

Montgomery County

Specification Download Acknowledgement



Invitation to Bid

New Danville
Infrastructure Expansion
MCCD

Project # 24-18
SPECS

VENDORS MUST IMMEDIATELY RETURN THIS FORM BY EMAIL: purchasing@mctx.org

Vendor Responsibilities

- Vendors must download and complete any addenda
- Vendors must submit responses in accordance with requirements stated on cover of document
- Vendor must submit 1295 form with Bid/Proposal
Detailed information regarding 1295 can be found under item 49 in the attached Terms and Conditions.
Texas Ethics Commission website for 1295:
https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

For completing the 1295:

Contract ID: 5154

Description: Project #24-18

Montgomery County will not be responsible for inaccurate or incomplete specifications and/or addenda pertaining to any bid/proposal that is received electronically.

Legal Name of Contracting Company

Contact Person

Complete Mailing Address

Telephone Number

Email Address

Signature

Date



GILBERT D. JALOMO, JR., CPPB
OFFICE OF COUNTY PURCHASING AGENT
MONTGOMERY COUNTY

501 N. Thompson
Suite 405
Conroe, Texas 77301

936.539.7980
FAX: 936.760.6976
www.mctx.org

March 27, 2024

INVITATION TO BID

Sealed bids one (1) original and one (1) copy will be received in the Office of the Montgomery County Purchasing Agent, Attn: Gilbert D. Jalomo, Jr., CPPB, 501 N. Thompson, Suite 405, Conroe, Texas 77301 until 2:00 p.m., April 24, 2024.

PROJECT #24-18
NEW DANVILLE
INFRASTRUCTURE EXPANSION
MCCD

Prospective bidders may obtain specifications at the Office of the Montgomery County Purchasing Agent, 501 N. Thompson, Suite 405, Conroe, Texas 77301 any time after 8:00 a.m. on March 27, 2024. Specifications are also available via download at the Purchasing website: www.mctx.org.

Pre-bid meeting will be held on Thursday, April 4, 2024 at 10:00 a.m. in person at 10951 Shepard Hill Road, Willis, Texas 77318. Attendance of the pre-bid meeting is highly recommended.

All bids shall be submitted on the basis of lump sum pricing as provided in the bid specifications. Payment to successful bidder shall be net thirty (30) days after receipt of products, materials, services or invoices, whichever is later unless otherwise stated in specifications.

A Bid Bond from an approved surety company-holding permit from the State of Texas will be required. The Bid Bond must be in the amount of five percent (5%) of the total bid amount and must accompany each bid. If applicable, the successful bidder will be required to furnish a Performance Bond and Payment Bond, each in the amount of one hundred percent (100%) of the project.

This is a Federal Davis-Bacon required project for which a prevailing wage rate has been prescribed. Montgomery County is an Affirmative Action/Equal Opportunity Employer.

Montgomery County supports and encourages business opportunities for Historically Underutilized Business (HUB), Minority Owned Business (MBE), Women's Business Enterprises (WBEs) and Small and Disadvantaged Business.

The required Disadvantaged Business Enterprise (DBE) goals for this project are approximately 4% DBE firms if applicable. DBE firms must have the appropriate certification.

The project will be funded with Federal dollars and/or from Community Development Block Grant Program. Since the project is funded with Federal dollars and/or Community Development Block Grant Program, the vendor must be in compliance with the following requirements:

Policy- It is the policy of HUD Disadvantaged Business Enterprise (DBE) has the maximum opportunity to participate in the performance of contracts financed in whole or part with Federal Funds. The contractor agrees to ensure that DBE's have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds. The contractor shall not discriminate on the basis of race, color, national origin, sex, creed, religion, ancestry, disability or other handicap, age, marital/family status with regard to public assistance

in award and performance of contracts funded in whole or in part with Federal funds.

HUD Section 3.

Montgomery County is required to follow guidelines set forth in Title 24-Housing and Urban Development, Federal document 24 CFR 85 (Code of Federal Regulations). Certification of non-segregated facilities - 41 CFR Part 60-1.8.

Comply with Title VI of Civil Rights Act of 1964 (P.L. 90-352) as amended; Title VIII of the Civil Rights Act of 1968 as amended; the Fair Housing Act (P.L. 90-284); Section 504 of the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990; The Age of Discrimination Act of 1975; Executive Order 11063 as amended by Executive Order 12259; and with Executive Order 11246 as amended by Executive Orders 11375, 11478, 12106 and 12107.

Comply with any Federal Regulations issued pursuant to compliance with Section 504 of Rehabilitation Act of 1973 (29 U.S.C. 794), which prohibits discrimination against the handicapped in any Federal funded contract.

Comply with Affirmative Action and Executive Order 11246 of September 24, 1965. Compliance with the provisions of Section 3, the regulations set forth in 24 CFR 135, and all applicable rules and orders issued there under.

Comply with Hatch Act.

Comply with Buy America Preferences for Infrastructure Projects, 2 CFR Part 184.

Conflict of interest – comply with the provisions of 24 CFR 570.611.

Definitions – Disadvantaged Business Enterprises (DBE) means a small business concern (1) which is at least 51 percent owned by one or more socially and economically disadvantaged individuals, or in case of any publicly owned business, at least 52 percent of the stock of which is owned by one or more socially and economically disadvantaged individuals; and (2) whose management and daily economically disadvantaged individuals who own it, as certified.

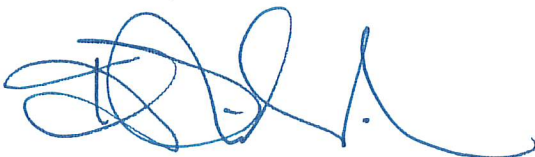
The right is reserved, as the interest of Montgomery County Commissioners' Court may require rejecting any one or all bids and to waive any informality in bids received. All bids received after the above designated closing time will be returned unopened.

Vendors are responsible for monitoring the Office of the Montgomery County Purchasing Agent website at www.mctx.org for any Addenda, which may be issued.

For any questions relating to the specifications or the submission of this bid, contact Andreea Kovacs, Construction Project Coordinator via email: Andreea.Kovacs@mctx.org or by calling 936.539.7927.

Your consideration of this proposal is appreciated.

Sincerely,



Kelly Vidal, CPPO, CPPB, NIGP-CPP
Assistant County Purchasing Agent

Sealed lump sum General Contract Bids, addressed to the OWNER:

MONTGOMERY COUNTY PURCHASING
Attn: Gilbert Jalomo, Jr., CPPB, County Purchasing Agent
Project: Project# 24-18, **NEW DANVILLE INFRASTRUCTURE EXPANSION**
501 North Thompson, Suite 405
Conroe, Texas 77301

will be received until April 24, 2024 in the OFFICE OF THE COUNTY PURCHASING AGENT, for the New Danville Infrastructure Expansion - MCCD, Project# 24-18, located in Willis, Texas, and then publicly opened in the office of the Montgomery County Purchasing Agent.

A PRE-BID CONFERENCE WILL BE HELD AT 10:00 am on Thursday, April 4, 2024 IN PERSON AT 10951 SHEPARD HILL ROAD, WILLIS, TEXAS 77318.

A Cashier's or Certified Check or Bidder's Bond payable to the order of the OWNER, in an amount not less than 5% of the greatest amount of proposal submitted must accompany the Contractors Bid. A Performance and Payment Bond, each in an amount not less than 100% of the Contract Sum, conditioned upon the faithful performance of the Contract, will be required.

General Documents, Drawings and Specifications (Construction Documents) for the Project are in the office of the Purchasing Agent. Any questions concerning the information contained in the Plans & Specifications shall be directed to the Procurement Project Manager - Construction, Andreea Kovacs via email at andreea.kovacs@mctx.org.

Sets of Construction Documents may be obtained from the office of the Montgomery County Purchasing Agent. **General Contract Bidders shall submit a completed Contractor's Qualification Statement (AIA Form A305) to Purchasing Agent at time of request for documents.**

All bids, whether mailed or delivered, must be in the hands of OWNER no later than the above specified time for said Project. All Bids shall be sealed and marked outside of envelope: **New Danville Infrastructure Expansion - MCCD, Project# 24-18** with name and address of the Bidder.

No bid shall be withdrawn for ninety (90) days after opening of the bids without consent of Owner. Owner reserves the right to reject any or all bids; to accept or reject any Alternates; to accept any bid considered advantageous; and to waive any informality or irregularity in any bid which, in his judgement, is in his own best interest.

-o0o-

BIDDING INFORMATION:

- a. Lump Sum General Contract Bids, for the **New Danville Infrastructure Expansion - MCCD, Project# 24-18**, located in Willis, Texas, will be received by OWNER and opened at the time, place and date designated in the ADVERTISEMENT FOR BIDS or latest Addendum thereto.
 - b. Each Bidder shall complete all the blank spaces on the Bid Form.
 - c. Submit Bids on the form provided by the Owner or on an exact copy thereof. Seal Bid in an enveloped addressed to OWNER and plainly mark outside of the envelope name of the contents, and the name and address of the Bidder.
 - d. If a Bidder submits his Bid by mail, he shall enclose the above described sealed envelope in a second envelope addressed to OWNER and have the bidder's return address in the upper left hand corner. The Officer whose duty it is to open the Bids will decide when the bid opening time is at hand and no Bid received thereafter will be considered. Owner and Engineer will not be responsible for the premature opening of any Bid which is not properly addressed and identified.
1. TENTATIVE SCHEDULE OF EVENTS:
 - Release of Bid: March 27, 2024
 - Pre-Bid Meeting: April 4, 2024 at 10:00 am, 10951 Shepard Hill Rd., Willis, Tx. 77318
 - Deadline for Questions: April 12, 2024 by 2:00 pm.
 - Submission Due Date: April 24, 2024 by 2:00 pm.
 2. BID SECURITY: No bid will be considered unless it is accompanied by a certified or cashier's check or bidder's bond executed on the standard form acceptable to Owner, in either case, the amount shall be not less than 5% of the greatest amount of the bid (considering Alternates, if any). The bid security shall ensure the execution of the Contract and the furnishing of an acceptable Performance and Payment bond by the successful bidder within twenty (20) days after notification of award to such bidder, and that his bid will not be withdrawn within twenty (20) days after the date of opening of the bid without the consent of OWNER. The Performance and Payment bond shall be in the amount of 100% of the total Contract Sum, in form prescribed by Owner. A Contract with Owner, in form prescribed by Owner, shall be executed and delivered together with the said Performance and Payment bond of the successful bidder within twenty (20) days after receipt by such successful bidder of Notice of Acceptance of his proposal by Owner or Architect. The bid security in the form of certified or cashier's check will be returned to unsuccessful Bidders as soon as a contract award is made.
 3. BID FORM: Provided by Engineer for Contractor's convenience. Bid shall be in duplicate and signed by a duly authorized official of the contracting firm. This Form must be tendered along with initialed copies of Montgomery County Purchasing Department Requirements.
 4. **EXAMINATION OF SITE AND CONSTRUCTION DOCUMENTS: Prior to submitting a Bid for this Project, each proposer shall have examined the site, compared it with the Drawings and Specifications, and satisfied himself as to the existing conditions under which he and his subcontractors will be required to work or that will affect the work under this Contract. No allowances will be made in behalf of Contractor or any Subcontractor, after the Contract has been signed, for any omission, error or negligence in determining these conditions.**
 5. TIME OF COMPLETION: If awarded a Contract for this Project, the undersigned agrees to Substantially complete the Work within **sixty (60) calendar days** from date of Notice to Proceed.
 6. INTERPRETATION OF BID PRICES: In case of a difference in written words and figures on Bid Form, the amount stated in written words shall govern.

7. DELIVERY OF BIDS: Bidder shall be responsible for mailing or delivering his Bid at the proper time and to the proper place. The mere fact that a Bid was mailed or dispatched will not be considered. Bidder is held responsible for determining that the Bid is actually received by Owner. Submitting a Bid or modification thereof by telephone or telegraph is not allowed.
8. PERFORMANCE AND PAYMENT BONDS: Performance bond is required for any bid \$100,000 or greater, Payment bond is required for any bid \$25,000 or above. Refer to Item 1 above, and Montgomery County Purchasing Department Requirements.
9. TAX EXEMPTION: TEXAS SALES AND USE TAXES: Owner is exempt from State and local sales and use taxes under Section 151.309 of the Texas Tax Code. This Contract is deemed to be a separated Contract for Texas tax purposes, and as such, Owner hereby issues its Texas Exemption for the purchase of any items qualifying for exemption under this Agreement. Contractor is to issue its Texas Resale Certificate to vendors and subcontractors for such items qualifying for this exemption and further, Contractor should state these items at cost.
10. ADDENDA AND INTERPRETATIONS:
 - a. No interpretation of the meaning of the Construction Documents (General Documents, Specifications and Drawings) will be made to any bidder orally. Requests for such interpretations shall be made in writing and addressed to Engineer, and to be given consideration must be received at least (5) working days prior to date set for receiving bids. Any and all such interpretations or supplemental instructions will be issued in the form of written Addenda to the Construction Documents, which, if issued, will be furnished to all prospective bidders at the respective addresses furnished for such purposes, prior to date set for opening of bids. Failure of any bidder to receive any such Addendum or interpretation shall not relieve any bidder from any obligation under his bid as submitted. All Addenda so issued shall become part of the Contract Documents upon signing of the Agreement Between Owner and Contractor.
 - b. Contractors, subcontractors and materialmen bidding on this work are requested to direct their requests for clarification or amplification to the Drawings and Specifications covering all phases of the work, including architectural, mechanical, plumbing and electrical items, to the Procurement Project Manager - Construction, Andreea Kovacs, in writing, via email to Andreea.kovacs@mctx.org
Oral interpretation will not constitute authority to change the scope of work, workmanship or materials required for this project.
 - c. Request for approval to substitute materials, methods, or processes shall be made to Engineer no later than (5) working days prior to date for submission of subcontract bids to general contractors, and if found acceptable, will be confirmed by an Addendum to the Construction Documents. Where proposed substitutions are **NOT** incorporated into the Construction Documents by Addendum **PRIOR TO** the Contract Bid Opening, all bids shall be held to have been made on the basis of materials, methods and processes required by the Construction Documents. CONTRACTOR NOTE: The terms "substitution", "equal" and similar wording as used herein shall be held to mean "a proposal to use **any** material, method, or process **other than** the materials, methods or processes as specified, as well as related work as noted on the Drawings".
11. PROJECT ESTIMATE: \$900,000.00
12. CASH ALLOWANCES: NONE
13. USE OF LOCAL SUBCONTRACTORS AND SUPPLIERS: It is the intention of the County for local businesses to be given every consideration and opportunity to provide services and materials for this project. Contractors submitting bids for this project are encouraged to utilize local businesses wherever possible, but not to the extent where their participation will result in the Contractor's bid not being competitive.

