
Notary Public, State of Texas
Comm. Expires 04-07-2024
Notary ID 130610784

Mirna A Granados
NOTARY PUBLIC, MIDLAND COUNTY, TEXAS

FOR OFFICE USE ONLY

☐ Property Owner Authorization	☐ Dimensioned Site Plan
☐ Application Fee	☐ Site Plan in Digital Format (PDF/JPEG)
Check #_____	
Received By:	Date:

****Application will not be considered for scheduling until reviewed by a planner.****



LOCATION MAP

Z-20-0177

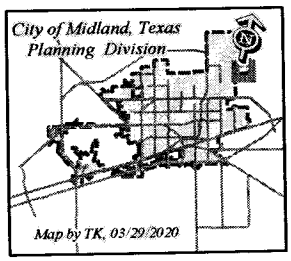
Scale: 1" = 250'

Consider a request by Patrick Brown, for a zone change from AE, Agricultural Estate District, to a PD, Planned Development District for a Housing Development on Lots 2 and 3, Block 1, Jaden Kate Addition, City and County of Midland, Texas.

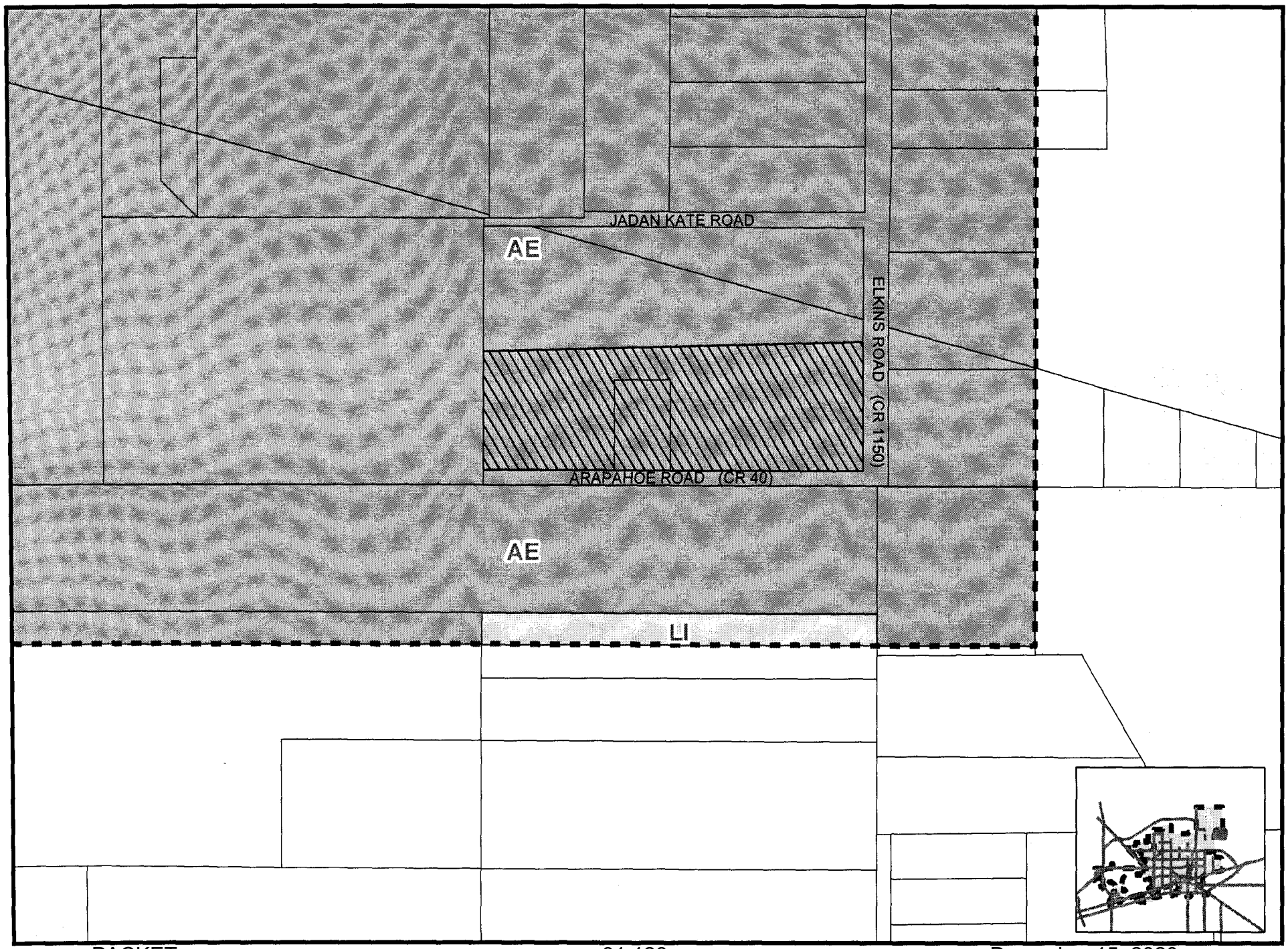
Generally located on northwest corner of the intersection of N. Elkins Road and Arapahoe Road. (Council District 1)

LEGEND

- CITY LIMITS
- PARCEL
- PRIVATE BLDGS



©THE CITY OF MIDLAND - 2020
THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY PRODUCT, NOR IS IT DESIGNED TO BE USED AS A PRIMARY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.
THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.

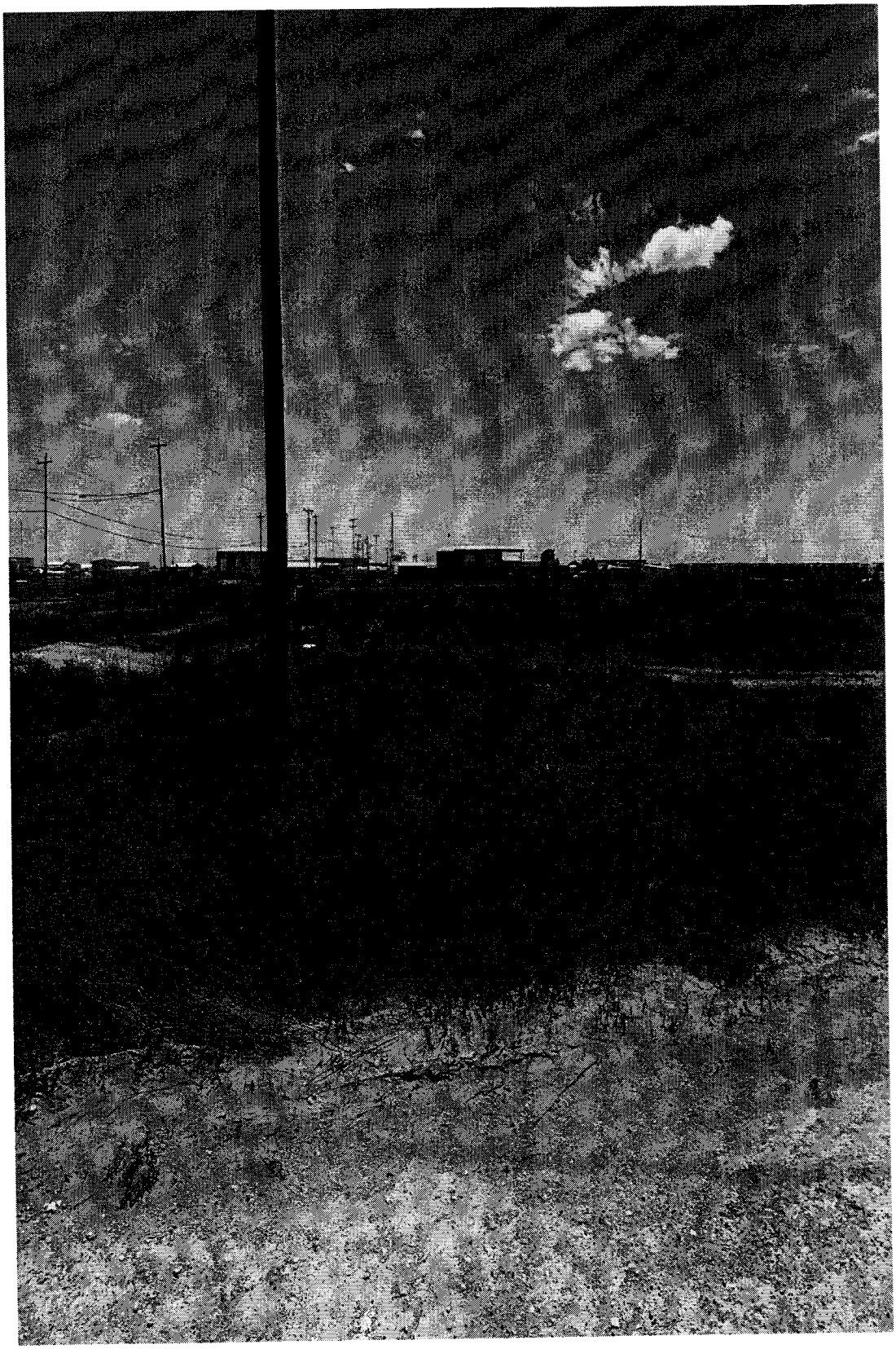


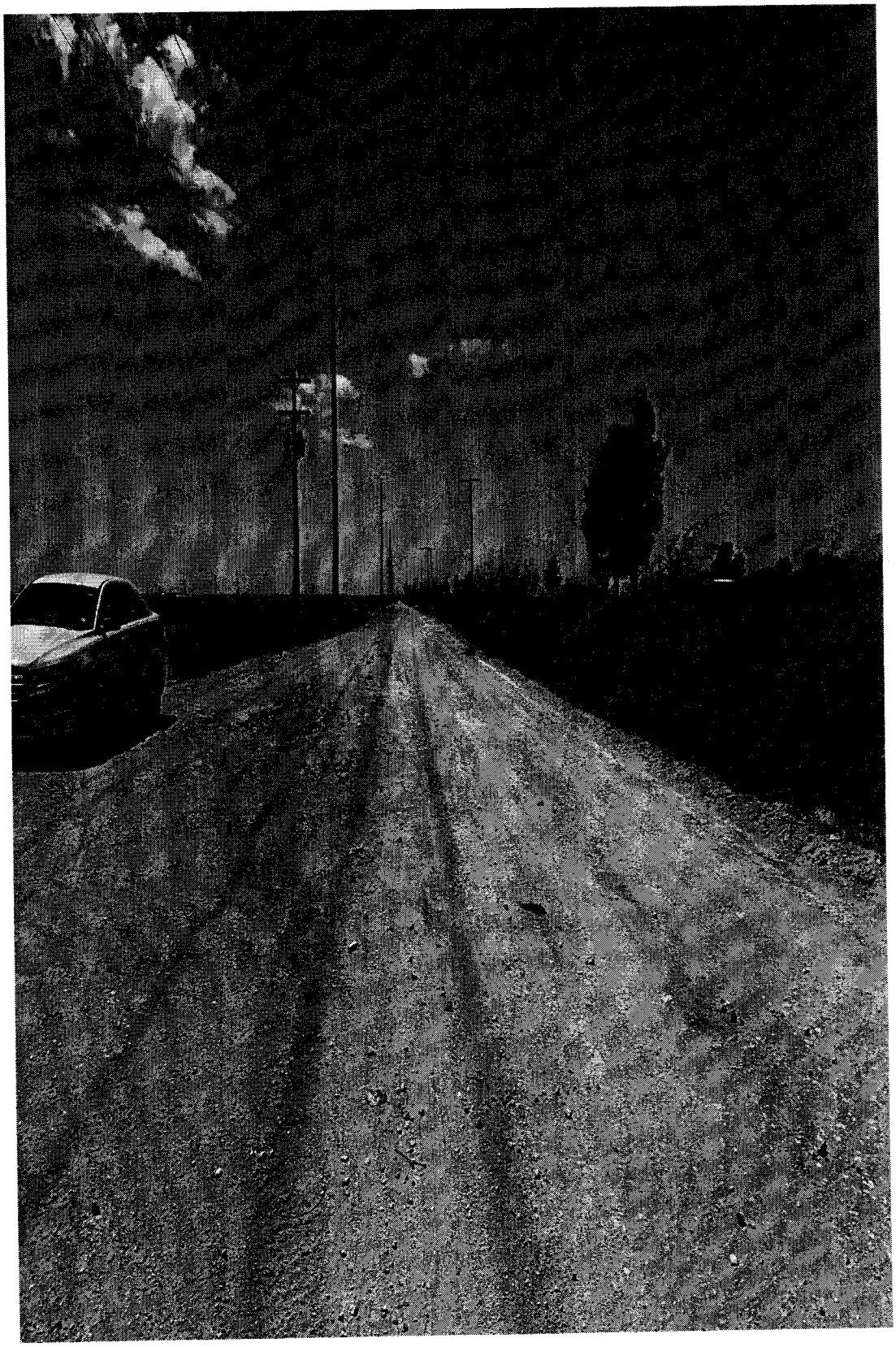
Map By TK, 03/29/2020

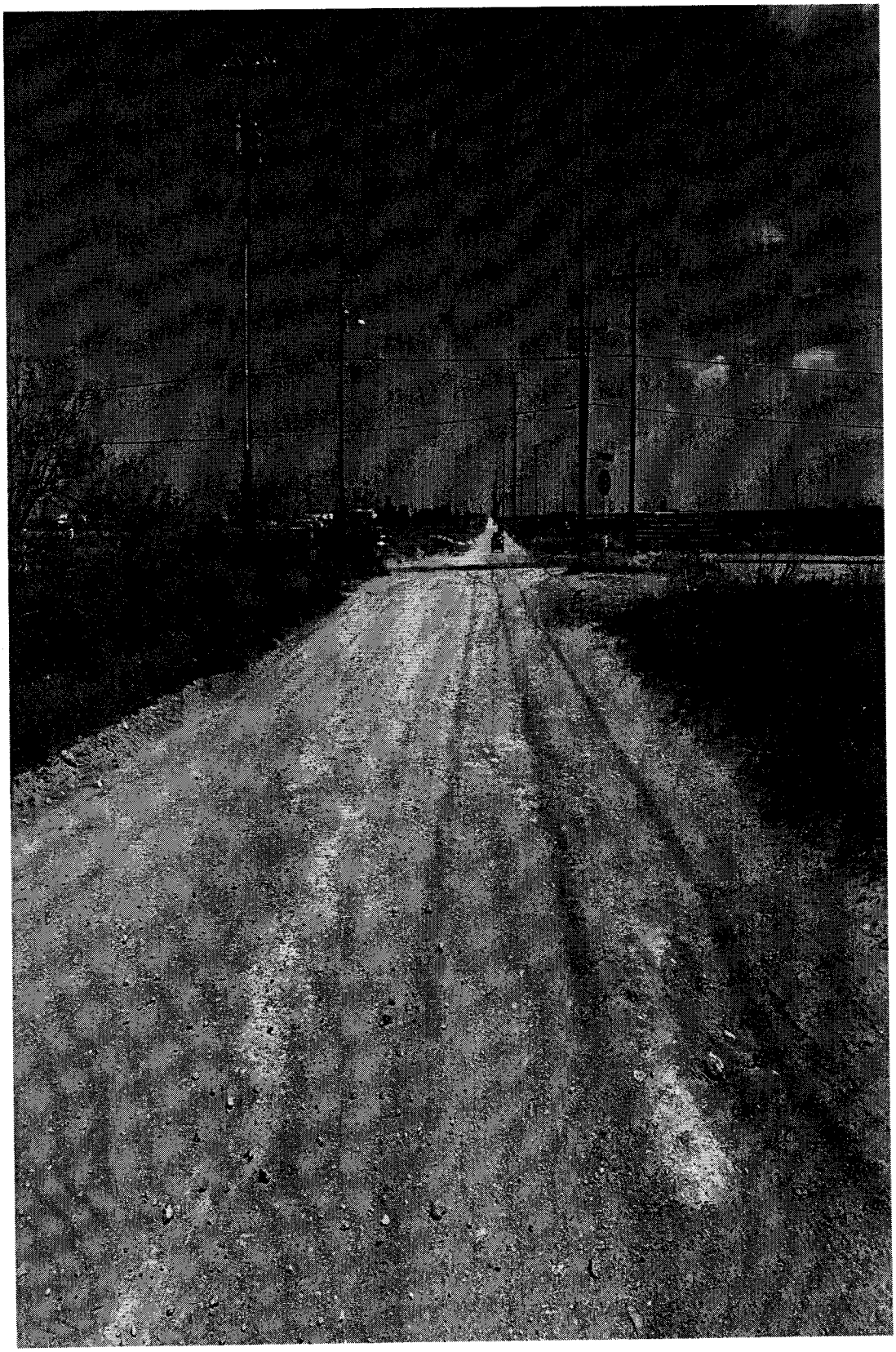
Scale: 1" = 200'

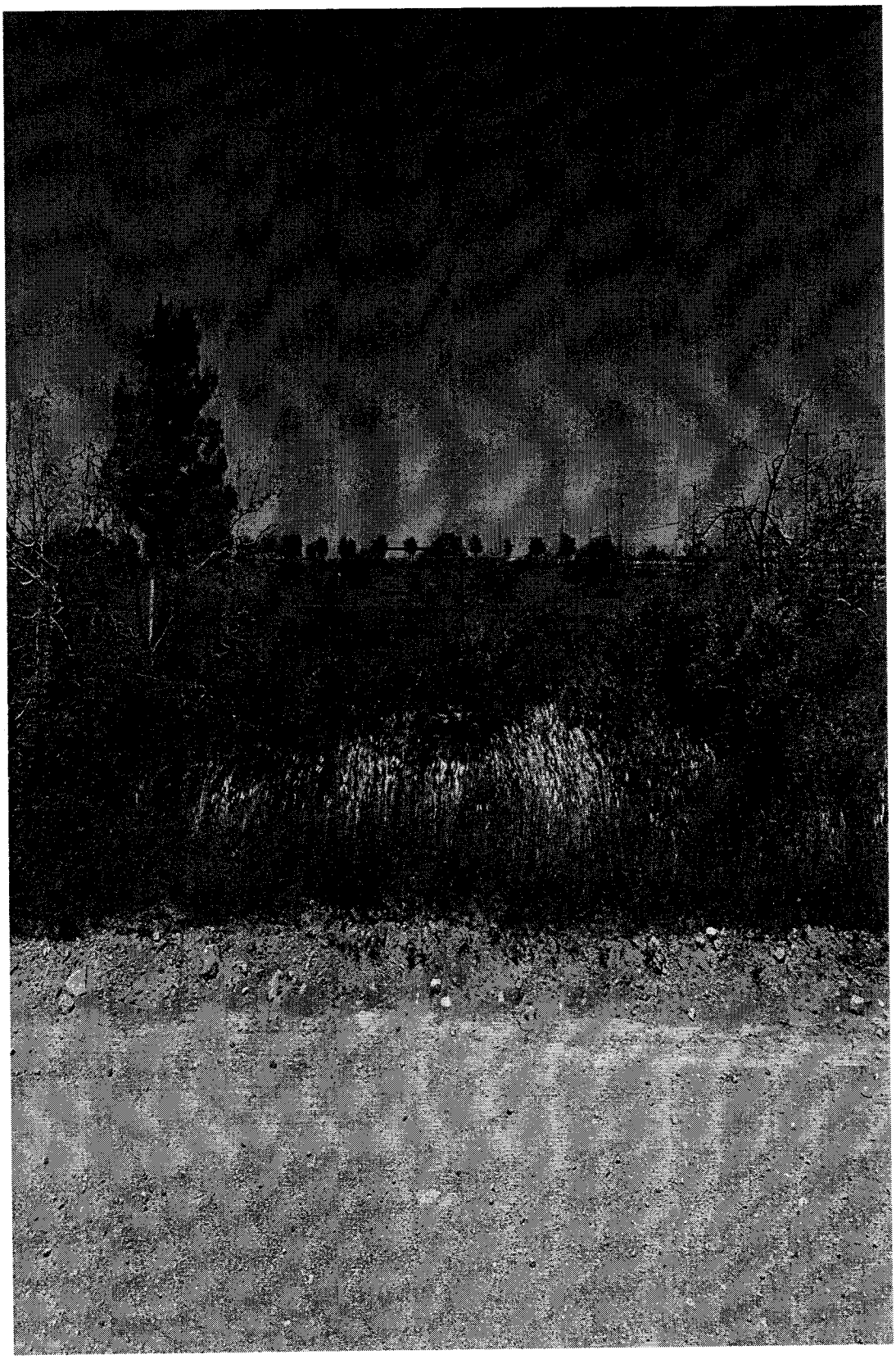
ZONING MAP

© THE CITY OF MIDLAND - 2020: THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY PRODUCT, NOR IS IT DESIGNED TO BE USED AS A PRIMARY TOOL IN PERMITTING OR DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN. THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.