14. TRASH REMOVAL: Contractor shall not allow trash to accumulate on the building site. Contractor shall be required to coordinate the location of his trash dumpster with the Owner's Representative.

o0o

PROJECT: NEW DANVILLE INFRASTRUCTURE EXPANSION - MCCD
 BID DATE: APRIL 24, 2024
 BID TIME: 2:00 P.M.
 PLACE: OFFICE OF THE COUNTY PURCHASING AGENT
501 North Thompson, Suite 405 - Conroe, Texas, 77301

CONTRACTOR: _____
 TYPED/PRINTED NAME OF FIRM SUBMITTING BID

TO: MONTGOMERY COUNTY PURCHASING AGENT
New Danville Infrastructure Expansion - MCCD, Project# 24-18
 501 North Thompson, Suite 405
 Conroe, Texas 77301

Having carefully examined the Construction Documents and **having visited the site and examined all conditions affecting the Work, the undersigned and subcontractors employed for this project** agree to provide all labor and material required by the Construction Documents and do all work necessary for the complete construction of the **New Danville Infrastructure Expansion - MCCD, Project# 24-18** located in Willis, Texas, for the lump sum of:

TOTAL AMOUNT BID:

_____ DOLLARS
 (amount written in words governs)

(\$_____.)
 (amount in figures)

BROKEN DOWN AS FOLLOWS: \$_____ Material
 \$_____ Labor

TIME FOR COMPLETION. If awarded a Contract for this Project, the undersigned agrees to Substantially complete the Work within **sixty (60) calendar days** from date of Notice to Proceed.

ADDENDA. The undersigned acknowledges receipt of Addendum Number(s) _____ issued during the time for bidding and has included the several changes therein in this Bid.

BID SECURITY. Bid Security in the sum of _____ DOLLARS (\$_____) in the form of _____

is submitted herewith as a guarantee that the undersigned will, if this Bid is accepted and the undersigned be notified of such acceptance, enter into a Contract and furnish acceptable Performance and Payment Bonds within twenty (20) days after the prescribed forms of Agreement and bond are presented to the undersigned for execution and that no bid made hereby will be withdrawn within twenty (20) days after the date set for opening of the bid for this Work without your consent.

CHANGES IN THE WORK. When changes in the Work are ordered involving extra cost over and above the Contract Sum, the cost of such extra work shall be stated as a lump sum to be added to the Contract Sum before the extra work is begun, in which event the lump sum shall represent the actual cost of labor and material.

COMPLIANCE ACKNOWLEDGMENT. The undersigned acknowledges this Bid is based on **STRICT COMPLIANCE** with the Drawings and Specifications, as to items, materials, methods, etc., or **PRIOR APPROVED EQUALS ISSUED BY ADDENDA BEFORE PROPOSAL OPENING DATE.**

GENERAL.

It is understood that if accepted by Owner, this Bid becomes a part of the Contract Documents upon the signing of the Agreement, and failing to comply with any part of this Bid will be taken as failure of the Bidder to comply with the Contract Agreement and will be just cause for rejection of the Work.

If awarded the Contract for this Project, the undersigned shall submit to the Engineer a list of subcontractors he proposes to employ **prior** to executing the subcontracts. It is also understood that OWNER reserves the right to reject any or all bids; to accept any bids considered advantageous; and to waive any informality or irregularity in any bids which, in his judgement, is in his own best interest. The undersigned certifies that the amounts contained in this Bid have been carefully checked and are submitted as correct and final.

The undersigned agrees that he will not withdraw this Bid for a period of ninety (90) days from the date hereof:
_____.

BID TO BE SUBMITTED IN DUPLICATE (one original and one copy).

NAME OF CONTRACTING FIRM

BY: _____
AUTHORIZED SIGNATURE

PRINTED/TYPED NAME & TITLE OF ABOVE

ADDRESS: _____

_____ CITY STATE ZIP

TELEPHONE: (____) _____

FAX: (____) _____

STATE WHETHER **CORPORATION**
PARTNERSHIP or **INDIVIDUAL**

SEAL, IF CORPORATION

-o0o-

TABLE OF CONTENTS

CONTRACT DOCUMENT

Bid Proposal Package Check List
Montgomery County Bid Specifications
Special Note
Notice to All Bidders
Contract
Acknowledgement
Residence Certification
Verification
Payment Bond
Performance Bond
Non-Collusion Affidavit and Debarment Certificate
Change Order
Contractor Acknowledgement of Storm Water Management Program
Conditional Waiver and Release on Progress Payment
Conditional Waiver and Release on Final Payment
Special Provisions/Prevailing Wage Rate
Federal Requirements
Montgomery County General Provisions

Section 1.....	Definition of Terms
Section 2.....	Instruction to Bidders
Section 3.....	Award and Execution of Contract
Section 4.....	Insurance and Indemnification
Section 5.....	Prevailing Wage Rate
Section 6.....	Authority of Engineer
Section 7.....	Prosecution of the Work
Section 8.....	Alteration of Contract
Section 9.....	Contract Time and Damages for Delay
Section 10.....	Payment and Acceptance
Section 11.....	Warranties
Section 12.....	General
Section 13.....	Bidding Requirements
Section 14.....	References

BID PACKAGE CHECK LIST

Only items marked with an “X” are applicable to this bid.

Bidders should review the package thoroughly.

If additional information is needed, contact Montgomery County Purchasing Dept. at 936-539-7980.

Bidder must check each task as it is completed.

Include this form with the appropriate bid documents.

Required		✓	Required		✓
X	BID FORMS Must be completed and signed in ink. Failure to do so may cause response to be rejected.		X	GENERAL REQUIREMENTS AND TERMS Respondent should be familiar with all General Requirements and Terms.	
X	Contract		X	Israel Boycott Statement	
X	References		X	Conflict of Interest Questionnaire (CIQ)	
X	Vendor Information Form		X	Disclosure of Interested Parties (Form 1295)	
X	Build America Buy America Compliance Form and Contractor's Local Opportunity Plan				
X	Acknowledgement		X	Ethics Training * completed and Certificate of Completion included with proposal response *click on link to complete training	
X	W-9 submittal		X	SUBMITTING PROCEDURE	
X	Bidder/Offeror Self Certification			❖ Company Name	
X	Certification Regarding Lobbying			❖ Project Number	
X	Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion			❖ Opening Date	
X	Certificate of Independent Price Determination			❖ Project Title	
AFTER AWARD IS MADE, THE FOLLOWING DOCUMENTS MUST BE PROVIDED					
Check if you are prepared to provide these after award, as required.					
Required		✓	Required		✓
X	TEST REPORTS		X	SAFETY DATA SHEETS	
X	PERFORMANCE BOND REQUIREMENTS This Bond applies to bids that exceed \$100,000 as stated in the Montgomery County Terms and Conditions.		X	PAYMENT BOND REQUIREMENTS This Bond applies to bids that exceed \$25,000 as stated in the Montgomery County Terms and Conditions.	
INSURANCE INFORMATION					
Required		✓	Required		✓
X	WORKERS' COMPENSATION Check if you are prepared to provide this after award, as required, if applicable.		X	ACTIVE VENDOR Check here only if your company has conducted business with Montgomery County within the past year; AND all current insurance certificates are on file at this time.	
X	AUTOMOBILE LIABILITY Check if you are prepared to provide this after award, as required, if applicable.				
X	GENERAL AND PROFESSIONAL LIABILITY Check if you are prepared to provide this after award, as required, if applicable.				

It is the Respondent's responsibility to be thoroughly familiar with all Requirements and Specifications.

RESPONSE REQUIREMENTS

Bidders/Proposers shall fill out the following Bid/Proposal Form in its entirety. Failure to do so may result in disqualification.

- (1) BIDDERS/PROPOSERS MUST SUBMIT NUMBER OF COPIES SPECIFIED PER THE INVITATION TO BID/PROPOSE.
- (2) BIDDERS/PROPOSERS MUST FILL IN AND SIGN THE ATTACHED CONTRACT. IF MONTGOMERY COUNTY HAS A COPY OF BIDDER'S/PROPOSER'S ASSUMED NAME CERTIFICATE, DBA (DOING BUSINESS AS) CERTIFICATE, OR CORPORATE CERTIFICATE. IN ORDER FOR YOUR BID/PROPOSAL TO MEET MONTGOMERY COUNTY BID/PROPOSAL REQUIREMENTS, THE COUNTY MUST HAVE, IN OUR RECORDS, THE ABOVE MENTIONED CERTIFICATES.
- (3) NO BID/PROPOSAL WILL BE ACCEPTED AFTER THE SPECIFIED DUE DATE AND TIME.
- (4) PRICES WILL REMAIN FIRM FOR THE DURATION OF THIS CONTRACT. PRICES SHALL BE ALL INCLUSIVE. ANY PRICE NOT SHOWN ON THIS CONTRACT WILL NOT BE HONORED FOR PAYMENT WHEN SUBMITTED BY VENDOR.
- (5) MONTGOMERY COUNTY RETAINS THE RIGHT TO IMMEDIATELY CANCEL ANY AGREEMENT BETWEEN THE PARTIES HERETO, SHOULD GOODS, MATERIALS, OR SERVICES SUPPLIED BY THE BIDDER/PROPOSER NOT MEET SPECIFICATIONS.
- (6) MONTGOMERY COUNTY MAY REQUEST BIDDER/PROPOSER TO PROVIDE, BEFORE AWARD, CERTIFICATES OF INSURANCE RELATING TO THE FOLLOWING CATEGORIES OF INSURANCE, IF REQUIRED BY LAW:
 - A) WORKERS' COMPENSATION
 - B) COMPREHENSIVE GENERAL LIABILITY INSURANCE
 - C) AUTOMOBILE LIABILITY INSURANCE
- (7) VENDOR AWARDED CONTRACT SHALL BE REQUIRED TO SUBMIT A LIST OF ALL SUBCONTRACTORS.

THE COMMISSIONERS' COURT OF MONTGOMERY COUNTY RESERVES THE RIGHT TO AWARD THIS CONTRACT TO THE BIDDER/PROPOSER WHO PROVIDES THE LOWEST, BEST, AND MOST RESPONSIBLE BID/PROPOSAL, IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS. ALTERNATE BIDS/PROPOSALS WILL NOT BE ACCEPTED.

THE COMMISSIONERS' COURT FURTHER RESERVES THE RIGHT TO WAIVE ANY FORMALITY OR IRREGULARITY, TO REJECT ALL BIDS/PROPOSALS, OR REQUIRE NEW BIDS/PROPOSALS, IF IN THE BEST INTEREST OF THE COUNTY. BY LAW, MONTGOMERY COUNTY IS NOT OBLIGATED TO ACCEPT A NON-COMPLIANT LOW BID/PROPOSAL.

ALL MONTGOMERY COUNTY STANDARD TERMS AND CONDITIONS WILL APPLY UNLESS SPECIFICALLY ADDRESSED IN THIS INVITATION TO BID/PROPOSAL.

MONTGOMERY COUNTY RESERVES THE RIGHT TO MAKE AN AWARD ON AN "ALL OR NONE" BASIS.

Failure or inability to adhere to any of the preceding requirements may serve as the basis for disqualification.

SPECIAL NOTE

IF SUBCONTRACTORS ARE UTILIZED FOR ANY JOB ORDER, A LIST OF THE SUBCONTRACTORS, ALONG WITH NAME AND PHONE NUMBER, SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AFTER THE AWARD OF THE CONTRACT AND PRIOR TO THE COMMENCEMENT OF WORK. THIS LIST SHALL BE DELIVERED TO THE FOLLOWING ADDRESS:

**MONTGOMERY COUNTY COMMUNITY DEVELOPMENT
WESLEY MILLER
501 N. THOMPSON, SUITE 200
CONROE, TEXAS 77301**

NOTICE TO ALL BIDDERS

Texas Department of Insurance – Division of Workers’ Compensation (DWC) has adopted amended Rule 28 TAC §110.110 required notices of coverage with all solicitations advertised after November 24, 2015.

The DWC has stated that it is aware that statutory requirements for Workers’ Compensation Insurance Coverage are not being met. Rule §110.110 is designed to achieve compliance from both Contractor and governmental entities. **This affects both of us on this project.**

Providing false or misleading certificates of coverage, failing to provide or maintain required coverage, or failing to report any change that materially affects the coverage, may subject the Contractor(s) or other persons providing services on this project to legal penalties. **This affects your Subcontractors.**

Please read carefully and prepare your Bid/Proposal in full compliance to DWC Rule §110.110. Failure to provide the required certificates, upon submission of a Bid/Proposal, could result in your Bid/Proposal being declared “Non-Responsive”.

According to DWC, “This rule does not create any duty or burden on anyone which the law does not establish.” **Therefore, the County should not experience any increase in cost because of the need to comply with the Texas Workers’ Compensation Laws.**

Gilbert Jalomo, Jr., CPPB
Purchasing Agent

CONTRACT

THE STATE OF _____ §

COUNTY OF _____ §

THIS AGREEMENT is made this _____ day of _____, 20____, by and between Montgomery County, Texas, a political subdivision of the State of Texas, hereinafter called, "County" and _____

_____, a, _____ whose principal place of business is located at _____, and is hereinafter called "Contractor."

WHEREAS, the County Commissioners' Court did on _____ award to Contractor a contract for supplying _____ in quantities and at the prices therein set out; and

WHEREAS, Contractor has agreed to provide services in conformity with the plans and specifications and to supply all necessary labor and materials at the prices set forth in the bid/proposal form submitted by Contractor and incorporated into this Agreement.

NOW THEREFORE be it agreed by County and contractor as follows:

1. The following documents attached hereto and accompanying this agreement are incorporated herein, and the provisions set forth therein shall become a part of this agreement:

- a. Notice to Bidders/Proposers
- b. Contractor's Bid/Proposal Form
- c. General Provisions and Attachments
- d. Special provisions
- e. Technical Provisions including all Plans, Specifications and Technical Requirements
- f. Contractor's Performance and Payment Bonds
- g. HUD Section 3 Contracting Policy and Procedure, where applicable
- h. All other documents included in the bid/proposal packet applicable to the services performed hereunder

2. It is expressly understood and agreed that County has available only the funds appropriated and certified by its County Auditor for the purpose of satisfying County's obligations under the terms and provisions of this Agreement; and, notwithstanding anything to the contrary or that may be construed to the contrary, the maximum liability of County is limited to said appropriated and certified funds. Should County, with or without cause, fail or refuse to pay Contractor any amounts alleged by Contractor to be due under this Agreement, or fail or refuse to appropriate funds as may be necessary to complete the contract work, then the sole and exclusive remedy of Contractor shall be to terminate this Agreement and take possession of any goods or materials not used in furtherance of the contract work or previously paid for by County and/or to seek compensation as provided by strict interpretation of the Agreement for labor, goods, materials and equipment used for purposes of the contract work prior to termination of the Agreement.