STOP





City Council Meeting

Item Number: 32

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Joseph Marynak, Planner

Subject: AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 3, BLOCK 22, GREENWOOD ADDITION, THIRD, FOURTH, AND FIFTH SECTIONS, CITY AND COUNTY OF MIDLAND, TEXAS, FROM MF-22, MULTIPLE-FAMILY DWELLING DISTRICT TO SF-3, SINGLE-FAMILY DWELLING DISTRICT (GENERALLY LOCATED ON THE WEST SIDE OF SOUTH CLAY STREET, APPROXIMATELY 110 FEET SOUTH OF EAST WASHINGTON AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Purpose:

The applicant, Cruz Marquez, is requesting a Zone Change from MF-22, Multiple Family Dwelling District to SF-3 Single Family Dwelling District at 504 South Clay Street to construct a single family home.

Recommended City Council Action:

Approve

Fiscal Impact:

This request does not require any City funds.

Discussion:

Current Zoning:

MF-22, Multiple Family Dwelling District

Surrounding Zoning and Land Use:

The properties to the north, south, and west are zoned MF-22, Multiple Family Dwelling District, and the locations of single-family residences and vacant land. The property to the east is zoned SF-3, Single Family Dwelling District, and the location of vacant land.

Analysis:

The applicant is requesting this zone change to be able to construct a single family home on the lot. The lot dimensions satisfy the minimum requirements for the SF-3 zoning district

This proposed zone change has been circulated to the respective City departments for internal review and their comments, conditions, and requirements are as follows:

Fire: (Approved)

No objections

Building: (Approved)

No issues. All future structures must adhere to the 2018 International Building Codes, the 2015 International Energy Code, the 2017 NEC requirements, the 2015 International Fire Codes, local city ordinances, zoning requirements, established setbacks, and floodplain requirements if necessary.

Engineering: (Approved)

No objection to zone change.

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

Code: (Approved)

No Oil or Gas wells identified within 500 ft. permitted well radius or in the 135 ft. non-permitted well radius of location on plat.

Transportation: (Approved)

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

No objection to zone change.

Planning:

Under the previous zoning code, the current zoning district would have allowed for construction of single-family homes, which allowed for the proliferation of their construction in this area. Under the new Zoning Code adopted in 2019, residential uses became more specified to the single family zoning district.

This request is in compliance with the Tall City Tomorrow Comprehensive Plan, Chapter 3 An Integrated Land Use Vision, “Future Land Use Map” as it designates this area for Urban Residential, a classification which calls for single family detached housing.

This request was recommended for approval at the October 19, 2020 Planning and Zoning Commission meeting and approved at the November 17, 2020 City Council meeting.

Therefore, staff recommends approval of this zone change from MF-22, Multiple Family Dwelling District to SF-3, Single Family Dwelling District, subject to condition A.

Conditions:

A. That the use and development of this property shall conform to the regulations of the SF-3, Single Family Dwelling District.

Letters of Objection:

Staff has not received any letters of objection as of November 11, 2020.

Attachments:

Application
Maps
Warranty Deed

Robert Patrick

City Manager’s Office

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 3, BLOCK 22, GREENWOOD ADDITION, THIRD, FOURTH, AND FIFTH SECTIONS, CITY AND COUNTY OF MIDLAND, TEXAS, FROM MF-22, MULTIPLE-FAMILY DWELLING DISTRICT TO SF-3, SINGLE-FAMILY DWELLING DISTRICT (GENERALLY LOCATED ON THE WEST SIDE OF SOUTH CLAY STREET, APPROXIMATELY 110 FEET SOUTH OF EAST WASHINGTON AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION

WHEREAS, the City Planning and Zoning Commission and the Governing Body of the City of Midland, in compliance with the City Charter, the City Code, and State law, have given the requisite notices by United States mail, publication and otherwise; and after a full and fair hearing to all of the property owners generally and particularly to those interested persons situated in the affected area and in the vicinity thereof, the Governing Body finds that the public health, safety and general welfare will be best served by rezoning Lot 3, Block 22, Greenwood Addition, Third, Fourth, and Fifth Sections, City and County of Midland, Texas (the "Property") to SF-3, Single-Family Dwelling District, as set out hereinafter;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Zoning District Map of the City of Midland, Texas, is hereby amended to rezone the Property from MF-22, Multiple-Family Dwelling District to SF-3, Single-Family Dwelling District.

SECTION TWO. That the definitions given in the zoning regulations contained in the City Code of the City of Midland, Texas, shall be applicable to such of those terms as are used herein.

SECTION THREE. The provisions of this ordinance are to be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as

that covered herein; provided, however, that all prior ordinances or parts of ordinances inconsistent with or in conflict with any of the provisions of this ordinance are hereby expressly repealed to the extent of any such inconsistency or conflict.

SECTION FOUR. If any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of this ordinance. The Council of the City of Midland hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SECTION FIVE. The penalty for violation of this ordinance shall be in accordance with the general penalty provisions contained in Section 1-3-1 of the City Code of Midland, Texas, which provides for a fine not exceeding two thousand dollars ($2,000.00).

SECTION SIX. The City Secretary is hereby authorized and directed to publish the descriptive caption of this ordinance in the manner and for the length of time prescribed by the law as an alternative method of publication.

The above and foregoing ordinance was duly proposed, read in full and adopted on first reading, the _____ day of _____, A.D., 2020; and passed to second reading on motion of Council member _____, seconded by Council member _____, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

The above and foregoing ordinance was read in full and finally adopted by the following vote upon motion of Council member _____, seconded by Council member _____, on the _____ day of _____, A.D., 2020, at a regular meeting of the City Council:

Council members voting “AYE”:

Council members voting “NAY”:

PASSED AND APPROVED THIS _____ day of _____, A.D., 2020.

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

MIDLAND Planning Division

Zone Change/Planned District Amendment/Site Plan Approval

Project Number: Z-20-0194

Case Number:

Applicant *(if acting as Agent, see affidavit on page 2)* Printed Name: Cruz Marquez		Phone (432) 6314616 Email CruzMarquez1972@Hotmail.com	
Address 914 Canyon dr.	City Midland	State Tx	Zip 79703

Property Owner Printed Name: ~~504 Clay~~ Cruz Marquez		Phone ( ) Email	
Address 504 S. Clay	City Midland	State Tx	Zip 79701

Representative *(if different from Applicant or Property Owner)* Firm: Printed Name:		Phone ( ) Email	
Address	City	State	Zip

Street Address:

Legal Description
Lot: 3 Block: 22 Subdivision: Green Wood

Current Zoning: MF22

Proposed Zone: *(List by tracts if more than one district is requested)* SF3

Reason for Zone Change Request: Build a home

Present Use of Property: Vacant Lot

Proposed Use of Property: New Home

How would this zone change affect the public health, safety and welfare? NO

Describe how conditions affecting the property have changed since present zoning designation: N/A

Submittal and Fees

Items to be submitted with this application form:

- Application Fee – Payable to the 'City of Midland'
- Dimensioned Site Plan
- Digital Copies of Site Plan (PDF/JPEG)

RECEIVED
AUG 14 2020

Signature *(by property owner only – authorized agent must sign affidavit below)*	
Applicant (signature): Cruz D. Manquez	Date:
Applicant (printed):	
Property Owner (signature): Cruz D. Manquez	Date:
Property Owner (printed) :	

The Zone Change/Planned District Amendment/Site Plan Approval shall be considered officially received in the Planning office only when it has been submitted in full compliance with the provisions of Section 212 of the Texas Local Government Code and the Zoning Code of Ordinances of the City of Midland and when such required items for the application are also received.

All materials, including exhibits, submitted in support of an application, or displayed during a public hearing, shall remain the property of the City of Midland.

STATE OF TEXAS
COUNTY OF MIDLAND

Before me, the undersigned authority, on this day personally appear_____who, being by me duly sworn, upon oath says: That (s)he is the owner of _____or authorized by_____, the owner of the above described property, to fully represent him/her in this application and that (s)he had the legal right, power and authority to sign said owner's name hereto as his/her attorney in fact.

_____
Authorized Agent (*signature*)

Subscribed and sworn to before me, this_____day of_____, 20____, to certify which witness my hand and seal of office.

_____
NOTARY PUBLIC, MIDLAND COUNTY, TEXAS

FOR OFFICE USE ONLY

☐ Property Owner Authorization	☐ Dimensioned Site Plan
☐ Application Fee	☐ Plans in Digital Format (PDF/JPEG)
Check #_____	
Received By:	Date:

Application will not be considered for scheduling until reviewed by a planner.

WARRANTY DEED

"NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER."

Date: August 4, 2020

Grantor: Adolfo Bustamante

Grantee: Cruz A. Marquez

Grantees' Mailing Address:

914 Canyon Drive
Midland, Midland County, Texas 79703

Consideration:

Cash and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged.

Property (including any improvements):

SURFACE ESTATE ONLY IN AND TO LOT THREE (3), BLOCK TWENTY TWO (22), GREENWOOD ADDITION, an addition to the City of Midland, Midland County, Texas, according to the map or plat thereof of record in Cabinet B, Page 54, Plat Records of Midland County, Texas. (504 S. Clay, Midland, Texas)

Reservations from Conveyance:

For Grantor and Grantor's heirs, successors, and assigns forever, a reservation of all oil, gas, and other minerals, if any, in and under and that may be produced from the Property. If the mineral estate is subject to existing production or an existing lease, the production, the lease, and the benefits from it are allocated in proportion to ownership in the mineral estate.

Exceptions to Conveyance and Warranty

Liens described as part of the Consideration and any other liens described in this deed as being either assumed by Grantee or subject to which title is taken by Grantee; validly existing easements, rights-of-way, and prescriptive rights, whether of record or not; all presently recorded and validly existing instruments, other than conveyances of the surface fee estate that affect the Property; validly existing restrictive covenants common to the platted subdivision in which the Property is located; standby fees, taxes, and assessments by any taxing authority for the year 2020 and subsequent years, and subsequent taxes and assessments by any taxing authority for prior years due to change in land usage or ownership; validly existing utility easements created by the dedication deed or plat of the subdivision in which the Property is located recorded in the Official Records of Midland County, Texas; any discrepancies, conflicts, or shortages in area or boundary lines, or any encroachments or protrusions, or any overlapping of improvements; and homestead or community property or survivorship rights, if any, of any spouse of Grantee.

Grantor, for the Consideration and subject to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty, grants, sells, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in any way belonging, to have and to hold it to Grantee and Grantee's heirs, successors, and assigns forever. Grantor binds Grantor and Grantor's heirs and successors to warrant and forever defend all and singular the Property to Grantee and Grantee's heirs, successors, and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the Reservations from Conveyance and the Exceptions to Conveyance and Warranty.

When the context requires, singular nouns and pronouns include the plural.

This instrument was prepared with information supplied by the Grantor and/or the Grantee and no independent title examination has been performed to verify this information. As a result neither Lone Star Abstract & Title Co., Inc. nor the Law Office of G. Lance Holland make any warranties or representations regarding the validity of title to the Property.