3. This Agreement, including all documents specifically incorporated herein, constitute the whole agreement between the Parties with respect to the subject matter hereof and supersedes all prior agreements. This Agreement shall not be amended or waived, in whole or in part, except in writing signed by both Parties.

Effective as of the date first written herein above.

CONTRACTOR

SIGNATURE: _____

PRINT NAME: _____

TITLE: _____

COMPANY: _____

(If this Contract is with a Corporation, it must be executed by an officer thereof and the seal of the Corporation impressed.)

MONTGOMERY COUNTY, TEXAS

BY: _____
COUNTY JUDGE

ATTEST:

COUNTY CLERK

AUDITOR'S CERTIFICATE

I do certify that funds are available in the amount of _____ to pay the obligation of County under and within the foregoing agreement.

SIGNED this _____ day of _____, 20____.

COUNTY AUDITOR

ACKNOWLEDGMENT*

CORPORATE

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, this day personally appeared _____, known to me to be the _____ of the _____ Corporation, who being by me first duly sworn, deposed and said that he/she had executed the above and foregoing Document in the capacity stated as the authorized act and deed of said Corporation.

NOTARY PUBLIC

Printed Name _____

Commission Expires: _____

PARTNERSHIP

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, this day personally appeared _____, a General Partner of the _____ Partnership, who being by me first duly sworn, deposed and said that he/she had executed the above and foregoing Document in the capacity stated as the authorized act and deed of said Partnership.

NOTARY PUBLIC

Printed Name: _____

Commission Expires: _____

ACKNOWLEDGMENT CONTINUED

INDIVIDUAL OR SOLE PROPRIETORSHIP

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, this day personally appeared _____, an individual doing business as _____, who being by me first duly sworn, deposed and said that he/she had executed the above and foregoing Document in the capacity stated and for the purposes and consideration set forth therein.

NOTARY PUBLIC

Printed Name _____

Commission Expires _____

***(EXECUTE APPROPRIATE ACKNOWLEDGMENT FOR CORPORATION, PARTNERSHIP OR INDIVIDUAL CONTRACTOR.)**

RESIDENCE CERTIFICATION

In accordance with Chapter 2252 of the Government Code, the following will apply. The pertinent portion has been extracted and is as follows:

Sec. 2252.001 DEFINITIONS

- (3) "Nonresident bidder" refers to a person who is not a resident.
- (4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

Sec. 2252.002 AWARD OF CONTRACT TO NONRESIDENT BIDDER

A governmental entity may not award a governmental contract to a nonresident bidder unless the nonresident underbids the lowest bid submitted by a responsible resident bidder by an amount that is not less than the amount by which a resident bidder would be required to underbid the nonresident bidder to obtain a comparable contract in:

- (1) the state in which the nonresident's principal place of business is located; or
- (2) a state in which the nonresident is a resident manufacturer.

I certify that _____
COMPANY NAME

is a Resident Bidder as defined Government Code 2252 and our principal place of business is in _____
CITY AND STATE

Signature: _____
Print Name: _____
Title: _____

I certify that _____
COMPANY NAME

is a Nonresident Bidder as defined in Government Code 2252 and our principal place of business is in _____ (City and State)

Signature: _____
Print Name: _____
Title: _____

PAYMENT BOND

THE STATE OF _____ §

COUNTY OF _____ §

KNOW ALL MEN BY THESE PRESENTS:

THAT _____ of the City of _____, County of _____, and State of _____ as Principal, and _____, authorized under the Laws of the State of Texas to act as Surety on Bonds for Principals, are held and firmly bound unto the County Judge of Montgomery County, Texas, and his duly qualified successors in office, in the penal sum of _____ \$_____ for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written Contract with the County, dated the ____ day of _____, 20_____, for construction of a Public Works Project, generally described as _____, which Contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION TO THIS OBLIGATION IS SUCH, that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect;

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said chapter to the same extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the Plans, Specifications or Drawings accompanying the same, shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this ____ day of _____, 20__.

PRINCIPAL

SURETY

BY: _____

BY: _____

TITLE: _____

TITLE: _____

ADDRESS: _____

ADDRESS: _____

PHONE NUMBER: _____

PHONE NUMBER: _____

EMAIL: _____

EMAIL: _____

The Name and Address of the Resident Agent of Surety is:

(Attach Power of Attorney evidencing Surety Signatory's authority to execute on behalf of Surety.)

PERFORMANCE BOND

THE STATE OF _____ §

COUNTY OF _____ §

KNOW ALL MEN BY THESE PRESENTS:

THAT _____ of the City of _____, County of _____, and State of _____ as Principal, and _____, authorized under the Laws of the State of Texas to act as Surety on Bonds for Principals, are held and firmly bound unto the County Judge of Montgomery County, Texas, and his duly qualified successors in office, in the penal sum of _____ \$ _____ for the payment whereof, the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written Contract with the County, dated the ____ day of _____, 20_____, for construction of a Public Works Project, generally described as _____, which Contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall in all respects duly and faithfully observe and perform all and singular the covenants, conditions, and agreements in and by said Contract agreed and covenanted by the Principal to be observed and performed according to the true intent and meaning of said Contract and the Plans and Specifications hereto annexed, and faithfully perform the work in accordance with the Plans and Specifications hereto annexed, then this obligation shall be void; otherwise, it shall remain in full force and effect;

PROVIDED, HOWEVER, that this Bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said chapter to the same extent as if it were copied at length herein.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the Plans, Specifications or Drawings accompanying the same, shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this ____ day of _____, 20____.

PRINCIPAL

SURETY

BY: _____

BY: _____

TITLE: _____

TITLE: _____

ADDRESS: _____

ADDRESS: _____

PHONE NUMBER: _____

PHONE NUMBER: _____

EMAIL: _____

EMAIL: _____

The Name and Address of the Resident Agent of Surety is:

(Attach Power of Attorney evidencing Surety Signatory's authority to execute on behalf of Surety.)

NON-COLLUSION AFFIDAVIT AND DEBARMENT CERTIFICATION

INDIVIDUAL DOING BUSINESS UNDER A CONTRACTOR NAME

The prequalified Bidder being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of "free competitive bidding" in connection with any Bid or contract, and that the prequalified Bidder intends to do the work with his own bonafide employees or subcontractors and will not submit a Bid for the benefit of another Contractor.

By submitting this non-collusion affidavit, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

SIGNATURE OF PREQUALIFIED BIDDER

Name of Prequalified Bidder

 Print or type individual name

Trading and doing business as

 Print or type Contractor name

 Address as Prequalified

 Witness

 Signature of Prequalified Bidder, Individually

 Print or type witness' name

 Print or type signer's name

AFFIDAVIT MUST BE NOTARIZED

NOTARY SEAL

Subscribed and sworn to before me this the ____ day of _____ 20____.

 Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

NON-COLLUSION AFFIDAVIT AND DEBARMENT CERTIFICATION CONTINUED

CORPORATE ENTITIES DOING BUSINESS UNDER A CONTRACTOR NAME

The prequalified Bidder being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of "free competitive bidding" in connection with any Bid or contract, and that the prequalified Bidder intends to do the work with his own bonafide employees or subcontractors and will not submit a Bid for the benefit of another Contractor.

By submitting this non-collusion affidavit, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

SIGNATURE OF PREQUALIFIED BIDDER

Name of Prequalified Bidder

Print or type Corporate name

Trading and doing business as

Print or type Contractor name

Address as Prequalified

Witness

Signature of Prequalified Bidder, Individually

Print or type witness' name

Print or type signer's name

AFFIDAVIT MUST BE NOTARIZED

NOTARY SEAL

Subscribed and sworn to before me this the ____ day of _____ 20____.

Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

CHANGE ORDER NO. _____

PURCHASE ORDER NO. _____

PROJECT: _____

CONTRACTOR: _____

Contractor is directed by County to make the following changes to the Contract Documents.

DESCRIPTION OF CHANGES: _____

ATTACHMENTS: (List Supporting Documents) _____

CHANGE IN CONTRACT PRICE

CHANGE IN CONTRACT TIME

1. Original price: \$ _____

Original Time: _____ Days

2. Total of prior change orders: \$ _____

Total of prior change orders: _____ Days

3. Total price prior to current change order: \$ _____

Total time prior to current change order: _____ Days

4. Total of current change order: \$ _____

Total of current change order: _____ Days

5. New price resulting from current change order: \$ _____

New time resulting from current change order: _____ Days

AGREED BY:

CONTRACTOR _____

CONTRACTOR NAME

SIGNATURE: _____

DATE: _____

TITLE: _____

APPROVED: _____

MONTGOMERY COUNTY CONTRACT REPRESENTATIVE

CONTRACTOR ACKNOWLEDGEMENT OF STORMWATER MANAGEMENT PROGRAM

I hereby acknowledge that I am aware of the Storm water Management Program and have been provided an opportunity to review, inspect, or provided a copy of the standard operating procedures developed by Montgomery County, in compliance with the TPDES General Permit No. TXR040000. I agree to comply with all applicable best management practices and standard operating procedures while conducting my services for Montgomery County. I agree to conduct all services in a manner that does not introduce illicit discharges of pollutants to streets, storm water inlets, drainage ditches or any portion of the drainage system.

The following materials and/or pollutant sources must not be discharged to the drainage system as a result of any services provided:

1. Grass clippings, leaves, mulch, rocks, sand, dirt or other waste materials resulting from landscaping activities (except those materials resulting from ditch mowing or maintenance activities);
2. Herbicides, pesticides and/or fertilizers (except those intended for aquatic use);
3. Detergents, fuels, solvents, oils and/or lubricants, other equipment and/or vehicle fluids;
4. Other hazardous materials, including paints, thinners, chemicals or related waste materials;
5. Uncontrolled dewatering discharges, equipment and/or vehicle wash water;
6. Sanitary waste, trash, debris, or other waste products;
7. Wastewater from wet saw machinery; and
8. Other pollutants that degrade water quality or pose a threat to human health or the environment

Furthermore, I agree to notify Montgomery County immediately of any issue caused by, or identified by

_____ (Contractor) that is believed to be an immediate threat to human health or the environment.

Name of Contractor

Signature of Authorized Representative

Title

Printed Name

Date

CONDITIONAL WAIVER AND RELEASE ON PROGRESS PAYMENT

Project _____

Job No. _____

On receipt by the signer of this document of a check from _____ (maker of check) in the sum of _____ (\$ _____) payable to (payee(s) of check) and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any mechanic’s lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer’s position that the signer has on the property of MONTGOMERY COUNTY (owner) located at _____ (location) to the following extent: _____(job description).

This release covers a progress payment for all labor, services, equipment, and/or materials furnished to the property or to _____ (person with whom signer contracted) as indicated in the attached statement(s) or progress payment request(s), except for unpaid retention, pending modifications and changes, or other items furnished.

Before any recipient of this document relies on this document, the recipient should verify evidence of payment to the signer.

The signer warrants that the signer has already paid or will use the funds received from this progress payment to promptly pay in full all of the signer’s laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project in regard to the attached statement(s) or progress payment request(s).

Date _____

_____ (Company name)

By _____ (Signature)

_____ (Title)

Sworn to and subscribed before me by on _____, 20____.

Notary Public in and for the State of Texas
My commission expires: _____

CONDITIONAL WAIVER AND RELEASE ON FINAL PAYMENT

Project _____

Job No. _____

On receipt by the signer of this document of a check from _____ (maker of check) in the sum of _____ (\$ _____) payable to (payee(s) of check) and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to release any mechanic's lien right, any right arising from a payment bond that complies with a state or federal statute, any common law payment bond right, any claim for payment, and any rights under any similar ordinance, rule, or statute related to claim or payment rights for persons in the signer's position that the signer has on the property of MONTGOMERY COUNTY (owner) located at _____ (location) to the following extent: _____ (job description).

This release covers a final payment for all labor, services, equipment, and/or materials furnished to the property or to _____ (person with whom signer contracted).

Before any recipient of this document relies on this document, the recipient should verify evidence of payment to the signer.

The signer warrants that the signer has already paid or will use the funds received from this final payment to promptly pay in full all of the signer's laborers, subcontractors, materialmen, and suppliers for all work, materials, equipment, or services provided for or to the above referenced project up to the date of this waiver and release.

Date _____

_____ (Company name)

By _____ (Signature)

_____ (Title)

Sworn to and subscribed before me by on _____, 20____.

Notary Public in and for the State of Texas
My commission expires: _____

HOUSING AND URBAN DEVELOPMENT (HUD) SECTION 3 CONTRACTING POLICY AND PROCEDURE

INTRODUCTION

The purpose of Section 3 of the Housing and Urban Development (HUD) Act of 1968 (12 U.S.C. 1701u) (Section 3) is to ensure that employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, and consistent with existing Federal, State, and local laws and regulations, be directed to low and very-low income individuals, especially recipients of government assistance for housing, and to business concerns which provide economic opportunities to low and very low income individuals. "Section 3" means Section 3 of the Housing and Urban Development Act of 1968, as amended 12 U.S.C. 1701u.

All Contractors who enter into HUD financed contracts with Montgomery County agree to comply with Section 3, when applicable (see "NOTICE OF SECTION 3 REQUIREMENTS" attached hereto).

This will include:

1. Submitting a list of all positions necessary to complete contract, name of employees who will fill those positions, names of all other employees.
2. Posting notices of any vacant positions, including training and/or apprenticeship positions, qualifications for positions, place where applications will be received and starting date of employment.
3. To the greatest extent possible, making available vacant positions, including training and/or apprenticeship positions, to Section 3 residents (all categories) in order to priority.
4. As positions are vacated during completion of contract, following guidelines enumerated in numbers 2 and 3 above.
5. Submitting Compliance Reports as required.
6. If notified of non-compliance, correcting non-compliance within allowable time period.

Failure to comply with these Section 3 requirements may lead to sanctions, which can include termination of the contract for default and suspension or debarment from future HUD-assisted contracts.

A business concern seeking to qualify for a Section 3 contracting preference shall certify or submit evidence that the business concern qualifies as a Section 3-business concern (see "CERTIFICATION FOR BUSINESS CONCERNS SEEKING HUD (SECTION 3) PREFERENCE" form attached). Section 3 business must also be able to demonstrate its ability to complete the contract. The ability to perform successfully under the terms and conditions of the proposed contract is required of all contractors and subcontractors subject to the procurement standards of 24 CFR 85.36, 24 CFR 85.36b(8).