Adolfo Bustamante

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

This instrument was acknowledged before me on August 7, 2020 by Adolfo Bustamante.

OLIVIA S. COOK
Notary Public, State of Texas
Comm. Expires 07-15-2022
Notary ID 1128624-4

NOTARY PUBLIC, STATE OF TEXAS

Cruz A. Marquez, Grantee accepts the attached deed and consents to its form and substance. Grantee acknowledges that no independent title examination has been performed on the Property.

Cruz A. Marquez

STATE OF TEXAS §
§
COUNTY OF MIDLAND §

This instrument was acknowledged before me on August 7, 2020 by Cruz A. Marquez.

NOTARY PUBLIC, STATE OF TEXAS

OLIVIA S. COOK
Notary Public, State of Texas
Comm. Expires 07-15-2022
Notary ID 1128624-4

PREPARED IN:

Lone Star Abstract & Title Co., Inc.
600 North Loraine
Midland, Texas 79701

AFTER RECORDING RETURN TO:

The Law Office of G. Lance Holland, P.C.
c/o Lone Star Abstract & Title Co., Inc.
600 North Loraine
Midland, Texas 79701

\\SERVER04\LanceHolland\Network_Share\Docs\08.04.2020\Marquez\WD.doc

VG-209-2020-23756

Midland County
Alison Haley
Midland County Clerk

Instrument Number: 23756

Real Property Recordings

Recorded On: August 14, 2020 11:14 AM

Number of Pages: 4

" Examined and Charged as Follows: "

Total Recording: $34.00

********** THIS PAGE IS PART OF THE INSTRUMENT **********
Any provision herein which restricts the Sale, Rental or use of the described REAL PROPERTY because of color or race is invalid and unenforceable under federal law.

File Information:

Document Number:	23756
Receipt Number:	20200814000091
Recorded Date/Time:	August 14, 2020 11:14 AM
User:	Angie E
Station:	cc10288

Record and Return To:

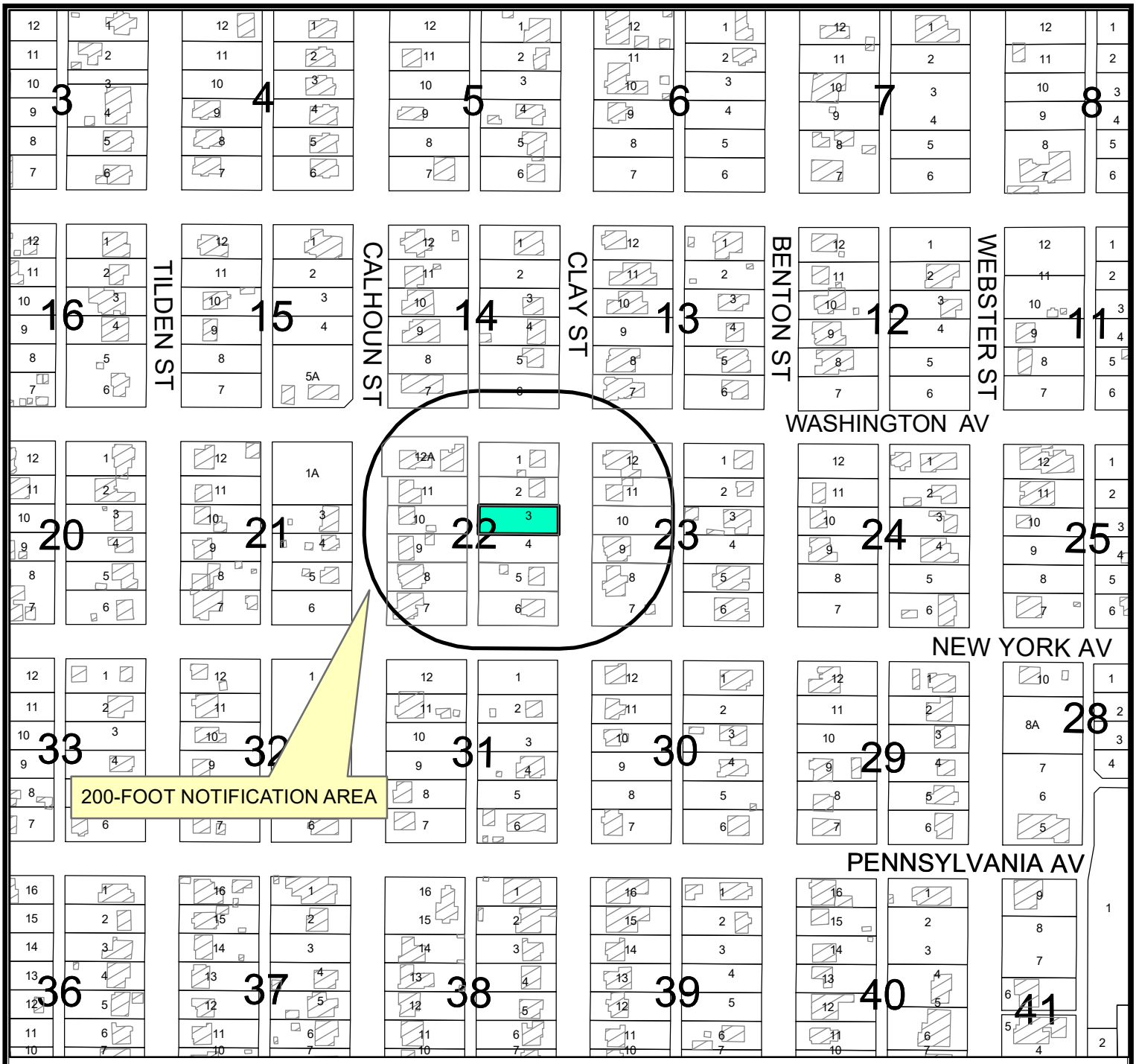
THE LAW OFFICE OF G. LANCE HOLLAND, PC
C/O LONE STAR ABSTRACT & TITLE CO INC
600 NORTH LORAINE STREET
MIDLAND TX 79701

COUNTY COURT
MIDLAND COUNTY, TEXAS

STATE OF TEXAS
Midland County
I hereby certify that this Instrument was filed in the File Number sequence on the date/time printed hereon, and was duly recorded in the Official Records of Midland County, Texas

Alison Haley
Midland County Clerk
Midland County, TX

RECEIVED
AUG 14 2020



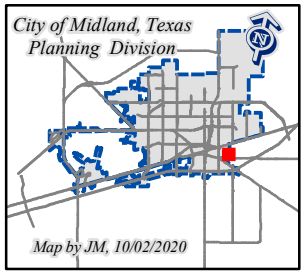
LOCATION MAP

Z-20-0194 **Scale: 1" = 250'**

Consider a request by Cruz Marquez for a zone change from MF-22, Multiple Family Dwelling District to SF-3, Single Family Dwelling District on Lot 3, Block 22, Greenwood Addition, Third, Fourth, and Fifth Sections, City and County of Midland, Texas.
Generally located on the west side of South Clay Street, approximately 110 feet south of East Washington Avenue. (Council District 2)

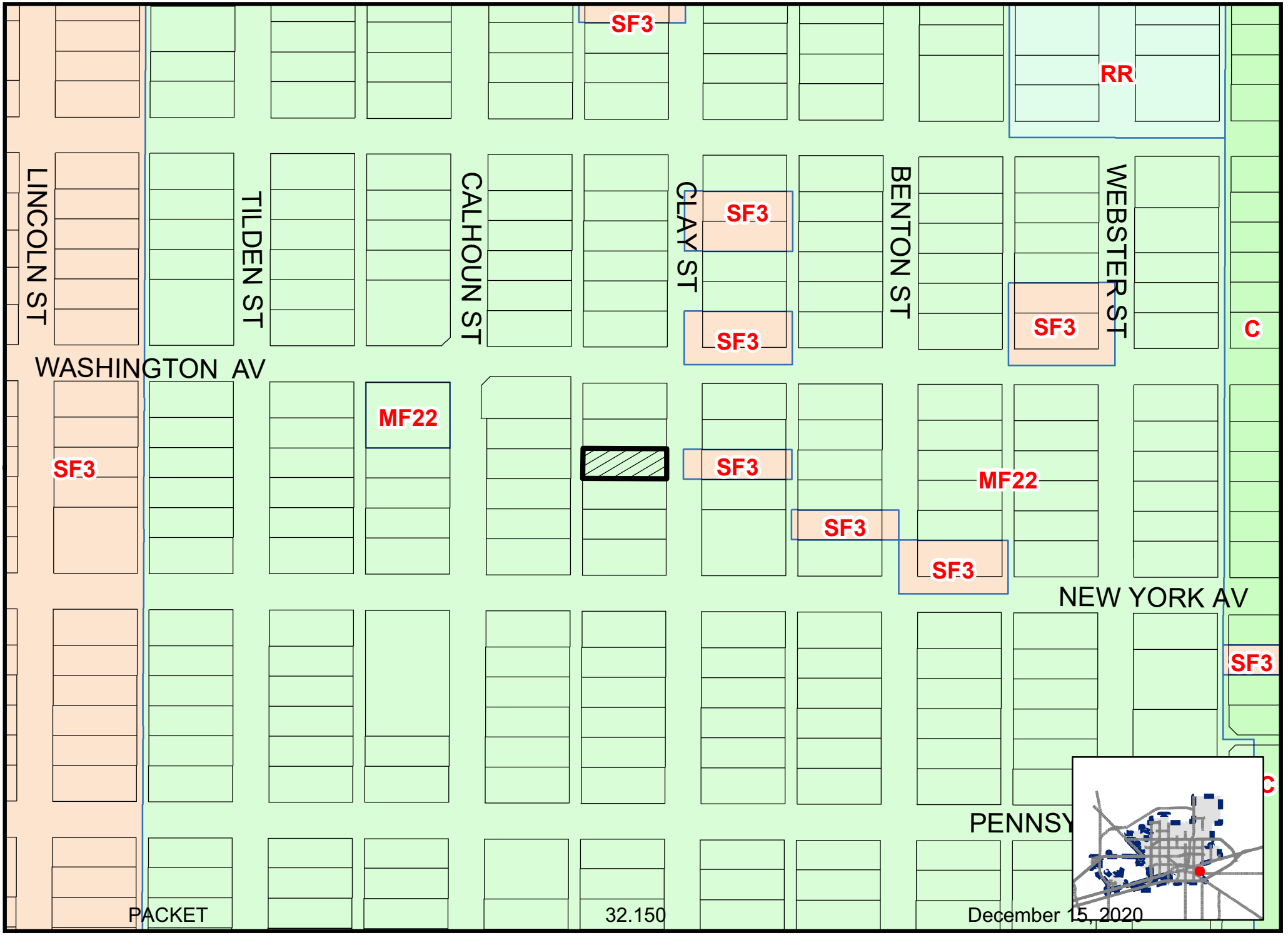
LEGEND

- CITY LIMITS
- PARCEL
- PRIVATE BLDGS



©THE CITY OF MIDLAND - 2020
THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY AND NOR IS IT DESIGNED TO BE USED AS THE ONLY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.
THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.

December 15, 2020



Map By JM 10/05/2020

Z-20-0194

Scale: 1" = 200'

ZONING MAP

© THE CITY OF MIDLAND - 2020: THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY PRODUCT, NOR IS IT DESIGNED TO BE USED AS A PRIMARY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN. THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.









City Council Meeting

Item Number: 33

Meeting Date: December 15, 2020

To: City Council / City Manager

From: Glenda Arroyo-Cruz, Planner

Subject: AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 15A, BLOCK 133, SOUTHERN ADDITION, SECTION 18, CITY AND COUNTY OF MIDLAND, TEXAS, FROM LI, LIGHT INDUSTRIAL DISTRICT, IN PART, AND SF-3, SINGLE-FAMILY DWELLING DISTRICT, IN PART, TO SF-3, SINGLE-FAMILY DWELLING DISTRICT (GENERALLY LOCATED ON THE EAST SIDE OF SOUTH WEATHERFORD DRIVE, APPROXIMATELY 75 FEET NORTH OF EAST WASHINGTON AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION (DEVELOPMENT SERVICES)

Purpose:

The applicants, Joe and Irma Dominguez, are requesting a zone change from LI, Light Industrial District, in part, and SF-3, Single-Family Dwelling District, in part, to SF-3, Single-Family Dwelling District.

Recommended City Council Action:

Approve

Fiscal Impact:

This request has no significant impact on the City's Budget.

Discussion:

Surrounding Zoning and Land Use:

The properties to the north, east, south and west are zoned LI, Light Industrial District and the location of vacant land and residential homes, respectively.

Analysis:

The property is located at 407 South Weatherford Street and is currently vacant. The applicant is proposing to place a modular home at this location.

Per the previous zoning ordinance, single-family detached dwellings were allowed in the LI, Light Industrial District. As of July 1, 2019, the new zoning ordinance does not allow the use of single-family detached dwellings within the LI, Light Industrial District.

The planning division has researched the surrounding neighborhood and based on the existing characteristics of the area, the zone change request to allow for a single-family detached dwelling would be appropriate.

The dimensions of the property are approximately 100 feet by 140 feet and would meet the dimensional regulations of the SF-3, Single Family Dwelling Districts. The appropriate setbacks and maximum height must also comply with the residential zoning district dimensional regulations for the SF-3, Single Family Dwelling District.

This proposed project has been circulated to and reviewed by respective City departments for internal review and their comments, conditions, and requirements are as follows:

Building: (Approved)

No issues. All future structures must adhere to the 2018 International Building Codes, the 2015 International Energy Code, the 2017 NEC requirements, the 2015 International Fire Codes, local city ordinances, zoning requirements, established setbacks, and floodplain requirements if necessary.

Engineering: (Approved)

No objection to zone change.

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

Transportation: (Approved)

Site drainage, utilities, driveway access, and traffic circulation may be adjusted during construction drawing review as necessary to receive building permit approval from Engineering and Traffic Operations.

No objection to zone change.

Fire: (Approved)

No objections.
Planning:

This request was recommended for approval at the November 16, 2020 Planning and Zoning meeting.

Per the Future Land Use map, this location is designated as Urban-Medium Neighborhood Center. Potential zoning or this area includes Single-Family Dwelling Districts; therefore, this zone change complies with the Future Land Use plan. The surrounding lots consist of vacant lots and residences. This zone change will follow the existing characteristics of the surrounding neighborhood and provide additional housing for residents of the City of Midland.

Staff recommends approval of the zone change from LI, Light Industrial District, in part, and SF-3, Single-Family Dwelling District, in part, to SF-3, Single-Family Dwelling District, subject to condition A.

Conditions:

A. **That the use and development of this property shall conform to the regulations of the SF-3, Single-Family Dwelling District.**

Letters of Objection:

As of December 9, 2020, staff has not received any letters of objection.

Attachments:

Application
Maps

Robert Patrick

City Manager's Office

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE ZONING DISTRICT MAP OF THE CITY OF MIDLAND TO REZONE LOT 15A, BLOCK 133, SOUTHERN ADDITION, SECTION 18, CITY AND COUNTY OF MIDLAND, TEXAS, FROM LI, LIGHT INDUSTRIAL DISTRICT, IN PART, AND SF-3, SINGLE-FAMILY DWELLING DISTRICT, IN PART, TO SF-3, SINGLE-FAMILY DWELLING DISTRICT (GENERALLY LOCATED ON THE EAST SIDE OF SOUTH WEATHERFORD DRIVE, APPROXIMATELY 75 FEET NORTH OF EAST WASHINGTON AVENUE); CONTAINING A CUMULATIVE CLAUSE; CONTAINING A SAVINGS AND SEVERABILITY CLAUSE; PROVIDING FOR A MAXIMUM PENALTY OR FINE OF TWO THOUSAND DOLLARS ($2,000.00); AND ORDERING PUBLICATION

WHEREAS, the City Planning and Zoning Commission and the Governing Body of the City of Midland, in compliance with the City Charter, the City Code, and State law, have given the requisite notices by United States mail, publication and otherwise; and after a full and fair hearing to all of the property owners generally and particularly to those interested persons situated in the affected area and in the vicinity thereof, the Governing Body finds that the public health, safety and general welfare will be best served by rezoning Lot 15A, Block 133, Southern Addition, Section 18, City and County of Midland, Texas (the "Property") to SF-3, Single-Family Dwelling District, as set out hereinafter;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MIDLAND, TEXAS:

SECTION ONE. That the Zoning District Map of the City of Midland, Texas, is hereby amended to rezone the Property from LI, Light Industrial District, in part, and SF-3, Single-Family Dwelling District, in part, to SF-3, Single-Family Dwelling District.

SECTION TWO. That the definitions given in the zoning regulations contained in the City Code of the City of Midland, Texas, shall be applicable to such of those terms as are used herein.

SECTION THREE. The provisions of this ordinance are to be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as

that covered herein; provided, however, that all prior ordinances or parts of ordinances inconsistent with or in conflict with any of the provisions of this ordinance are hereby expressly repealed to the extent of any such inconsistency or conflict.

SECTION FOUR. If any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of this ordinance. The Council of the City of Midland hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, or phrase hereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SECTION FIVE. The penalty for violation of this ordinance shall be in accordance with the general penalty provisions contained in Section 1-3-1 of the City Code of Midland, Texas, which provides for a fine not exceeding two thousand dollars ($2,000.00).

SECTION SIX. The City Secretary is hereby authorized and directed to publish the descriptive caption of this ordinance in the manner and for the length of time prescribed by the law as an alternative method of publication.

The above and foregoing ordinance was duly proposed, read in full and adopted on first reading, the _____ day of _____, A.D., 2020; and passed to second reading on motion of Council member _____, seconded by Council member _____, by the following vote:

Council members voting "AYE":

Council members voting "NAY":

The above and foregoing ordinance was read in full and finally adopted by the following vote upon motion of Council member _____, seconded by Council member _____, on the _____ day of _____, A.D., 2021, at a regular meeting of the City Council:

Council members voting “AYE”:

Council members voting “NAY”:

PASSED AND APPROVED THIS _____ day of _____, A.D., 2021.

_____
Patrick N. Payton, Mayor

ATTEST:

_____
Amy M. Turner, City Secretary

APPROVED AS TO CONTENT
AND COMPLETENESS:

_____
Charles Harrington, Director of Development Services

APPROVED ONLY AS TO FORM:

_____
John Ohnemiller, City Attorney

MIDLAND Planning Division

Zone Change/Planned District Amendment/Site Plan Approval

Project Number: 2-20-0202

Case Number:

Applicant *(if acting as Agent, see affidavit on page 2)* Printed Name: Irma & Joe Dominguez		Phone (432) 634-2681 Email Irmagonzales35@yahoo.com	
Address 407 S. Weatherford	City Midland	State TX	Zip 79701

Property Owner Printed Name: Irma & Joe Dominguez		Phone (432) 634-2681 Email Irmagonzales35@yahoo.com	
Address 407 S. Weatherford	City Midland	State TX	Zip 79701

Representative *(if different from Applicant or Property Owner)* Firm: Printed Name:		Phone ( ) Email	
Address	City	State	Zip

Street Address: 407 S. Weatherford

Legal Description
Lot: 17 & 18 Block: Subdivision:

Current Zoning: Light Industrial	**Proposed Zone:** SF3 *(List by tracts if more than one district is requested)*

Reason for Zone Change Request: Modular Home

Present Use of Property: Home Demolished / Vacant as of now

Proposed Use of Property: Modular Home

How would this zone change affect the public health, safety and welfare?

Describe how conditions affecting the property have changed since present zoning designation:

Submittal and Fees
Items to be submitted with this application form:

- Application Fee – Payable to the 'City of Midland'
- Dimensioned Site Plan
- Digital Copies of Site Plan (PDF/JPEG)

RECEIVED
OCT 21 2020
BY

Signature *(by property owner only – authorized agent must sign affidavit below)*	
Applicant (signature): Irma G. Dominguez	Date: 10-21-2020
Applicant (printed): Irma G Dominguez	
Property Owner (signature): Irma G. Dominguez	Date: 10-21-2020
Property Owner (printed) : Irma G. Dominguez	

The Zone Change/Planned District Amendment/Site Plan Approval shall be considered officially received in the Planning office only when it has been submitted in full compliance with the provisions of Section 212 of the Texas Local Government Code and the Zoning Code of Ordinances of the City of Midland and when such required items for the application are also received.

All materials, including exhibits, submitted in support of an application, or displayed during a public hearing, shall remain the property of the City of Midland.

STATE OF TEXAS
COUNTY OF MIDLAND

Before me, the undersigned authority, on this day personally appear_____who, being by me duly sworn, upon oath says: That (s)he is the owner of _____or authorized by_____, the owner of the above described property, to fully represent him/her in this application and that (s)he had the legal right, power and authority to sign said owner's name hereto as his/her attorney in fact.

_____
Authorized Agent (*signature*)

Subscribed and sworn to before me, this_____day of_____, 20____, to certify which witness my hand and seal of office.