Notice of Section 3 Requirements

The following Section 3 Requirements, based on the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3), are incorporated herein and shall become a part of this agreement:

- A. The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that, to the greatest extent feasible, opportunities for training and employment be given to lower income residents of the area of the Section 3 covered project, and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the Section 3 covered project.
- B. The parties to this contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 Part CFR 135, and all applicable rules and orders of the Department issued thereunder prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.
- C. The contractor will send to each labor organization or representative of workers with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization or worker's representative of his commitments under this section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.
- D. The contractor will include this section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for, or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR Part 135. The contractor will not subcontract with any subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR Part 135 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.
- E. Compliance with the provisions of section 3, the regulations set forth in 24 CFR Part 135, and all applicable rules and orders of the Department, issued thereunder prior to execution of the contract, shall be a condition of the Federal financial assistance provided to the project, binding upon the application or recipient, its contractors and subcontractors, its successors, and assigns to those sanctions specified by the grant or load agreement or contract through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.
- F. Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- G. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (I) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation's compliance with section 7(b).

Contracting Officer's Signature

Date

Title

**CERTIFICATION FOR BUSINESS CONCERNS
SEEKING HUD (SECTION 3) PREFERENCE IN CONTRACTING
AND DEMONSTRATION OF CAPABILITY**

Name of Business: _____
Address of Business: _____
Type of Business: Corporation Partnership Sole Proprietorship Joint Venture

Attached is the following documentation as evidence of status (circle all that apply and attach to bid/proposal):

For business entity as applicable:

- Copy of Articles of Incorporation
- Certificate of Good Standing
- Assumed Business Name Certificate
- Partnership Agreement
- List of owners/stockholders
- Corporation Annual Report
- % ownership of each
- Latest Board minutes appointing officers
- Organization chart with names and titles
- Additional documentation and brief function statement

For business claiming Section 3 status by subcontracting 25 percent of the dollar awarded to qualified Section 3 business:

List of subcontracted Section 3 businesses and subcontract amount

For business claiming Section 3 status, claiming at least 30 percent of their workforce are currently Section 3 residents or were Section 3 eligible residents within 3 years of date of first employment with the business:

- List of all current full-time employees
- List of employees claiming Section 3 status
- Evidence of Section 3 status less than 3 years from day of employment
- Evidence of ability to perform successfully under the terms and conditions of the proposed contract:
 - Current financial statement
 - Statement of ability to comply with public policy
 - List of owned equipment
 - List of all contracts for the past two years

Authorizing Name and Signature

Attested by: _____

(Corporate Seal)

HUD SECTION 3 Strategy Plan

NAME OF CONTRACTOR: _____

TITLE OF Bid/Proposal: _____

Bid/Proposal # OR PURCHASE ORDER#: _____

The Contractor hereby agrees to comply with provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 Part CFR 135. A prime contractor, through subcontractors, may satisfy the Hiring Requirements. The contractor hereby submits this Section 3 Strategy Plan.

In the space below, explain the strategy that the Contractor intends to use to comply with the Section 3 training and employment preference, or contracting preference, or both. Attach additional sheets as needed.

In addition, the Contractor shall provide a quarterly status report on the “Montgomery County Community Development Section 3 Compliance Report” form included with this bid/proposal packet. The quarterly status report shall be submitted no later than 5 days after the end of each calendar quarter of the contract (e.g., April 5 for calendar quarter January 1 to March 31).

Acknowledged by:

_____ (President or Authorized Officer)

Date: _____

Montgomery County Community Development Section 3 Compliance Report

General Information

<u>Contractor:</u>	<u>Contract Amount: \$</u>
<u>Date:</u>	<u>Name of Person Completing Form:</u>

Project Information

(1) Does this contract exceed \$1000,000, including Subcontractors?						
<u>Yes.</u> Section 3 applies to contractors with contract or Subcontract exceeding \$1000,000. (Complete remainder of form with respect to your company and all subcontractors)						
<u>No.</u> Section 3 applies to Contractor only. (Complete remainder of form with respect to your company)						
(2) Indicate the efforts made to direct employment opportunities, to the greatest extent feasible, toward low and very low income persons, particularly those who are recipients of government assistance housing (<i>check all that apply</i>)						
<input type="checkbox"/> Attempted to recruit low-income residents through local advertising media, signs prominently displayed at the project site, contacting community organizations and public private agencies operating within Montgomery County, or similar methods.						
<input type="checkbox"/> Participated in a HUD program or other program which promotes the training or employment of Section 3 residents.						
<input type="checkbox"/> Participated in a HUD program or other program which promotes the award of contracts to business concerns which meet the definition of Section 3 business concerns.						
<input type="checkbox"/> Coordinated with Youth build Programs administered in the metropolitan area in which the Section 3 covered project is located.						
<input type="checkbox"/> Other. Describe:						
<i>The data reported in this section must be a compilation of information throughout the contract period pertaining to the contractor and all subcontractors.</i>						
<u>Job Category</u>	<u>Staff</u>		<u>New Hires/Trainees</u>	<u>Staff Hours</u>		
<u>Total # OF</u>	Employees	Employees = Section 3 Residents	New Hires/Trainees = Section 3 Residents	Hours for new hires = Section 3 Residents	Hours = Section 3 employees	Labor hours
<i>Professional</i>						

<i>Technician</i>						
<i>Office/Clerical</i>						
<i>Construction by Trade: (list)</i>						
<i>Trade:</i>						
<i>Trade:</i>						
<i>Trade:</i>						
<i>Trade:</i>						
<i>Trade:</i>						
<i>Other:</i>						
<i>TOTAL:</i>						

I certify that to the best of my knowledge all information reported in this document is true and accurate.

Signature of Authorized Contractor Official

Date

<i>For Office Use Only:</i>
1. Percent of employees who are Section 3 Residents: _____
2. Total of new section 3 hires: _____
3. Percent of Section 3 employee hours worked by new section 3 hires: _____
4. Total number of Labor hours: _____

REFERENCES

References (Bank and Trade) with Addresses, Phone Numbers and Zip Codes:

- 1. _____
 - 2. _____
 - 3. _____
-
-

CONTRACTOR

By: _____
Name: _____
Title: _____
Phone: _____

VERIFICATION

THE STATE OF _____ §
COUNTY OF _____ §

Before me, the undersigned authority, on this day personally appeared _____, who being by me first duly sworn, deposed and said that he/she has executed the above and foregoing CONTRACTOR'S QUALIFICATION STATEMENT in the capacity stated, as the authorized act of Contractor and that every statement contained therein is within his/her personal knowledge and found to be true and correct.

Sworn to and signed before me this _____ day of _____, 20____.

Notary Public _____
Name: _____
Commission Expires: _____

SPECIAL PROVISION

PREVAILING WAGE RATE

This is a "Public Work Project" within the meaning of Chapter 2258, Texas Government Code. The Commissioners' Court of Montgomery County has ascertained that the rates set out in the Federal Davis Bacon Wage Determinations hereby constitute the general prevailing rate of "per diem" wages for the work classifications set out in such Schedule for the general locality of Montgomery County, Texas. Such Schedule sets forth the prevailing wage rate for each craft or type of worker, which includes, by definition, a laborer or mechanic considered necessary to perform the work.

A schedule of the current rates can be found in the link provided below.

The Contractor who is awarded a contract by a public body or a subcontractor of the contractor shall pay not less than the rates determined under Section 2258.022, Texas Government Code, to a worker employed by it in the execution of the contract. A contractor or subcontractor who violates this section shall pay to the state or a political subdivision of the state on whose behalf the contract is made, \$60.00 for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the contract. A public body awarding a contract shall specify this penalty in the contract. Such forfeiture shall be made in accordance with the provisions of Chapter 2258, Texas Government Code. A worker employed on a public works project by or on behalf of the state or a political subdivision of the state shall be paid (1) not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the work is performed; and (2) not less than the general prevailing rate of per diem wages for legal holiday and overtime work.

In accordance with Section 2258.024, Texas Government Code, the contractor and subcontractor shall keep a record showing: (1) the name and occupation of each worker employed by contractor or subcontractor in the construction of the public work; and (2) the actual per diem wages paid to each worker. The record shall be open at all reasonable hours to inspection by the officers and agents of the public body (i.e. Montgomery County, Texas).

<http://www.wdol.gov>

"General Decision Number: TX20240063 01/12/2024

Superseded General Decision Number: TX20230063

State: Texas

Construction Type: Heavy

Counties: Montgomery and Waller Counties in Texas.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024
1	01/12/2024

* SFTX0669-001 01/01/2024

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 34.60	23.88

* SUTX2005-024 06/14/2005

	Rates	Fringes
Carpenter.....	\$ 14.38 **	
Ironworker, reinforcing:.....	\$ 11.29 **	
Laborers:		
Common - Montgomery County..	\$ 8.83 **	0.94
Common - Waller County.....	\$ 8.97 **	0.88
Landscape.....	\$ 7.35 **	
Mason Tender Cement.....	\$ 9.96 **	
Pipelayer - Montgomey County.....	\$ 10.04 **	
Pipelayer - Waller County...	\$ 10.07 **	
CEMENT MASON/CONCRETE FINISHER...	\$ 11.37 **	1.13
ELECTRICIAN.....	\$ 18.40	1.34
Formbuilder/Formsetter.....	\$ 13.35 **	1.17
PIPEFITTER.....	\$ 17.00 **	0.04
POWER EQUIPMENT OPERATOR:		
Backhoe.....	\$ 13.25 **	
Bulldozer - Montgomery County.....	\$ 13.12 **	
Bulldozer - Waller County...	\$ 12.46 **	
Crane.....	\$ 14.91 **	0.58
Excavator.....	\$ 16.74 **	
Front End Loader - Montgomery County.....	\$ 12.30 **	0.57
Front End Loader - Waller County.....	\$ 11.75 **	0.92
Grader.....	\$ 12.20 **	1.48
Tractor.....	\$ 12.38 **	1.51
TRUCK DRIVER		
Montgomery County.....	\$ 11.82 **	0.92
Waller County.....	\$ 12.28 **	0.98

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====
 ** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658 (\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including

their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that

classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request

review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION"

SECTION 1
MONTGOMERY COUNTY GENERAL PROVISIONS

1.0 DEFINITION OF TERMS

Whenever the following terms are used in these General provisions, Contract and Bond, the intent and meaning shall be interpreted as follows:

- 1.1. **Engineer:** The owner's authorized representative to produce and interpret the plans and specifications and administer the contract for construction.
- 1.2. **Bid:** The written offer made by the offeror to furnish the materials or equipment or to perform the work or services bid.
- 1.3. **Bid Bond:** The deposit designated to be made by the bidder, which is to accompany his bid as a guaranty of good faith to enter into a written contract, and to be submitted as a bond if the contract is awarded to him.
- 1.4. **Commissioners' Court:** The Commissioners' Court of Montgomery County, Texas.
- 1.5. **Contract:** The written agreement between County and the Contractor covering the performance of work or services or the furnishing of materials, supplies, or equipment, as bid. The Contract shall include the Notice to Bidders, Contractor's Bid, the General Provisions, Special Provisions, Technical Provisions, including the Plans and Specifications, Contractor's Performance and Payment Bonds and all supplemental agreements, which are required to complete the performance of the work in a substantial and acceptable manner.
- 1.6. **Contractor:** The individual, company, business or corporation with whom a contract is made.
- 1.7. **County:** Montgomery County, Texas, a political subdivision of the State of Texas.
- 1.8. **County Auditor:** The County Auditor of Montgomery County, Texas.
- 1.9. **County Purchasing Agent:** The Purchasing Agent of Montgomery County, Texas.
- 1.10. **Inspector:** The authorized representative of Montgomery County assigned to make detailed inspection of any or all portions of the work and materials or equipment involved in this Contract.
- 1.11. **Payment Bond:** The guaranty given by Contractor to secure payment of all claims for labor or materials supplied in connection with the performance of the work.
- 1.12. **Performance Bond:** The guaranty given by Contractor to secure performance of the work in compliance with the Contract.
- 1.13. **Plans:** The officially approved plans, profiles, typical cross sections, working drawings, supplemental drawings, or exact reproductions thereof, which show the location, character, dimensions and details of the work or services to be performed or the materials or equipment to be furnished, which Plans are considered as a part of the Contract.
- 1.14. **Specifications:** The directions, provisions and requirements pertaining to the method and manner of performing the work or services or the quantities and qualities of materials, supplies or equipment to be furnished under the Contract.

SECTION 2
INSTRUCTIONS TO BIDDERS

2.0 BID DOCUMENTS

- A. Upon request, the Purchasing Agent shall furnish interested bidders with bid documents, including a contract, plans, specifications and a bid form. The bid documents will state the location and description of the proposed work.

The Bid Form may specify lump sum bidding or unit prices.

Where unit prices are requested, the Bid Form will include an appropriate estimate of the various quantities and kinds of work to be performed or materials to be furnished. Estimates of quantity will be used for comparison of bids only. Payment to the Contractor will be based upon actual quantities purchased.

- B. This Request of Bid as advertised will be considered an inclusion of the specifications and conditions.
- C. The term “Owner” as used throughout these documents will mean Montgomery County Commissioners Court, Texas.
- D. Bids will be submitted on the forms provided by Owner. All figures must be written in ink or typewritten. However, mistakes may be crossed out, corrections inserted adjacent thereto and initialed in ink by the person signing the bid.
- E. Formal advertised bids indicate date and time by which the bids must be received in the Purchasing Department. Bids received after that time will be returned unopened to the Offeror.
- F. The Offeror will note any exceptions to the conditions of this request for bid. If no exceptions are stated, it will be understood that all general and specific conditions will be complied with, without exception.
- G. Offerors may request withdrawal of a posted bid prior to the scheduled opening time, provided the request for withdrawal is submitted to the Purchasing Department in writing. Owner reserves the right to reject any and all bids by reason of this request.
- H. In the event there are inconsistencies between the general provisions and other terms or conditions contained herein, the former will take precedence.
- I. If it becomes necessary to revise any part of this request for bid, a written addendum will be issued and posted on the [Montgomery County Website](#). The Owner is not bound by any oral representations, clarifications, or changes made in the written specifications by Owner’s employees, unless such clarification of change is provided to offerors in written addendum form from the Owner. All bids will be awarded to the offeror that offers the best value for the Owner based on the published selection criteria contained herein.
- J. It is agreed that the successful offeror will not assign, transfer, convey or otherwise dispose of the contract or its right, title or interest in or to the same, or any part thereof, without previous written consent of Owner and any sureties.
- K. When an original and copies are required, if there are discrepancies between the original bid and copies, the original bid will prevail.
- L. Owner is exempt from State Retail Tax and Federal Excise Tax. The price bid must be net, exclusive of taxes.

- M. All offerors will comply with all Federal, State, and local laws relative to conducting business in Montgomery County. The laws of the State of Texas will govern as to the interpretation, validity, and effect of this bid, its award and any contract entered into.
- N. The successful offeror agrees by entering into this contract, to defend, indemnify and hold Owner harmless from any and all causes of action or claims of damages arising out of or related to offeror's performance under this contract.
- O. Advanced disclosures of any information to any particular offeror which gives that particular offeror any advantage over any other interested offeror in advance of the opening of bid, whether in response to advertising or an informal request for bid, made or permitted by a member of the governing body or an employee or representative thereof, will operate to void all bids of that particular solicitation or request.
- P. Minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, creed, sex, or national origin in consideration for an award.

2.1 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- A. It is the responsibility of each Offeror before submitting a Bid, to:
 - 1. examine the Contract Documents thoroughly,
 - 2. visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work,
 - 3. consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work,
 - 4. study and carefully correlate Offeror's observations with the Contract Documents,
 - 5. visit with local utilities, including cable companies, and other entities that may have underground or above-ground infrastructure in the work area for infrastructure location, and
 - 6. notify Owner's Representative of all conflicts, errors or discrepancies in the Contract Documents. The owner must be notified by the deadline for Questions and Substitutions.
- B. The submission of a bid will constitute an incontrovertible representation by Offeror that Offeror has complied with every requirement of this section, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work. No pleas of ignorance of conditions that may be encountered in their execution of the Work under this contract, that is a result of failure to make the necessary examinations and investigations herein above indicated, will be accepted as an excuse for the failure or omission on the part of the Contractor to fulfill in every detail all the requirements of the Contract Documents. In no event shall a claim for extra compensation or for an extension of time be allowed for failure to thoroughly examine all requirements of Contract Documents.

2.2 PREPARATION OF BID

- A. Submit on forms furnished herein.
- B. Fill the document out in ink or typewritten, without erasure, interlineation or changes.
- C. Bid in the name of the principal and if a co-partnership, give names of all parties.
- D. Give the bidder's complete address.
- E. If Bids are submitted by an agent, provide satisfactory evidence of agency authority.
- F. If requested on the Bid Form, indicate number of consecutive calendar days for construction Substantial Completion of Work.
- G. Fill in all bid prices in both words and figures.
- H. In case of inconsistency between portions of Bidding Documents or within Bidding Documents; bid and provide better quality or greater quantity of Work. Bring all inconsistencies to Owner's attention, prior to bidding, for Owner's interpretation.
- I. Submit the bid in a sealed envelope.
- J. Indicate on the outside of the envelope, the name of bidder, bidder's address, and name of Project for which a bid is submitted.
- K. If forwarded by mail, enclose a sealed envelope containing the Bid Form in another envelope addressed as indicated.
- L. One (1) original and one (1) copies of your firms bid should be submitted.
- M. There is no express or implied obligation for the Owner to reimburse Offerors for any expense incurred in preparing bids in response to this bid and the Owner will not reimburse responding offerors for these expenses, nor will the Owner pay any subsequent costs associated with the provision of any additional information or presentation, or to procure a contract for these services.

2.3 BASE BIDS

- A. General: Bid must include Base Bid.
- B. In event Alternate does not affect bidder's work, enter "No Change."
- C. Absence of any entry will be assumed to indicate zero price or time change.

2.4 CONTINGENCY ALLOWANCE

- A. Base Bid must include Contingency Allowance.
- B. Description of Contingency Allowance included in specifications.
- C. General: Bid must include all Unit Prices.
- D. Absence of any entry will be assumed to indicate zero price.
- E. Description of Unit Prices included in specifications.
- F. Order of Alternates: Owner reserves right to accept any or all Alternates if applicable.
- G. Description of Alternates must be included in specifications when applicable.

2.5 BID SECURITY

- A. Offerors must submit with their Bid a bid bond in the amount of five (5%) percent of the maximum amount of Bid Price payable without recourse to the Owner, from a surety company holding permit from the State of Texas to act as a surety, as a guarantee that Offeror will enter into a contract and

execute bond and guarantee forms within ten (10) days after notice of award of contract. Bids without acceptable bid bond, as stated above, may not be considered.

- B. Bid Security shall be in effect from the opening of the Bid and will be retained until an Offeror has executed the Construction Agreement and furnished the required contract security or more than ninety (90) calendar days from the date of opening of the Bid have lapsed. All Bids are irrevocable and cannot be withdrawn for ninety (90) calendar days following the date scheduled for the opening of the Bids.
- C. The Bid Security of the Successful Offeror will be retained until such Offeror has executed the Construction Agreement and furnished the required contract security, whereupon the Bid Security will be returned. If the Successful Offeror fails to execute and deliver the Construction Agreement and furnish the required contract security within ten (10) days after the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Offeror will be forfeited. The Bid Security of other Offerors whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until 5 days after the Construction Agreement is executed.

2.6 QUALIFICATIONS OF OFFERORS

- A. To demonstrate qualifications to perform the Work, each Offeror must submit all required documentation with your bid, submittal including, but not limited to, financial data, previous experience, present commitments and other such data as may be called for in the bid. Each Bid must contain evidence of the Offeror's qualifications to do business in the State of Texas or covenant to obtain such qualifications prior to award of the contract. In determining an Offeror's qualifications, the evaluation factors have been identified herein. Each offeror may be required to show that it has properly completed similar type work and that no claims are now pending against such work. No bid will be accepted from any offeror who is engaged in any work that would impair his ability to fully execute, perform or finance this work.

2.7 WITHDRAWAL OF BID

- A. Bids may be modified or withdrawn by an appropriate document duly executed, in the described manner that a Bid must be executed, and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

2.8 IRREGULAR BID

- A. Bid is considered irregular and may be rejected for following reasons unless otherwise provided by law:
 - If Bid Form furnished is not used or is altered.
 - If there are unauthorized additions, conditional bids, or irregularities of any kind which may tend to make bid incomplete, indefinite, or ambiguous.
 - If bidder adds any provisions reserving right to accept or reject any award, or to enter into contract pursuant to an award.
 - If unit or lump sum prices contained in bid schedule are obviously unbalanced either in excess of, or below, reasonable cost analysis values.
 - If bidder fails to insert Unit Prices for every such item indicated.
 - If bidder fails to complete Bid Form and/or Qualification Documents where information is requested, so bid may be properly evaluated.
 - Failure to submit Bid Bond.

- B. Owner reserves right to reject any or all bids and to waive irregularities or informalities as may be in Owner's interest.
- C. Offerors may be disqualified and rejection of bids may be recommended to the Owner for any (but not limited to) of the following causes: 1) Evidence of collusion among proposers; 2) Lack of appropriate qualifications and experience relative to the size and scope of the work proposed; 3) Previous unsatisfactory performance; or 4) Previous failure to complete projects.

2.9 RECEIPT AND OPENING OF BIDS

- A. Montgomery County Commissioners' Court, (herein called the "Owner"), invites Bids for this project.
- B. Bids will be received at the place and time indicated in Advertisement for Bids.
- C. Bids received late will not be opened.
- D. Properly prepared Bids will be opened publicly and read aloud. A summary of the amounts of the base Bid Price and major alternates (if any) will be made available and read aloud to Offerors after the opening of Bids. A tabulation of the Bids Prices which are read will be available upon request as soon as it has been assembled and verified.
- E. The Owner considers all Bid information, documentation and supporting materials submitted in response to this Request for Bid to be non-confidential and/or non-proprietary in nature, and therefore, shall be subject to public disclosure under the Texas Public Information Act (Texas Government Code, Sec. 552.001, et seq.) after the award of the contract except for trade secrets and confidential information which the Offeror identifies as proprietary. Any material that is to be considered as CONFIDENTIAL/PROPRIETARY in nature must be clearly marked on each applicable page as such by the proposer. Marking your entire Bid CONFIDENTIAL/PROPRIETARY is not in conformance with the Texas Public Information Act.
- F. All required documents and form(s) shall be submitted by the time and place indicated in the Advertisement. One (1) original and one (1) copies shall be included. It shall be enclosed in an opaque sealed envelope, marked with the project title, name and address of the Offeror. The Bid shall be accompanied by the Bid Security and other required documents. If the Bid is sent through the mail or other delivery system the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. Each Offeror should, prior to submitting his Bid check the receipt of all Addenda or letters of clarification issued and acknowledge such receipt on the outside of the envelope containing his Bid.

2.10 ADDENDA

- A. All questions shall be submitted via email the Buyer stated in the specifications... All questions and answers will be posted on the [Montgomery County Website](#). Bidders are responsible for insuring all answers to questions are reviewed prior to bid submittal. Answers provided to posted questions address minor irregularities and are for clarification purposes only and do not revise or modify the specification requirements. Answers to questions that result in revisions to the specifications will be addressed by Addendum. No oral statement of any person shall modify or otherwise change, or affect the specifications.
- B. Bidder submitting request is responsible for prompt delivery of such requests.
- C. No oral interpretations will be made.
- D. Owner is not responsible for any other explanations or interpretations which anyone presumes to make.
- E. Interpretations or supplemental instructions will be in form of written addenda or clarification.

- F. Any addenda issued during the time allowed for the preparation of bids shall be covered in the bid and, in executing the contract; they shall become a part thereof. Failure of a Bidder to receive any addendum shall not release the Bidder from any obligations under his bid, provided said addendum was posted and distributed on [Montgomery County Website](#). Bidders are responsible for insuring all addendums are reviewed prior to bid submittal. All addenda will be issued through, and can be reviewed on, the [Montgomery County Website](#). Addenda will also be provided to Plan Rooms. Identify the receipt of any Addendums using the form provided in the specifications.
- G. Failure to receive such addendum does not relieve bidder from any obligation under bid as submitted.

2.11 USE OF LOCAL SUBCONTRACTORS AND SUPPLIERS

- A. It is the intention of the County that local businesses be given every consideration and opportunity to provide services and materials for this project. Contractors submitting bids for this project are encouraged to use local businesses wherever possible; however, not to the extent that their participation will result in the contractor's bid not being competitive.

2.12 DISCLOSURE OF CERTAIN RELATIONSHIPS

- A. Chapter 176 of the Texas Local Government Code requires that any vendor or person considering doing business with a local government entity disclose in the Questionnaire Form CIQ, the vendor or person's affiliation or business relationship that might cause a conflict of interest with a local government entity. By law, this questionnaire must be filed with the records administrator of Montgomery County no later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code. A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor. A copy of the new law is available at

<http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>

The forms for reporting are available at <http://www.ethics.state.tx.us/forms/CIQ.pdf>.

By submitting a response to this request, the vendor represents that it is in compliance with the requirements of Chapter 176 of the Texas Local Government Code. If required, send completed forms to the Montgomery County Clerk's Office located at 210 West Davis, Conroe, TX 77301.

- B. DISCLOSURE OF INTERESTED PARTIES: In compliance with Section 2252.908 of the Texas Government Code, Montgomery County Commissioners Court may not enter into a contract with a business entity as a result of acceptance or award of this solicitation unless the business entity submits a disclosure of interested parties form as required by this statute. Notification will be given to the business entity recommended for award upon which the business entity will be required to submit the completed form prior to award. Publicly owned companies are exempt from the 1295 requirement.

A copy of this law is available at

<http://www.statutes.legis.state.tx.us/Docs/GV/htm/GV.2252.htm>. The on-line form is available at https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm. *The Definitions are included in Chapter 46, Ethics Commission Rules:*

<https://www.ethics.state.tx.us/tec/1295-Info.htm>.

2.13 CONFIDENTIALITY

- A. Any material requested to be considered as **CONFIDENTIAL** in nature must be placed in a separate envelope clearly marked **CONFIDENTIAL**; provided, such material will be treated as

confidential by Montgomery County only to the extent allowable in the Government Code, Chapter 552 of the Public Information Act and except where required by a Court with competent jurisdiction to release information. If items are not placed in an envelope and marked **CONFIDENTIAL**, Montgomery County will not be liable for disclosing the information.

2.14 SCANNED OR RE-TYPED RESPONSE

A. If in its response, offeror either electronically scans, re-types or in some way reproduces the County's published bid package, then in the event of any conflict between the terms and provisions of the County's published bid package, or any portion thereof, and the terms and provisions of the response made by offeror, the County's bid package **as published** shall control. Furthermore, if an alteration of any kind to the County's published bid package is only discovered after the contract is executed and is not being performed; the contract is subject to immediate cancellation.

2.15 DIGITAL FORMAT

A. If offeror obtained the bid specifications in digital format in order to prepare a response, **the bid must be submitted in hard copy** according to instructions contained in this bid package. If, in its bid response, offeror makes any changes whatsoever to the County's published bid specifications, the County's bid specifications **as published** shall control. Furthermore, if an alteration of any kind to the County's published bid package is only discovered after the contract is executed and is not being performed; the contract is subject to immediate cancellation.

2.16 CONTRACT RESTRICTIONS

A. Responders shall not contact any Montgomery County personnel, **to include all entities/persons contracted to do business with the County**, during the process, other than Gilbert D. Jalomo, Jr., CPPB, Purchasing Agent, without the express permission from the Office of the Montgomery County Purchasing Department. Any Responder who has made site visits, contacted personnel, or distributed any literature without authorization may be disqualified. The Purchasing Department may initiate discussion with Responders. Discussions may not be initiated by Responders. The Purchasing Department expects to conduct discussions with Responder personnel authorized to contractually obligate the Responder with an offer.

2.17 DEBARMENTS

A. Contractor certifies that at the time of submission of its bid, Contractor was not on the federal government's list of suspended, ineligible or debarred contractors and that Contractor has not been placed on this list between the time of its bid submission and the time of execution of the Contract. If Contractor is placed on this list during the term of the Contract, Contractor shall notify the Montgomery County Purchasing Agent. False certification or failure to notify may result in termination of the Contract for default.

2.18 PROHIBITION ON CONTRACTS WITH COMPANIES BOYCOTTING CERTAIN ENERGY COMPANIES:

Respondent/Bidder/Proposer represents and warrants that: (1) it does not, and will not for the duration of the contract, boycott energy companies or (2) the verification required by Section 2274.002 of the Texas Government Code does not apply to the contract. If circumstances relevant to this provision change during the course of the contract, Respondent/Bidder/Proposer shall promptly notify Montgomery County. [Per 87(R) S.B. 13 effective 9/1/21]

2.19 PROHIBITION ON CONTRACTS WITH COMPANIES THAT DISCRIMINATE AGAINST FIREARM AND AMMUNITION INDUSTRIES: Respondent/Bidder/Proposer verifies that: (1) it does not, and will not for the duration of the contract, have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association or (2) the verification required by 2274.002 of the Texas Government Code does not apply to the contract. If circumstances relevant to this provision change during the course of the contract, Respondent/Bidder/Proposer shall promptly notify Montgomery County. *[Per 87(R) S.B. 19 effective 9/1/21]*

2.20 MONTGOMERY COUNTY ETHICS TRAINING: In compliance with Chapter 161 of the Texas Local Government Code, vendors must complete this training at least once per year when doing business with Montgomery County, Texas.