_____

NOTARY PUBLIC, MIDLAND COUNTY, TEXAS

FOR OFFICE USE ONLY

☐ Property Owner Authorization ☐ Dimensioned Site Plan

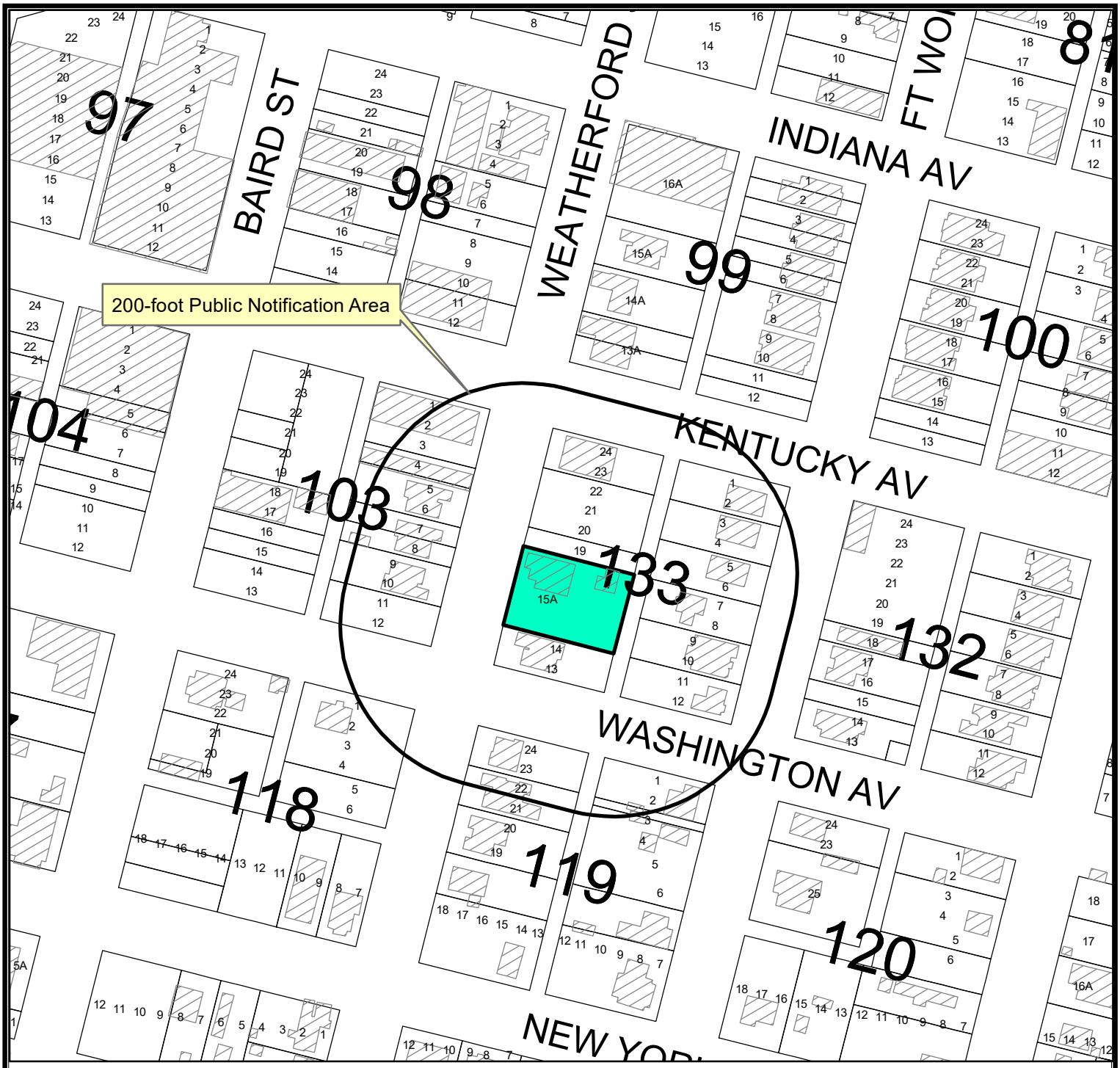
☑ Application Fee ☐ Plans in Digital Format (PDF/JPEG)

Check # Cash

Received By: gac Date: OCT 21 2020

BY: .....

Application will not be considered for scheduling until reviewed by a planner.



LOCATION MAP

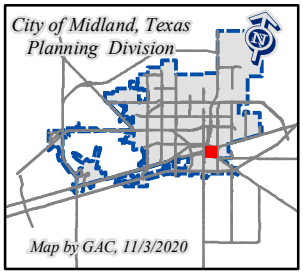
Z-20-0202 **Scale: 1" = 200'**

Consider a request by Joe and Irma Dominguez, for a zone change from a LI, Light Industrial District, in part, and SF-3, Single-Family Dwelling District, in part, to SF-3, Single-Family Dwelling, District on Lot 15A, Block 133, Southern Addition, Section 18, City and County of Midland, Texas.

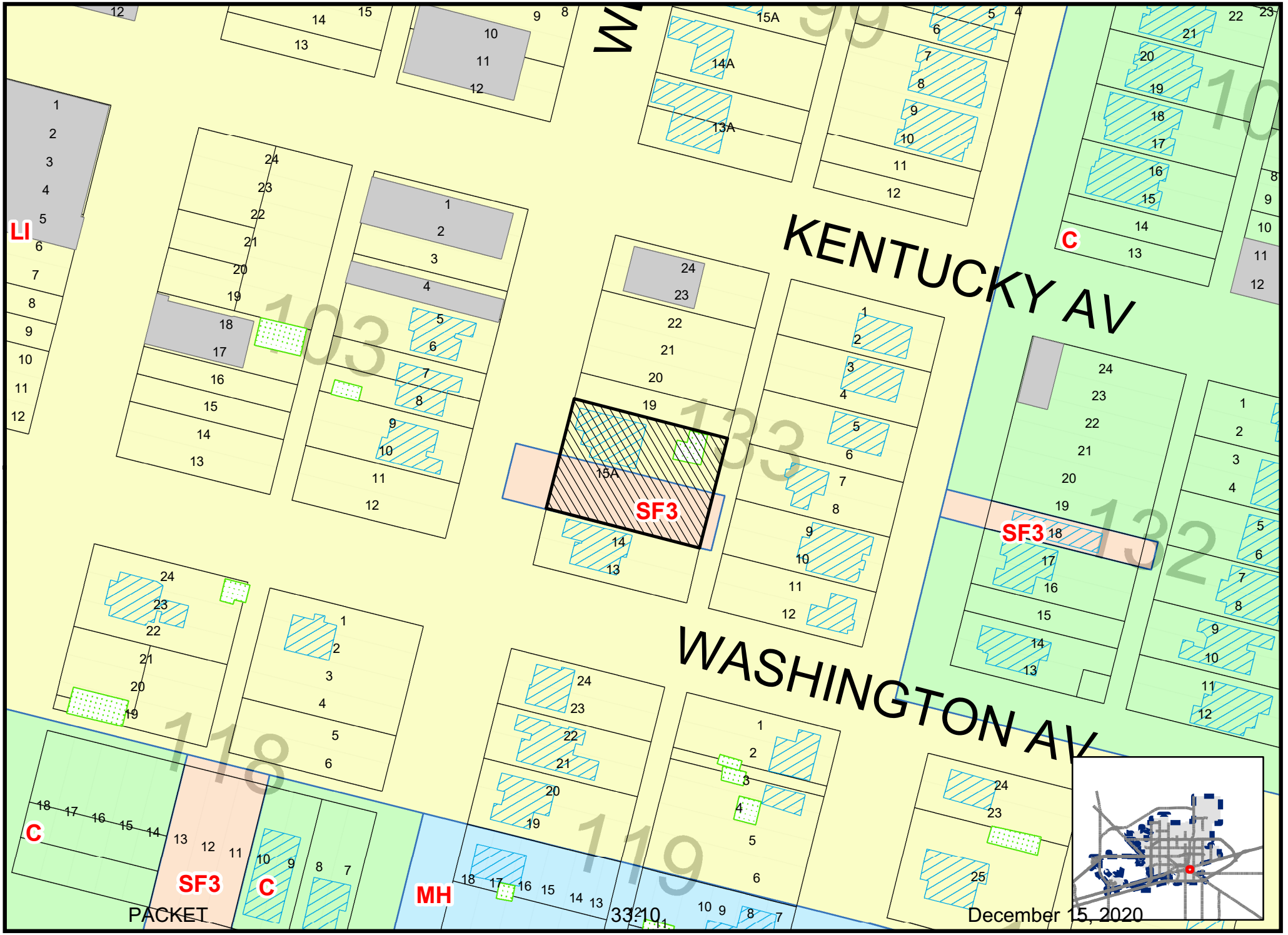
Generally located on the east side of South Weatherford Drive, approximately 75-feet north of East Washington Avenue. (Council District 2)

LEGEND

- CITY LIMITS
- PARCEL
- PRIVATE BLDGS



©THE CITY OF MIDLAND - 2020
THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY AND NOR IS IT DESIGNED TO BE USED AS THE ONLY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN.
THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.



Map By GAC, 11/03/2020

Z-20-0202

Scale: 1" = 200'

ZONING MAP

© THE CITY OF MIDLAND - 2020: THIS DATA IS NOT A SUBSTITUTION FOR A SURVEY PRODUCT, NOR IS IT DESIGNED TO BE USED AS A PRIMARY TOOL IN PERMITTING OR OTHER DECISIONS BASED SOLELY ON THE INFORMATION CONTAINED HEREIN. THE CITY OF MIDLAND SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS BASED UPON THE USE OF THIS DATA.









BOARDS AND COMMISSIONS OF THE CITY OF MIDLAND
December 15, 2020

AIRPORT PLANNING AND DEVELOPMENT BOARD

(Advisory)
(Membership-10; Terms - 3 Years expiring 3-3-4.)

	Appt Date	Term Expires	Eligibility Expires
Nick Hood	09/15	Sept 30 2021	Sept 30 2021
Armand “Chip” Smith	09/18	Sept 30 2021	Sept 30 2024
Scooter Brown	09/16	Sept 30 2022	Sept 30 2022
Wes Reeves	08/15*	Sept 30 2023	Sept 30 2023
Justin Kuethe	09/19	Sept 30 2022	Sept 30 2025
Nick McClure	09/19	Sept 30 2022	Sept 30 2025
Gena Linebarger	09/20	Sept 30 2023	Sept 30 2026
Butch Morgan	09/20	Sept 30 2023	Sept 30 2026
Benjamin Fietz	09/20	Sept 30 2023	Sept 30 2026
Joshua Lorenz	09/20	Sept 30 2023	Sept 30 2026

Justine Ruff (Liaison)

Ex-Officio members are Earl Erdman and Harry Spannaus, the City Manager and the City Attorney. The Secretary is the Director of Aviation.