Any vendor involved in a single procurement exceeding \$50,000.00 must complete training on the Montgomery County Code of Ethics. This training certificate must be completed and submitted with each bid or proposal, in response to a request for qualifications or proposals, or otherwise contracting with the county. The training must be completed by an officer, principal, or other person with the authority to bind the vendor. The Purchasing Department will confirm that each responder has completed the required training affidavit prior to considering a bid or proposal and shall disqualify responders that have not completed the training. This training requirement does not apply to emergency purchases.

Training can be found at

https://www.mctx.org/departments/departments_d_-_f/ethics_commission/online_training.php

SECTION 3

AWARD AND EXECUTION OF CONTRACT

3.0 AWARD OF CONTRACT

A. Award of the contract shall be made to the responsible bidder who submits the lowest and best bid, provided, however, county reserves the right to waive any formality or irregularity to make awards for a portion of the work only, to make awards to more than one bidder, to reject all bids or require new bids, if in the best interest of County. County shall execute the contract upon award of the bid.

3.1 RETURN OF BID BOND

A. The bid bond of the three lowest bidders will be retained until after award and execution of the Contract and delivery of all required Performance and Payment Bonds, whereupon, such bid bonds may be returned.

3.2 PERFORMANCE AND PAYMENT BONDS AND CERTIFICATES OF INSURANCE

A. The form of the required bonds is prescribed by County and accompanies these General Provisions. Specific insurance coverages are also required as prescribed herein. The bidder to whom an award is made shall, within twenty (20) days of the date of award, execute and deliver to the Purchasing Agent a Performance Bond and a Payment Bond, each in the full amount of the contract price, as well as Certificates of Insurance evidencing the prescribed coverages.

B. If the contract is for the construction of Public Works, including, but not limited to the construction, alteration, or repair of any public building, bridge, road or like improvement, and

the contract price shall exceed the sum of \$100,000.00, the successful bidder may be required to submit a **Performance Bond** conditioned upon the faithful performance of the work in accordance with the plans, specifications, and contract documents. County may, by special provision, require the submission of a performance bond for any other contract where the contract price shall exceed the sum of \$50,000.00. Commissioners' Court also has the option to require a performance bond for any other contract where the contract price is less than the sum of \$50,000.00. Where required, the performance bond shall be submitted by the successful bidder within twenty (20) days of the award of the bid. Performance bonds shall be in an amount equal to the contract price and must be executed by a corporate surety authorized to do business in the State of Texas.

- C. If the contract is for the construction of Public Works, including, but not limited to the construction, alteration or repair of any public building, bridge, road or like improvement, and contract price shall exceed the sum of \$25,000.00, the successful bidder shall be required to submit a **Payment Bond** for the protection of all claimants supplying labor or materials in connection with the prosecution of the work provided for in the contract. Where required, the payment bond shall be submitted by the successful bidder within twenty (20) days of the award of the bid. Payment bonds shall be in an amount equal to the contract price and must be executed by a corporate surety authorized to do business in the State of Texas.

3.3 FAILURE TO DELIVER BONDS OR CERTIFICATES OF INSURANCE

Should the bidder to whom the contract is awarded refuse or neglect to execute and deliver the required performance and payment bonds or Certificate of Insurance to the Purchasing Agent within twenty (20) days of the date of award, then the bid bond of such bidder shall be forfeited and all such funds secured thereby shall become the property of County as liquidated damages.

3.4 NOTICE TO PROCEED

- A. The contractor shall not begin the work until so authorized in writing by the representative of Montgomery County or by receipt of a purchase order indicating notice to proceed, and shall then commence prosecution of the work within seventy-two (72) hours of receipt of such notice to proceed, unless otherwise approved by Montgomery County.

3.5 ADDITIONAL PROVISIONS

- A. The general contractor shall assume the risk of costs increases and the effects of shortages or lack of availability of materials, energy, goods and labor, and neither the price nor schedule for performance and completion of the work shall be subject to adjustment should any of these risks arise.

SECTION 4 **INSURANCE AND INDEMNIFICATION**

4.0 CERTIFICATES OF INSURANCE

If awarded the project, contractor shall submit to County, Certificates of Insurance showing proof of the following coverages which shall be maintained by Contractor throughout the term of this agreement:

1. WORKER'S COMPENSATION – STATUTORY EMPLOYERS LIABILITY

- \$1,000,000 E.L. Each Accident
- \$1,000,000 E.L. Each Employee
- \$1,000,000 E.L. Disease Policy Limit

1. Comprehensive General Liability Insurance, including Contractor's protective liability:

- \$1,000,000 Each Occurrence
- \$2,000,000 General Aggregate (per project)
- \$2,000,000 Products/Completed Operations
- \$1,000,000 Personal Advertising & Injury
- \$ 100,000 Damage to Rented Premises
- \$ 5,000 Medical Expense (Any One Person)

With a special provision of a thirty (30) Day Notice of Cancellation for material change.

The policy shall specifically include:

- A. XCU Coverage (Explosion, Collapse, Underground or Tunneling Coverage)
- B. Completed Operations Coverage for a period of one (1) year from the date of final completion of the work
- C. Contractual Liability Coverage

2. Automobile Liability Insurance, including coverage for owned, non-owned and hired vehicles, with minimum limits of not less than \$1,000,000 Combined Single Limit (Bodily Injury including property damage)

County shall be included as an "Additional Insured" by endorsement to policies issued for coverages listed above in item 2 B and C. A "Waiver of Subrogation Endorsement" in favor of County shall be a part of each policy for coverage listed all sections above.

Contractor shall be responsible for any deductions or exclusions stated in the policy.

This insurance coverage must insure against claims of third parties who go upon or wander upon the work site at any time and suffer injury or property loss, or who suffer any injury or property loss as a result of the contractor's performance of the contract.

1.1 INDEMNIFICATION

A. CONTRACTOR SHALL INDEMNIFY AND SAVE HARMLESS COUNTY AND ITS OFFICIALS, OFFICERS, AND EMPLOYEES FROM ALL SUITS, ACTIONS OR CLAIMS OF ANY CHARACTER BROUGHT BECAUSE OF ANY INJURIES OR DAMAGE RECEIVED OR SUSTAINED BY ANY PERSON, PERSONS OR PROPERTY ON ACCOUNT OF THE OPERATIONS OF CONTRACTOR; OR ON ACCOUNT OF, OR IN CONSEQUENCE OF, ANY NEGLIGENCE IN SAFEGUARDING THE WORK; OR THROUGH USE OF DEFECTIVE MATERIALS IN CONSTRUCTING THE WORK; OR BECAUSE OF ANY ACT OR OMISSION, NEGLIGENCE, OR MISCONDUCT OF SAID CONTRACTOR; OR BECAUSE OF ANY ACT OR CLAIMS OR AMOUNTS RECOVERED FROM ANY INFRINGEMENTS OF PATENT, TRADEMARK, OR COPYRIGHT; OR FROM ANY CLAIMS OR AMOUNTS ARISING OR RECOVERED UNDER THE "WORKERS' COMPENSATION ACT" OR ANY OTHER LAW, ORDINANCE, ORDER, OR DECREE. MONEY DUE CONTRACTOR UNDER AND BY VIRTUE OF HIS CONTRACT, AS MAY BE CONSIDERED NECESSARY BY COUNTY FOR SUCH PURPOSE, MAY BE RETAINED FOR THE USE OF COUNTY, OR, IN CASE NO MONEY IS DUE, HIS SURETY MAY BE HELD UNTIL SUCH SUIT OR SUITS, ACTION OR ACTIONS, CLAIM OR CLAIMS FOR INJURIES OR DAMAGES AS AFORESAID SHALL HAVE BEEN SETTLED.

SECTION 5
PREVAILING WAGE RATE TO BE MAINTAINED

- 5.1 Establishment of Prevailing Wage Rate:** This is a "Public Works Project" within the meaning of Chapter 2258, Vernon's Annotated Civil Statutes, Government Code. The Commissioners' Court of Montgomery County has ascertained that the rates set out in the Federal Davis Bacon Wage Determinations hereby constitute the general prevailing rate of "per diem" wages for the work classifications set out in such Schedule for the general locality of Montgomery County, Texas. Such Schedule sets forth the prevailing wage rate for each craft or type of worker, which includes, by definition, a laborer or mechanic considered necessary to perform the work.

2258.021 Right to be Paid Prevailing Wage Rates

- (a) A worker employed on a public work by or on behalf of the state or a political subdivision of the state shall be paid:
- (1) not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the work is performed; and
 - (2) not less than the general prevailing rate of per diem wages for legal holiday and overtime work.
- (b) Subsection (a) does not apply to maintenance work.
- (c) A worker is employed on a public work for the purposes of this section if the worker is employed by a contractor or subcontractor in the execution of a contract for the public work with the state, a political subdivision of the state, or any officer or public body of the state or a political subdivision of the state.

5.2 Penalty:

2258.023 Prevailing Wage Rates to be Paid by Contractor and Subcontractor; Penalty

- (a) The contractor who is awarded a contract by a public body or a subcontractor of the contractor shall pay not less than the rates determined under Section 2258.022 to a worker employed by it in the execution of the contract.
- (b) A contractor or subcontractor who violates this section shall pay to the state or a political subdivision of the state on whose behalf the contract is made, \$60 for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the contract. A public body awarding a contract shall specify this penalty in the contract.
- (c) A contractor or subcontractor does not violate this section if a public body awarding a contract does not determine the prevailing wage rates and specify the rates in the contract as provided by Section 2258.022.
- (d) The public body shall use any money collected under this section to offset the costs incurred in the administration of this chapter.

- (e) A municipality is entitled to collect a penalty under this section only if the municipality has a population of more than 10,000.

2258.051 Duty of Public Body to Hear Complaints and Withhold Payment

A public body awarding a contract, and an agent or officer of the public body, shall:

- (1) take cognizance of complaints of all violations of this chapter committed in the execution of the contract; and
- (2) withhold money forfeited or required to be withheld under this chapter from the payments to the contractor under the contract, except that the public body may not withhold money from other than the final payment without a determination by the public body that there is good cause to believe that the contractor has violated this chapter.

Current prevailing wage rates are incorporated in the contract documents as attached.

- 5.3. **Maintenance of Payroll Records:** In accordance with Section 2258.024, Vernon’s Annotated Civil Statutes, Government Code, the contractor and subcontractor shall keep a record showing: (1) the name and occupation of each worker employed by the contractor or subcontractor in the construction of the public work; and (2) the actual per diem wages paid to each worker. The record shall be open at all reasonable hours to inspection by the officers and agents of the public body (i.e. Montgomery County, Texas).

SECTION 6
AUTHORITY OF ENGINEER

6.0 AUTHORITY OF ENGINEER

Engineer shall be the representative for Montgomery County during the construction period and the Engineer shall be the initial interpreter of the Contract documents, including all plans and specifications relating to the work. He shall evaluate the quality and acceptability of the materials furnished, work performed, the manner of performance and rate of progress of the work. He shall consult with Montgomery County and make recommendations relating to payment of Contract funds, the adjustment of Contract work or time and the partial or final acceptance of the work, provided, however, such Architect’s authority to act on behalf of Montgomery County shall be limited to that expressly granted herein. County shall issue all instructions to Contractor through Engineer, and Contractor shall route all communication to County through Engineer.

6.1 REJECTION OF DEFECTIVE WORK

- A. Engineer will have the authority to disapprove or reject defective work and to require special inspection or testing of the work to determine its compliance with the Contract, Plans and Specifications, regardless of whether or not such work is fabricate, installed or completed.

6.2 CORRECTION OF DEFECTIVE WORK

- A. If required by Engineer, Contractor shall promptly, as directed, either correct all defective work, whether or not fabricated, installed or completed, or, in the alternative, remove such work in its entirety and replace it with non-defective work. Contractor shall bear all direct, indirect and consequential costs of such correction or removal.

6.3 SITE INSPECTION

- A. Engineer will make visits to the work site at appropriate intervals to observe the progress and quality of the work and to determine in general if the work is proceeding in accordance with the Contract Documents. However, Montgomery County shall not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work. Montgomery County efforts shall be directed toward providing County a greater degree of confidence that the work conforms to the Contract, Plans and Specifications endeavoring to guard County against defects or deficiencies in the work.

6.4 TEMPORARY SUSPENSIONS OF WORK

- A. The Engineer shall have the authority to suspend the work wholly or in part, for such period as they may deem necessary due to unsuitable weather or to such other conditions as are unfavorable for the prosecution of the work, or for such time as they may deem necessary due to the failure to make deliveries, or failure to perform any provisions of the Contract.

6.5 NO RESPONSIBILITY TO CONTRACTOR

- A. Neither authority to act hereunder or any decision made by Engineer in good faith either to exercise or not to exercise such authority shall give rise to any duty or responsibility by Engineer to Contractor or to any Subcontractor, supplier, material, men or surety.

SECTION 7
PROSECUTION OF THE WORK

7.0 INTENT OF PLANS AND SPECIFICATIONS

- A. The intent of the Plans and/or Specifications is to prescribe definite work or services to be undertaken, or materials, supplies, or equipment to be furnished by the Contractor. He shall furnish all items, materials, implements, machinery, equipment, tools, supplies, and labor necessary to the prosecution and completion of the Contract.

7.1 INTERPRETATION OF PLANS

- A. Precedence of the Contract Documents: The most recently issued Document takes precedence over previous issues of the same Document. The order of precedence is as follows with the highest authority listed first.

Modifications and Change Orders

- A. The Agreement
- B. Addenda
- C. Supplementary General Conditions
- D. General Conditions
- E. Specifications and Drawings. In the case of an inconsistency between Drawings and Specifications or within either document, the better quality and the greater quantity of work shall be provided unless otherwise directed by Montgomery County. Where there is a question concerning a dimension, drawings are not to be scaled. A request for information to Montgomery County shall be made for any necessary dimensions not clearly shown. Any errors related to or resulting from scaling the drawings shall be the Contractor's responsibility.

7.2 **SPECIAL PROVISIONS**

- A. Should any construction or work or conditions which are not covered by Standard Specifications be anticipated on any proposed work Special Provisions or other specifications for such work will be attached. Should any such Special Provisions conflict with these General Provisions, the Special Provisions shall govern.

7.3 **COOPERATION OF CONTRACTOR**

- A. The Contractor will be supplied copies of the Plans, Specifications, and Special Provisions and on the jobsite, all times; they shall have available one copy of each. The Contractor shall give the work his constant attention to facilitate the progress thereof and shall cooperate with Montgomery County in every way possible. The Contractor shall have on the Work Project at all times, regardless of how much of the work may be sublet, a competent and reliable English-speaking Superintendent, authorized to receive orders and to act for on their behalf.
- B. The Contractor shall give Montgomery County full opportunity to inspect the work at all stages and where there have been any work stoppages, he shall give Montgomery County at least twenty-four (24) hours' notice before resuming operations. Where any gas, water, or other utility installations will be affected by the work to be carried on by the Contractor, he shall see that ample notice is given to Montgomery County, operators, or persons in charge to the end so the prosecution of the work under his Contract shall not be delayed.

7.4 **MATERIALS AND WORKMANSHIP**

- A. The Contractor warrants to Montgomery County that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all work will be provided in accordance with the requirements of the Contract Documents and shall be new, good quality, free of faults, asbestos, and defects. All work not conforming to the requirements of the Contract Documents, and in conformance with the law, including substitutions or changes made by the Contractor or any subcontractor, material supplier or equipment supplier that have **not** been specifically identified (**PRIOR** to their being installed) by means of a Letter of Notice to Montgomery County and properly accepted and authorized by Montgomery County, shall be considered defective and not in agreement with the requirements of the Contract Documents, and shall be promptly corrected. Notation or listing of such substitutions or changes on shop drawings or other types of submittal **will not** be considered acceptable to Montgomery County whether or not such submittal has been reviewed. Notice must be specific and transmitted in letter form. If required by Montgomery County, Contractor shall furnish satisfactory evidence as to the kind and quality of substituted or changed materials and equipment actually provided.

7.5 **UNAUTHORIZED WORK**

- A. Work done without the lines and grade given, or shown on the Plans, or any extra work done or changes made without written authority on the prescribed Change Order Form will be considered unauthorized and at the expense of the Contractor and will not be measured or paid for by the County. At the option of the County, work so done may be ordered removed and replaced at the Contractor's expense.

7.6 **DETOURS**

- A. Detours and temporary structures necessary for public travel during the prosecution of the work will be indicated in the plans, or provided for in the specifications, and the cost will be included in the Bid's contract price. Any necessary detours or temporary structures not indicated in the plans or provided for in the specifications shall be at the expense of the Contractor. Increased maintenance costs incidental to re-routing traffic over an established road, street or highway

shall not be considered as a part of the cost of maintaining necessary detours to be paid by the Contractor.

- B. The Contractor shall provide, at his expense, means of ingress and egress for residents along any closed section of the work, and shall provide property owners a means of access to a public road.
- C. No bridge, culvert or drainage structure shall be closed until an adequate detour has been arranged and constructed. Suitable signs indicating “Road Closed” or “Detour” shall be erected by the Contractor, at no expense to the County.
- D. If, in the opinion of the Engineer, the contractor does not comply with the above requirements, such work as the Engineer may deem necessary to the comfort and safety of the traveling public may be performed and the charges therefore withheld from any money due to the contractor on this or any other contract.

7.7 BARRICADES, WARNING LIGHTS, AND SIGNS

- A. Prior to closing any section of the project to traffic, the Contractor shall furnish, erect, and maintain, at no expense to the County, suitable barricades, warning signs, flares, and red flags, as specified in the Plans or as directed by Montgomery County. At least three (3) flares or lights acceptable to Montgomery County shall be placed at each barricade, one (1) at or near each end, and one (1) near the center-line of the roadway. All lights shall be kept burning from sunset to sunrise.
- B. If, in the opinion of Montgomery County, the barricades are insufficient to prevent traffic entering upon the closed section, then the Contractor shall provide watchmen at points designated, for such periods as directed by Montgomery County.
- C. If, in the opinion of Montgomery County, the safety of local traffic entering the closed portions of the Project is endangered, the Contractor may direct to protect the work and safeguard traffic.
- D. Unless otherwise set forth in these Specifications, the Contractor shall receive no direct compensation for furnishing, erecting, and maintaining the necessary barricades, lights, flares, signs, or for any proper safety, convenience, and direction of traffic, during the period to final inspection and acceptance by the County.

7.8 LAWS TO BE OBSERVED

- A. The Contractor is assumed to have made himself familiar with and at all times shall observe and comply with all Federal, State, County, and City laws, ordinances, and regulations in any manner affecting the conduct of the work, and shall indemnify and save harmless the County and its representatives against any claim arising from the violation of any such laws, ordinances, or regulations, by the Contractor or by his employees.

7.9 PERMITS AND LICENSES

- A. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of work.

7.10 PATENTED DEVICES, MATERIALS, AND PROCESSES

- A. If the Contractor is required or desires to use any design, material, or process covered by letters, patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner; and a copy of the agreement shall be filed with the County. If no such agreement is made or filed as noted, the Contractor and the surety shall indemnify and save harmless the County from any and all claims for infringement.

7.11 SANITARY PROVISIONS

- A. The Contractor shall provide and maintain in a neat, sanitary condition, at his expense, such accommodations for the use of his employees as may be necessary to comply with the requirements of any Federal, State, County, or City laws, ordinances or regulations.

7.12 PRESERVATION AND RESTORATION OF PROPERTY, TREES, AND MONUMENTS

- A. The Contractor shall be responsible for the preservation of all public and private property, trees, monuments, etcetera, along and adjacent to the roadway, and shall use every precaution necessary to prevent damage to pipes, conduits, and other underground structures, and shall protect carefully from disturbance or damage all land, monuments, and property marks. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work or in consequence of the non-execution thereof on the part of the Contractor, he shall restore, at his own expense such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring same, or he shall make good such damage or injury in an acceptable manner, certain trees and shrubs growing within the right of way shall be preserved in good condition by the Contractor, at his expense when designated in the Specifications or by Montgomery County. The Contractor shall trim them to the extent and in the manner directed by Montgomery County to remove traffic hazards.

7.13 RESPONSIBILITY FOR DAMAGE OR CLAIMS

- A. The Contractor shall save harmless the County and all its representatives from all suits, actions, or claims of any character brought on account of any injuries or damages sustained by any person or property in consequence of any neglect in safeguarding the work, or through the use of unacceptable materials in the construction of the improvement, or on account of any act or omission by the Contractor. He shall not be released from said responsibility until the work of the contract has been completed and accepted, and so much of the money due the Contractor under and by virtue of his Contract may be retained by the County, or his surety may be held until such claims have been settled and suitable evidence to that effect is furnished to the County.
- B. The Contractor shall be responsible for all claims, suits or action brought by any party or person for any personal injury or property damage of any kind which is suffered by any entity or person on, about, or adjacent to the roadway and/or job site made the subject of this contract, during the pendency of the contract. Contractor's responsibility hereunder shall continue until the job is finally completed and the County releases and accepts the work as complete. Any claim not paid by the Contractor shall be deducted from retainage; however Contractor's responsibility is not limited merely to the amount of retainage held.

7.14 CONTRACTOR'S RESPONSIBILITY FOR WORK

- A. Until the acceptance of the work, it shall be under the charge and care of the Contractor. He shall take every necessary precaution against injury or damage to any part thereof by the action of the elements or from any cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good, at his own expense, all injuries or damages to any portion of the work, before its completion and acceptance. The Contractor will be required to maintain the work in first class condition until final acceptance.

7.15 INSPECTION

- A. Inspectors shall be authorized to inspect all work done and all materials furnished. In cases of dispute arising between the Contractor and the Inspector as to materials furnished or the manner of performing the work, the Inspector shall have authority to reject materials or to suspend work until the question at issue can be referred to, and decided by, Montgomery County. The

Inspector shall not, however, be authorized to revoke, alter, enlarge, relax or release any requirements of these Specifications. He shall, in no case, act as foreman or perform other duties for the Contractor or interfere with the management of the work. Any advice which the Inspector may give the Contractor shall in no way be construed as binding Montgomery County or as releasing the Contractor from the fulfillment of the terms of the Contractor.

7.16 SUBLETTING OR ASSIGNMENT OF CONTRACT

- A. Before any work is sublet or assigned by the Contractor, he shall apply to Montgomery County in writing, giving a description of the work to be sublet, the name and address of the subcontractor, the amount, type, and condition of the equipment owned or leased by the subcontractor and available for the work, and the time required for completing the work. He shall also furnish Montgomery County a statement from the subcontractor that he understands the Plans and Specifications and is properly qualified to perform such work. No Subcontract will, in any way, affect the terms of the Contract between the County and the Contractor or relieve the Contractor of any of his obligations thereunder.

7.17 LIMITATIONS OF OPERATIONS

- A. The Contractor shall, at all times, conduct the work in such manner and sequence as will insure the least practicable interference with traffic. He shall have due regard to convenient detours. He shall not open up work to the prejudice of work already started and, in this feature of the prosecution of the work; he shall be governed by the orders of Montgomery County.

7.18 CHARACTER OF WORKMEN AND EQUIPMENT

- A. Any foreman or workman employed by the Contractor or by any subcontractor who, in the opinion of Montgomery County, does not perform his work in a proper and skillful manner or is disrespectful, intemperate, disorderly, or otherwise objectionable, shall, at the written request of Montgomery County, be forthwith discharged by the Contractor or subcontractor employing such foreman or workman, and said foreman or workman shall not be employed again on any portion of the work without the written consent of Montgomery County. Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient machinery, equipment, or force for the proper prosecution of the work, Montgomery County may withhold all estimates which are, or may become, due or may suspend the work until such orders are complied with. All Workmen engaged in special work or skilled work, or in any trade, shall have had sufficient experience in such work so as to properly and satisfactorily perform it and operate the equipment involved, and shall make due and proper effort to execute the work in the manner prescribed in these Specifications.

7.19 SUSPENSION OF WORK

- A. Montgomery County shall have the authority to suspend the work, wholly or in part, for such period as it may deem necessary, due to unsuitable weather or to such other conditions as are considered unfavorable for the suitable prosecution of the work, or for such time as he may deem necessary, due to the failure on the part of the Contractor to carry out orders given, failure to make deliveries, or failure to perform any provision of the Contract.

SECTION 8
ALTERATION OF CONTRACT

8.0 ALTERATION OF PRICE OR TIME

- A. No alteration of Contract, price, or time shall be made except by Change Order bearing the express written approval of County and executed prior to performance of any work or the provision of any materials contemplated by such Change Order. Claims for additional compensation for the performance of any work or the provision of any materials not covered by a Change Order will be denied.

8.1 FIELD ORDERS

- A. Montgomery County may authorize minor variations in the Work which do not involve an adjustment in Contract price or time and are consistent with the overall intent of the Contract documents. Such minor variations may be accomplished by a Field Order issued by Montgomery County. If Contractor believes a Field Order justifies a change in Contract time or price, he shall, within seventy-two (72) hours of receipt of such Field Order, prepare and submit to Montgomery County an appropriate Change Order. County's determination, with respect to such Change Order, shall be deemed final. Failure by Contractor to submit such claim within the period of time, and in the manner prescribed herein, shall be deemed a waiver by Contractor of any such claim.

8.2 CHANGE ORDERS

- A. Change Orders shall be executed by Montgomery County and shall apply only to alterations which are for work within the general scope of the Contract as originally executed. All Change Orders shall be prepared upon the prescribed form accompanying these General Requirements. Change Orders shall be required where the actual quantities of material or labor necessary for completion of the work exceeds the estimated quantities set forth in the Bid Specifications, or where acceptable completion of the work requires material or labor not provided for in the Bid Specifications or prior Change Order. Where Change Order work is covered by unit prices contained in Contractor Bid or in a prior Change Order not disputed by Contractor, then the value of such material or labor shall be determined by application of such previously established unit prices, and Contractor shall accept payment at such prices for the accepted quantities of work. Where Change Order work is not covered by previously established unit price, the value of any required materials or labor shall, if possible, be based upon mutual agreement between Montgomery County and Contractor, provided, however, Montgomery County reserves the right to require, and Contractor agrees to perform, such work in the absence of mutual agreement with the value thereof to be determined as Force Account work.

8.3 CHANGE IN THE WORK

- A. The **maximum** allowance for overhead and profit combined, included in the total cost of Montgomery County, shall be based on the following schedule:
- For Contractor, for any work performed by his own forces, 15% of the cost;
 - For each subcontractor involved, work performed by his own forces, 15% of the cost;
 - For Contractor, for work performed by his subcontractor, 5% of the amount due the subcontractor.

IN NO CASE SHALL THE RATES FOR CHANGES IN THE WORK SHOWN IN THE AWARDED BID EXCEED THOSE SHOWN ABOVE.

- B. **Cost** shall be limited to the following: Cost of material, including cost of delivery; cost of labor, including social security, old age and unemployment insurance (labor cost may include a pro-rata share of foremen's time only in case an extension of Contract Time is granted on account of the change); Workman's Compensation Insurance; and rental value of power tools and equipment.
- C. **Overhead** may include the following: Bond premiums, superintendence, wages of timekeepers, watchmen and clerks, small tools, general office expense, and incidental expenses not included in "Cost". If the net value of a change results in a credit from Contractor or subcontractor, the credit given shall be the net cost without overhead or profit. The cost as used herein shall include all items of labor, materials, and equipment.

8.4 EXTENSION OF CONTRACT TIME

- A. Change Orders resulting in additional difficulty or complexity of work shall include a commensurate extension of Contract time.

SECTION 9 **CONTRACT TIME AND DAMAGES FOR DELAY**

9.0 TIME OF COMPLETION

The number of working days allotted for completion of the work is set forth in the Contract Documents. The computation of working days shall begin with the first working day following the date of issuance of Notice to Proceed by Montgomery County. Contractor agrees to prosecute the work regularly, diligently, and at a rate of progress which will result in completion of the work within the time required.

9.1 WORKING DAY

Working Days will be charged Sunday through Saturday, including all Holidays, regardless of weather conditions, material availability, or other conditions not under the control of the Contractor.

9.2 LIQUIDATED DAMAGES

If Contractor shall fail or refuse to complete the work within the time allotted, or within any proper extension of such time granted by County, then Contractor shall pay to County for each calendar day that the work remains uncompleted a sum determined by application of the following schedule. It is expressly agreed that such sum constitutes liquidated damages only, and not penalties, and is fixed because of the impracticality and difficulty of ascertaining the actual damages which County may sustain. The parties expressly agree that such amounts may be retained by County from any money due, or to become due, to Contractor.

For Dollar Amount of Original Contract		Dollar Amount of Daily Contract Administration Liquidated Damages per Working Day
From More Than	To and Including	
5,000	10,000	25
10,000	50,000	50
50,000	100,000	100
100,000	250,000	150
250,000	500,000	250
500,000	750,000	325
OVER	750,000	400

SECTION 10
PAYMENT AND ACCEPTANCE

10.0 CONTRACT PRICE

- A. Contract price shall be determined by application of the appropriate lump sum pricing, unit pricing, or combination thereof, contained in Contractor's negotiated revision of the bid, as accepted by County. To the extent unit pricing is utilized, payment will be based upon the actual quantities purchased.
- B. Where unit pricing comprises a portion of the contract price, an initial contract price shall be determined, based upon application of such unit pricing to the estimate of quantities set forth in the Bid. Such initial contract price shall determine the application of the provisions herein related to performance and payment bonds.
- C. Where the Contract Price is \$25,000.00 or less, no portion of the Contract Price shall be paid to Contractor until final completion of the work. Where the Contract Price exceeds \$25,000.00, the provisions herein related to progress payments shall apply.