ANIMAL SERVICES ADVISORY COMMISSION

(Advisory)
(Membership - 7; Terms - 4 Years)

	Appt Date	Term Expires	Eligibility Expires
Leah Lewis	09/17	Sept 30 2021	Sept 30 2025
Robert “Robin” Donnelly	11/13	Sept 30 2021	Sept 30 2021
Dr. (Erickson) Lee (Veterinarian)	05/14	Sept 30 2022	Sept 30 2022
Alyson Dial	09/18	Sept 30 2022	Sept 30 2026
Dr. J. Annette Jensen (Veterinarian)	04/20	Sept 30 2024	Sept 30 2028
Tasha Sport	04/20	Sept 30 2024	Sept 30 2028
Sharla Hotchkiss	04/20	Sept 30 2024	Sept 30 2028

Leah Lewis (Liasion)

BUILDING AND FIRE CODE REVIEW COMMITTEE/CONSTRUCTION BOARD OF ADJUSTMENTS & APPEALS

(Membership – 9; Terms – 6 Years)

Shall consist of two architects, a fire protection contractor or specialist, a general contractor, an electrical contractor, a homebuilder, a plumbing and mechanical contractor, a structural engineer, a City Council Liaison

	Appt Date	Term Expires	Eligibility Expires
Ryan Almand (Electrical Contractor)	12/18	Sept 30 2024	Sept 30 2030
Jay Bradford (Architect)	12/18	Sept 30 2024	Sept 30 2030
Ron Ainsworth (Plumbing & Mechanical Contractor)	12/18	Sept 30 2024	Sept 30 2030
T.J. McClure (Architect)	12/18	Sept 30 2024	Sept 30 2030
Laurence Oeth (Structural Engineer)	12/18	Sept 30 2024	Sept 30 2030
David Hickman (Fire Protection)	12/18	Sept 30 2024	Sept 30 2030
Gary Glasscock (General Contractor)	12/18	Sept 30 2024	Sept 30 2030
Robert Anderson (Homebuilder)	12/18	Sept 30 2024	Sept 30 2030
Jeff Pinkstaff (Liaison)	12/18	Sept 30 2024	Sept 30 2030

CAPITAL IMPROVEMENT ADVISORY COMMITTEE

(Advisory)

(Membership – 7)

A minimum of 40% must be representative of real estate, development, or building industries who are not employees or officials of a political subdivision or governmental entity.)

	Appt Date
Carl Craigo	10/19
Walter Pate	06/18
Mark Payne	06/18
Courtney Black	06/18
Brian Sales	06/18
Chuck Harrington	06/18
Jose Ortiz	06/18

CITIZENS DEVELOPMENT AND HOTEL/MOTEL ADVISORY BOARD

(Advisory)

(Membership - 7; Terms - 2 Years Staggered)

4 2020, 3 -2021

	Appt Date	Term Expires	Eligibility Expires
Ellen K. Ramsey	10/18	Sept 30 2021	Sept 30 2023
Kate Williamson	10/18	Sept 30 2021	Sept 30 2023
David Blackketter	10/18	Sept 30 2021	Sept 30 2023
Joey Hopkins	10/18	Sept 30 2022	Sept 30 2022
Alex Singh	10/18	Sept 30 2022	Sept 30 2022
Becky Wisdom	10/18	Sept 30 2022	Sept 30 2022
Brandon Ofield	09/20	Sept 30 2022	Sept 30 2024

Lori Blong (Council Liasion)

MANAGED COMPETITION COMMITTEE

(Ad Hoc)

	Appt. Date
Jon Morgan	01/02
Wes Perry	01/02
Roy Nelson	01/02
Hugh “Andy” Shaffer	12/03
Scott Dufford	01/02
Ted Tipton	04/04
Kevin Sparks	11/07
Scott Lovett	04/10
P. Lourcey Sams	04/10

Ex-Officio members are the Mayor and the City Manager.

MIDLAND CENTRAL APPRAISAL DISTRICT BOARD OF DIRECTORS

Five Directors, Elected by Local Taxing Entities.
City Nominates/Cast Vote for one Director
(Terms - 2 Years)

	Appt Date	Term Expires
Robert McNaughton	11/15	Dec 31 2021

MIDLAND DEVELOPMENT CORPORATION

(Membership - 7; Terms -3 Years - Staggered)

	Appt Date	Term Expires	Eligibility Expires
Chase Gardaphe	01/19	Jan 14 2022	Jan 14 2025
Wesley Bownds	07/15*	Jan 14 2022	Jan 14 2022
Barry Simpson	01/19	Jan 14 2022	Jan 14 2025
Stephen Lowery	01/17	Jan 14 2023	Jan 14 2023
P Lourcey Sams	04/20	Jan 14 2023	Jan 14 2026
Jill Pennington	04/20	Jan 14 2023	Jan 14 2026
Elaine Bedell	04/20	Jan 14 2023	Jan 14 2026

MIDLAND FRESH WATER SUPPLY DISTRICT #1

(Ad Hoc)
(3 Non Voting Members)

	Appt Date
Wes Perry	05/12
Gary Harris	05/12
Wayne Merritt	05/12

MIDLAND HIGHER EDUCATION FACILITIES CORPORATION

(Membership - 7; Terms - 2 Years Staggered)

	Appt Date	Term Expires	Eligibility Expires
Steve Jones	**09/08***	**Jan 1 2010**	**Jan 1 2012**
Cathy Oestmann	**11/05***	**Jan 1 2010**	**Jan 1 2010**
Vacancy		**Jan 1 2007**	
Vacancy		**Jan 1 2007**	
Vacancy		**Jan 1 2007**	
Vacancy		**Jan 1 2009**	
Curt Kamradt	**11/05***	**Jan 1 2014**	**Jan 1 2014**

Sharla Hotchkiss (Liaison)

MIDLAND HOUSING AUTHORITY COMMISSION

(Membership - 5; Terms - 2 Years expiring 2 even & 3 odd.)

Appointments Made by Mayor (LGC 392.031)

	Appt Date	Term Expires
Sylvestor Cantu	09/18*	Oct 2021
Cheryl Wadley (Resident Commissioner)	11/19	Oct 2021
Wes Gotcher	09/20	Oct 2022
Robert Lehrer	09/20	Oct 2022
Dennis Bade	09/12	Oct 2022

Isaac Garnett (Staff Liasion)

MIDLAND MUNICIPAL MANAGEMENT DISTRICT BOARD

(Ad Hoc)

	Appt. Date
Vacancy	
W. L. “Scooter” Brown	09/04
Vacancy	
Richard Hatchett	11/08
Vacancy	
Ted H. Jones	09/04
Mitch Malouf	11/08
Christi Newton	09/04
Dan Rush	09/04

MIDLAND-ODESSA URBAN TRANSIT DISTRICT BOARD

(Decision Making)
(Membership - 6; Terms - 2 Years Staggered)

	Appt Date	Term Expires	Eligibility Expires
VACANT (Westmoreland)	06/18*	Sept 30 2020	Sept 30 2022
E. J. Baldridge	10/18	Sept 30 2022	Sept 30 2022
Iris Foster	06/18*	Sept 30 2022	Sept 30 2022
Joseph Sanchez	12/19	Sept 30 2021	Sept 30 2023
Jack Ladd	07/20	Sept 30 2022	Sept 30 2024
John Norman	07/20	Sept 30 2022	Sept 30 2024

OIL AND GAS ADVISORY COMMITTEE

(Advisory)
(Membership – 5; Terms – 3 Years expiring 2-2-1)
2 real property developer, real estate sales, or developer; 3 Lic. petroleum engineer, engineer w/ bachelor, or geologist

	Appt Date	Term Expires	Eligibility Expires
Stephen Brumley (Petroleum Eng.)	11/15	Sept 30 2021	Sept 30 2021
Bill Lanier (Real Estate)	09/18	Sept 30 2021	Sept 30 2024
Scott Bowden (Real Estate)	10/19	Sept 30 2022	Sept 30 2025
Ross Klabon (Petroleum Eng.)	10/19	Sept 30 2022	Sept 30 2025
Court Adkins (Petroleum Eng.)	09/17	Sept 30 2023	Sept 30 2023

PARKS AND RECREATION COMMISSION

(Advisory)
(Membership - 9; Terms - 3 Years expiring 3-3-3.)

	Appt Date	Term Expires	Eligibility Expires
Shirley Howard	02/16*	Sept 30 2021	Sept 30 2024
Connie Ferguson	09/16	Sept 30 2022	Sept 30 2022
Stephanie Martin	10/16	Sept 30 2022	Sept 30 2022
Laura Smith	10/19	Sept 30 2022	Sept 30 2025
Francis Schammel	10/19	Sept 30 2022	Sept 30 2025
Susannah Prucka	04/20	Sept 30 2023	Sept 30 2026
Lynn Rogers	04/20	Sept 30 2023	Sept 30 2026
Dal Watson	09/20	Sept 30 2023	Sept 30 2026
Ron Stroman	09/20	Sept 30 2023	Sept 30 2026

Tina Juaz (Liaison)

John Norman (Council Liaison)

PERMIAN BASIN COMMUNITY CENTER FOR MENTAL HEALTH AND MENTAL RETARDATION

(Decision Making)
(Membership - 2 (City); Terms - 2 Years)

	Appt Date	Term Expires
Larry Edgerton (City)	07/10*	June 2021
Ryan Peckham (City)	08/20	June 2022

PERSONNEL BOARD OF APPEALS

(Decision Making)
(Membership - 3; No designated terms. Mayor appoints.)

	Appt. Date
Scott Dufford	01/14
John B. Love III	01/14
Hugh A. “Andy” Shaffer	09/05

PLANNING AND ZONING COMMISSION

(Advisory & Decision Making)
(Membership - 7; Terms - 3 Years)

	Appt Date	Term Expires	Eligibility Expires
Reggie Lawrence	09/14*	Sept 30 2021	Sept 30 2021
Chase Gardaphe	01/14*	Sept 30 2022	Sept 30 2022
Karmen Bryant	02/19*	Sept 30 2022	Sept 30 2025
Diane Williams	09/17	Sept 30 2023	Sept 30 2023
Lucy Sisniega	09/20	Sept 30 2023	Sept 30 2026
Stacey Jo Grosse	09/20	Sept 30 2023	Sept 30 2026
Zachary Deck	09/20	Sept 30 2023	Sept 30 2026

ALTERNATES:

Emily Holeva	09/20	Sept 30 2023	Sept 30 2026
Adrian Carrasco	09/20	Sept 30 2323	Sept 30 2026

ZONING BOARD OF ADJUSTMENT
AND
AIRPORT ZONING BOARD OF ADJUSTMENT

(Decision Making)
(Membership - 5; Terms - 2 Years expiring 3 odd & 2 even.)

	Appt Date	Term Expires	Eligibility Expires
Matthew Wallace	07/15*	Sept 30 2020	Sept 30 2020
Derek Whiting	01/18*	Sept 30 2021	Sept 30 2023
E.J. Baldridge	02/18	Sept 30 2021	Sept 30 2023
VACANT (Rittenhouse)	02/19*	Sept 30 2022	Sept 30 2024
Reed Claybrook	03/19*	Sept 30 2022	Sept 30 2024

ALTERNATES: (not applicable to Airport Zoning)

James Robert Franklin	Sept 30 2021
VACANCY	**Sept 30 2020**

* **Indicates appointment to an unexpired term.**

MIDLAND
Feel the Energy!

APPLICATION FOR CITY OF MIDLAND BOARDS/COMMISSIONS/COMMITTEES

As an applicant for a City board, commission, or committee, please be advised that all information on this application is subject to the Texas Open Records Act and will be available to the public.

PLEASE TYPE OR PRINT CLEARLY:

Date: 10/14/2020

Name: James "Jim" Murphy

Phone: (432) 557-1833 **(Home)**

(432) 631-2745 **(Business)**

Address: 6300 Chickasaw

Midland TX 79705

(City) (State) (Zip)

Email: Jimm.murf@gmail.com

I am [✓] **I am not** [ ] **a U.S. Citizen**

Please tell us about yourself:

Are you a graduate of Midland 101? [ ] **yes** [✓] **no**

I have lived in Midland 29 **years.**

Occupation: Assistant District Manager - GNL Crude Transportat

Professional and/or Community Activities:

Servant leader at Stonegate Fellowship, Troop Dad for daughters Girl Scout Troop, and enjoy helping youth learn more about aviation

What is your personal vision for the City?

My vision for Midland is to help people feel at home in our town as opposed to just being here for work. Also to make our aviation and public transportation infrastructure convienient and safe for all that live in or pass through our city.

Please specify any time constraints you may have.

I am on call 24-7 so things do pop up that are out of my control. Most of the time I can make arrangements that allow me to attend scheduled events.

Please list below the Board(s) or Commission(s) on which you are interested in serving:

(You can find a complete and current list on the City's website at *www.midlandtexas.gov*)

(1) Name of Board/Commission:

Zoning Board of Adjustments & Airport Zoning Board of Adjustments

Please tell us why you are interested in serving on this board or commission.

I have always had an interest in the aviation community and I enjoy serving others. I believe that my experience as a pilot and knowledge of the industry would help our airports better serve the community.

What contribution would you most like to make?

I would like to be a voice for the continued growth of our Air and Spaceport. I believe that we have many people in the community that can fill these roles in the future and help to deversify our economy.

Additional pertinent information or references:

(2) Name of Board/Commission:

Midland Odessa Urban Transit District Board

What contribution would you most like to make?

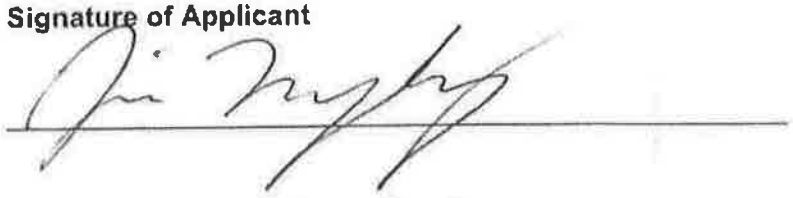
I would like to help the public transportation system serve the people of Midland in the most effecient and safe manor possible.

Additional pertinent information or references:

I currently work in the transportation industry and have been to several MOTRAN meetings.

Applications are maintained on file in the City Secretary's office for a period of one year. Should you need additional information, please call us at 432-685-7430.

Signature of Applicant



Applications may be submitted online via email or print in order to send by mail or fax:

City of Midland
City Secretary's Office
PO Box 1152
Midland, TX 79702
FAX: (432) 685-7433

Submit Via Email

Print Application

MIDLAND
Feel the Energy!

APPLICATION FOR CITY OF MIDLAND BOARDS/COMMISSIONS/COMMITTEES

As an applicant for a City board, commission, or committee, please be advised that all information on this application is subject to the Texas Open Records Act and will be available to the public.

PLEASE TYPE OR PRINT CLEARLY:

Date: 10-14-2020

Name: Khris O'Grady

Phone: 432-634-6352 (Home)
432-684-4465 (Business)

Address: 6306 Homestead Blvd

Email: Ogratomt@suddenlink.net

Midland (City) Tx (State) 79707 (Zip)

I am ☑ I am not ☐ a U.S. Citizen

Please tell us about yourself:

Are you a graduate of Midland 101? ☐ yes ☑ no

I have lived in Midland 34 years.

Occupation: Office Manager, Blog Manager

Professional and/or Community Activities:

Employed @ Leslie Hendrix Wood Interiors, Member St Ann's Church (volunteer Faith Formation, Life Teen) Member & office Lee High Rebel Volleyball Booster Club 2012-2019), Member DAR (Colonial Thenneius Dei Chapter)

What is your personal vision for the City?

Thriving Economy, low taxes, good & safe roads, low crime, great schools

Please specify any time constraints you may have.

NONE

Please list below the Board(s) or Commission(s) on which you are interested in serving:

(You can find a complete and current list on the City's website at www.midlandtexas.gov)

(1) Name of Board/Commission:

Zoning Board of Adjustments & Airport Zoning Board of Adjustments

Please tell us why you are interested in serving on this board or commission.

There is an opening on this board and I want to get involved in City goverment and learn new things.

What contribution would you most like to make?

Make the best decisions for the City of Midland
Become more involved in city

Additional pertinent information or references:

Texas A+M Graduate BBA in Marketing
Worked in Advertising & Marketing before having children.
Returned to work in 2018.

(2) Name of Board/Commission:

What contribution would you most like to make?

Additional pertinent information or references:

Applications are maintained on file in the City Secretary's office for a period of one year. Should you need additional information, please call us at 432-685-7430.

Signature of Applicant

Khris O'Grady

Applications may be submitted online via email or print in order to send by mail or fax:

City of Midland
City Secretary's Office
PO Box 1152
Midland, TX 79702
FAX: (432) 685-7433

Submit Via Email

Print Application

APPLICATION FOR CITY OF MIDLAND BOARDS/COMMISSIONS/COMMITTEES

As an applicant for a City board, commission, or committee, please be advised that all information on this application is subject to the Texas Open Records Act and will be available to the public.

PLEASE TYPE OR PRINT CLEARLY:

Date: 9/28/2020

Name: James Gerety

Phone: 432-967-3030 **(Home)**

Address: 6404 Homestead Blvd

432-570-1990 **(Business)**

Midland CA 79707

Email: james.gerety@att.net

(City) (State) (Zip)

I am [✔] **I am not** [ ] **a U.S. Citizen**

Please tell us about yourself:

Are you a graduate of Midland 101? [ ] **yes** [✔] **no**

I have lived in Midland 21 **years.**

Occupation: Domino's Pizza Franchisee

Professional and/or Community Activities:

Board Member Midland Community Theater 2007-2008

Board Member Breaking Bread Kitchen 2003-2009, 2018 to present Treasurer

Board Member Domino's Franchisee Association 2007- Present, Board Presidnet 2012-2019

What is your personal vision for the City?

To continue the growth of our city into a more diverse business community by attracting new businesses and provide a business friendly environment.

Please specify any time constraints you may have.

None

Please list below the Board(s) or Commission(s) on which you are interested in serving:

(You can find a complete and current list on the City's website at *www.midlandtexas.gov*)

(1) Name of Board/Commission:

Zoning Board of Adjustment and Airport Zoning Board of Adjustment

Please tell us why you are interested in serving on this board or commission.

Would like to improve the attractiveness of businesses coming to the city/airport area for space and aeronautical related purposes and distribution services.

What contribution would you most like to make?

Provide viewpoints and feedback from a business perspective that can improve our community.

Additional pertinent information or references:

(2) Name of Board/Commission:

What contribution would you most like to make?

Additional pertinent information or references:

Asa Franchisee of Domino's Pizza I employ over 700 people from Abilene to Pecos. We are proud to own 6 stores in Midland employing over 150 people. I have a desire to serve and give back to the community that has provided our family an opportunity to serve them.

Applications are maintained on file in the City Secretary's office for a period of one year. Should you need additional information, please call us at 432-685-7430.

Signature of Applicant

James Gerety Digitally signed by James Gerety
Date: 2020.09.28 13:04:18 -05'00'

Applications may be submitted online via email or print in order to send by mail or fax:

City of Midland

City Secretary's Office

PO Box 1152

Midland, TX 79702

FAX: (432) 685-7433

Submit Via Email

Print Application

MIDLAND-ODESSA URBAN TRANSIT DISTRICT BOARD
(Advisory; Membership - 6: Terms - 2 Years Staggered)

MEMBER	TERM EXPIRES	ATTENDANCE	MEETINGS ATTENDED	TOTAL MTGS	ELIGIBLE	NOTES
VACANT (Westmoreland)	Sept 30 2019	0%		10	Yes	
E.J. Baldridge	Sept 30 2019	90%	9	10	Yes	Still Intrested in Serving
Iris Foster	Sept 30 2019	90%	9	10	Yes	Still Intrested in Serving
Joseph Sanchez	Sept 30 2020	70%	7	10	Yes	Appointed Dec 2019
Jack Ladd	Sept 30 2020	10%	1	10	Yes	Appointed July 2020
John Norman	Sept 30 2021	0%	0	10	Yes	Appointed July 2020

Applicants Name	Additional Boards Applying to	COUNCIL NOTES
James "Jim" Murphy		

ZONING BOARD OF ADJUSTMENT AND AIRPORT ZONING BOARD OF ADJUSTMENT
(Advisory; Membership - 5: Terms - 2 Years Expiring 3 Odd & 2 Even)

MEMBER	TERM EXPIRES	ATTENDANCE	MEETINGS ATTENDED	TOTAL MTGS	ELIGIBLE	NOTES
Matthew Wallace	Sept 30 2020	75%	3	4	No	
Derek Whiting	Sept 30 2021	100%	4	4	Yes	
E.J. Baldridge	Sept 30 2021	100%	4	4	Yes	
VACANT (Rittenhouse)	Sept 30 2022	25%	1	4	Yes	
Reed Claybrook	Sept 30 2022	50%	2	4	Yes	
ALTERNATES: (not applicable to Airport Zoning)						
James Robert Franklin	Sept 30 2021					
VACANCY	Sept 30 2019					
VACANCY	Sept 30 2020					

Applicants Name	Additional Boards Applying to	COUNCIL NOTES
James Gerety		
James "Jim" Murphy		
Khris O'Grady		