10.1 PROGRESS PAYMENTS

- A. Progress payments will be made monthly. Payment for that portion of the work, if any, for which lump sum pricing has been utilized shall be based upon actual percentage of completion of the work. Where unit pricing is applicable, payment shall be based upon the value of the work performed and materials complete and in place, in accordance with the Contract Document. Where Montgomery County shall deem such to be reasonably necessary to the prosecution of the work, such progress payments may also include payment for seventy-five (75%) percent of all acceptable materials delivered and stored on the work site, but not complete and in place.

10.2 APPLICATION FOR PAYMENT

- A. Contractor shall submit an Application for Payment form (AIA Form) to the County for work performed. Application will then be processed for payment in accordance with Texas Local Government Code, Section 113.064 (a). Such application shall be sworn and shall be supported by such data as County may require, substantiating Contractor's right to payment for work performed or materials complete and in place; provided, however, Montgomery County's determination as to the percentage of completion, amount of work performed, or materials complete and in place shall be deemed final.

10.3 RETAINAGE (IF APPLICABLE)

- A. From the total amount determined to be payable on each progress payment, retainage will be deducted by Montgomery County, and retained until final payment is made for all applicable construction projects, in accordance with Chapter 2252, Texas Government Code (as amended by H.B. No. 692, effective June 15, 2021) and other applicable laws.

Pursuant to Section 2252.032(b), Texas Government Code, except as provided by subsection (i) thereof, if the total value of the subject public works contract is less than \$5 million, County may not withhold retainage in an amount that exceeds 10 percent of the contract price and the rate of retainage may not exceed 10 percent for any item in a bid schedule or schedule of values for the project, including materials and equipment delivered on site to be installed; and if the total value of the subject public works contract is \$5 million or more, County may not withhold retainage in an amount that exceeds five percent of the contract price and the rate of retainage

may not exceed five percent for any item in a bid schedule or schedule of values for the project, including materials and equipment delivered on site to be installed.

Further it is acknowledged that pursuant to Section 2252.032(d), Texas Government Code, if, for the purpose of fulfilling an obligation of a prime contractor under a public works contract, the prime contractor enters into a subcontract:

- (1) the prime contractor may not withhold from a subcontractor a greater percentage of retainage than the percentage that may be withheld from the prime contractor by the County under the contract; and
- (2) a subcontractor who enters into a contract with another subcontractor to provide labor or materials under the contract may not withhold from that subcontractor a greater percentage of retainage than the percentage that may be withheld from the subcontractor as determined under Subdivision (1).

10.4 PRE-REQUISITES TO SUBSTANTIAL COMPLETION

A. GENERAL: Prior to requesting Montgomery County's inspection for of substantial completion (for either entire work or portions thereof), Contractor shall complete the following:

1. Include supporting documentation for completion as required by Contract Documents.
2. In the progress payment request, coincident with or first following day claimed, show either 100% completion for portion of work claimed 'substantially complete' or list incomplete items with value of incompleteness, and reasons for being incomplete.
3. Submit statement showing an accounting of all changes to the Contract Sum.
4. Advise County of pending insurance change-over requirements.
5. Obtain and submit releases enabling County's full and unrestricted use of the work and access to services and utilities, including (as required) occupancy permits, operating certificates, and similar releases.
6. Make final change-over of locks and transmit keys to County, and advise County's personnel of change-over in security provisions.
7. Complete start-up testing of systems and instruction of County's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.
8. Complete final cleaning up requirements, including touch-up of marred surfaces.

B. INSPECTION PROCEDURES:

1. Prior to requesting inspection: Contractor or his superintendent shall make a careful inspection personally of all areas scheduled for completion or the building as a whole, assuring him that the work on that part of project or project as a whole is ready for substantial completion acceptance, and then notify, in writing, Montgomery County to make their inspection.
2. Initial Inspection: Upon receipt of Contractor's request, Montgomery County will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Montgomery County will advise Contractor of work which must be performed prior to acceptance; and repeat inspection, if required, to assure that work has been completed.
3. Re-Inspection: In the event that an inspection is called for by the Contractor and upon arriving at jobsite, Montgomery County finds that substantial work is yet to be performed

and determines that the job is in fact not ready for substantial completion inspection or final acceptance as the case may be, Contractor may be held liable for:

- a) Time of Montgomery County representatives at jobsite for inspection work; and
 - b) Expenses of travel, lodging and other expenses connected with the inspection trip by Montgomery County representative(s) and consultants.
4. If, at the end of the 30 days granted to Contractor for completion of all items on the punch list, any items have not been completed, Montgomery County will notify Contractor, in writing, of the status of the punch list items. If Contractor has not finally completed said items, the County shall have the right to take Bids from appropriate subcontractors for the completion of such items and to pay for this work out of the monies retained for Final Completion, in addition to other remedies available by law.

10.5 PRE-REQUISITES TO FINAL ACCEPTANCE

- A. GENERAL: Prior to requesting Montgomery County's final inspection for final acceptance and final payment, Contractor shall complete the following and list known exceptions (if any) in request:
1. Submit final Payment Request with final releases and supporting documentation not previously submitted and accepted. Include Certificates of Insurance for products and completed operations as required.
 2. Submit updated final statement, accounting for additional (final) changes to Contract Sum.
 3. Submit copy of Montgomery County's final punch list of work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Montgomery County.
 4. Submit Consent of Surety to final payment if project has been bonded.
 5. Submit Release of all liens.
 6. Submit final liquidated damages settlement statement, if requested.
 7. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.
 8. Submit final corrections and modifications to as-built record drawings submitted at time of substantial completion.
 9. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents as required by the Contract Documents.
 10. If required, submit As-Built drawings, maintenance manuals, damage, if required, property survey, and similar final record information.
 11. Deliver maintenance tools, spare parts, extra stocks of materials, and similar physical items required, to Montgomery County.
- B. RE-INSPECTION PROCEDURE: Upon receipt of Contractor's notice that work has been completed and is ready for final inspection, including substantial completion punch list items except incomplete items delayed because of known circumstances, Montgomery County will re-inspect work. Upon completion of inspection, Montgomery County will either finalize the project or advise Contractor of work not complete or obligations not fulfilled for final acceptance.

SECTION 11 **WARRANTIES**

11.0 WARRANTY

- A. In addition to all other warranties, either expressed or implied herein, Contractor warrants to County that materials and equipment furnished hereunder will be of good quality and new, unless otherwise required or permitted by the Contract Documents, and that the work will be free from defects and will conform to the requirements of the Contract Documents. Materials, equipment or work not conforming to these requirements shall be deemed defective.

11.1 CORRECTION PERIOD

- A. If within a one-year period or longer, as specified by Montgomery County following final acceptance, or such longer period of time as may be prescribed by any law, statute or regulation applicable to the terms hereof, any work is found to be defective, Contractor shall promptly, without cost to County and in accordance with Montgomery County's written instructions, either correct such defective work or remove it and replace it with acceptable work at no additional cost to the County. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk or loss or damage, County may have the defective work corrected, removed or replaced; and all direct, indirect or consequential costs of such correction, removal or replacement will be paid by Contractor in response to an invoice by the County or the County may deduct the appropriate amount from any amounts owed, in addition to other remedies available by law.

SECTION 12 **GENERAL**

12.0 TERMINATION

- A. If Contractor fails to begin the performance of his Contract within the time specified or fails to make deliveries to provide sufficient workmen and equipment or sufficient materials to insure the prompt completion, or performs the Contract unsuitably or neglects or refuses to remove materials, or fails to correct work rejected as defective or unsuitable, or discontinues the prosecution of the work, or if the Contractor becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or allows any final judgment to stand against him unsatisfied for a period of forty-eight (48) hours, or performs the Contract in an unacceptable manner, the Purchasing Agent shall give notice, in writing, to Contractor and his surety of such delay, neglect or default. If Contractor, within a period of five (5) days after such notice, does not proceed in accordance therewith, then the Commissioners' Court shall, upon written Certificate from the Purchasing Agent of the fact of such delay, neglect or default, and Contractor's failure to comply with such notice, have full power and authority, without violation of the Contract, to take the prosecution of the work out of the hands of Contractor and his surety, to appropriate and/or use any or all materials and equipment on the ground as may be suitable and acceptable, and to enter into an agreement for the completion of said Contract according to the terms and provisions thereof, or to use such other methods as, in the Purchasing Agent's opinion, shall be required for the completion of said Contract in an acceptable manner. All costs and charges incurred by County, together with the cost of completing the work, shall be deducted from any money due, or which may become due Contractor. In case the cost and expense so incurred by County shall be less than the sum which would have been completed by Contractor, then the amount will be retained as liquidated damages, the parties agreeing that the actual total

cost of delay is impracticable and difficult to ascertain. If such expense shall exceed the sum which would have been payable under the Contract, then Contractor and the surety shall be liable and shall pay to County the amount of said excess. During the term of the contract, County retains the right to immediately cancel any agreement between the parties hereto should goods, materials, or services supplied by Bidder not meet specifications. County also retains the right to cancel the contract due to budget restraints. In any case, with or without cause, County may terminate any agreement upon thirty (30) days written notice deposited in the United States mail.

12.1 COUNTY AS POLITICAL SUBDIVISION

- A. County is a political subdivision of the State of Texas and acts by and through its duly qualified Commissioners' Court. Notwithstanding any other provisions contained herein, the Commissioners' Court retains the sole and exclusive authority to approve all Change Orders and applications for payment, and to determine the final acceptance of the work. In addition, all Change Orders resulting in an increase in contract price shall be executed by the County Auditor, who shall certify the availability of funds sufficient to satisfy such additional obligation and determine which Change Orders shall be void and of no effect, in the absence of such certification.

12.2 FUND AVAILABILITY

- A. It is expressly understood and agreed that County has available the total maximum sum of funds hereinafter certified available by its County Auditor for the purpose of satisfying County's obligations under the terms and provisions of this agreement; that, notwithstanding anything to the contrary or that may be construed to the contrary, the liability of certified funds available from time to time for the purpose of satisfying County's obligations under the terms and provisions of this agreement. Should County, without cause, fail or refuse to pay Contractor any consideration due under this agreement or fail or refuse to appropriate such additional funds, if any, as may be required to complete the Contract work, then the sole and exclusive remedy of Contractor shall be to terminate this agreement and to take possession of any goods or materials not then complete and in place, and for which County has not previously paid the consideration established under this agreement.

12.3 TAX EXEMPTION

- A. County is exempt from the application of Limited Sales and Use Taxes under Texas Tax Code Ann. Section 151.309. Contractor will obtain for County any and all exemptions available from both State and Federal Excise Taxes. County shall provide Contractor with Certificates of Exemption, upon request.

12.4 RECORDS

- A. Contractor shall maintain records for one (1) year after project has been finalized and accepted by Commissioners' Court.

12.5 TEXAS LAW

- A. These General Provisions and the contract documents shall be governed and interpreted under the laws of the State of Texas and the exclusive venues of any claim or cause of action arising out of, or related to, the performance of the Contract shall be in Montgomery County, Texas.

12.6 FORCE MAJEURE

A. Definitions

In this Clause, "Event of Force Majeure" means an event beyond the control of the County and the Contractor, which prevents a Party from complying with any of its obligations under this Contract, including but not limited to:

1. an act of God (such as, but not limited to, fires, explosions, earthquakes, drought, and floods);
2. war, hostilities (whether war be declared or not), invasion, act of foreign enemies, or embargo;
3. rebellion, revolution, insurrection, or military or usurped power, or civil war;
4. contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component of such assembly;
5. riot, commotion, strikes, go slows, lock outs or disorder, unless solely restricted to employees of the Contractor or of his Subcontractors; or
6. acts or threats of terrorism.

B. Consequences of a Force Majeure Event

Neither the County nor the Contractor shall be considered in breach of this Contract to the extent that performance of their respective obligations is prevented by an Event of Force Majeure that arises after the Effective Date. The Party (the “Affected Party”) prevented from carrying out its obligations hereunder shall give notice to the other Party of an Event of Force Majeure upon it being foreseen by, or becoming known to, the Affected Party. If and to the extent that the Contractor is prevented from executing its obligations by the Event of Force Majeure, it shall endeavor to continue to perform its obligations under the Contract so far as reasonably practicable and in accordance with good operating practices. If and to the extent that the Contractor suffers a delay during the Construction Period as a result of the Event of Force Majeure, then it shall be entitled to a reasonable extension for the Time for Completion.

SECTION 13 **BID REQUIREMENTS**

13.0 BIDDING REQUIREMENTS

- A. Bidders must fill out the Bid Form in its entirety. Failure to do so may result in Bid disqualification.
- 1) **BIDDERS MUST FILL IN AND SIGN THE ATTACHED TWO (2) PAGE CONTRACT. IF MONTGOMERY COUNTY HAS A COPY OF BIDDER’S ASSUMED NAME CERTIFICATE, DBA (DOING BUSINESS AS) CERTIFICATE, OR CORPORATE CERTIFICATE, THEN BIDDER MAY DISREGARD THE SECTION TITLED AKNOWLEDGMENT. IN ORDER FOR YOUR BID TO MEET MONTGOMERY COUNTY BID REQUIREMENTS, THE COUNTY MUST HAVE IN OUR RECORDS THE ABOVE MENTIONED CERTIFICATES.**
 - 2) **NO BID WILL BE ACCEPTED AFTER THE SPECIFIED DUE DATE AND TIME.**
 - 3) **PRICES WILL REMAIN FIRM FOR THE DURATION OF THIS CONTRACT. PRICES SHALL BE ALL INCLUSIVE. ANY PRICE NOT SHOWN ON THIS CONTRACT WILL NOT BE HONORED FOR PAYMENT WHEN SUBMITTED BY VENDOR.**
- B. **THE COMMISSIONERS’ COURT OF MONTOMGOMERY COUNTY RESERVES THE RIGHT TO AWARD THIS CONTRACT TO THE BIDDER(S) WHO PROVIDES THE LOWEST, BEST, AND MOST RESPONSIBLE BID, IN ACCORDANCE WITH**

THE LAWS OF THE STATE OF TEXAS. ALTERNATE BIDS WILL NOT BE ACCEPTED.

- C. ALL MONTGOMERY COUNTY STANDARD TERMS AND CONDITIONS WILL APPLY UNLESS SPECIFICALLY ADDRESSED IN THIS INVITATION TO BID.**
- D. MONTGOMERY COUNTY RESERVES THE RIGHT TO MAKE AN AWARD ON AN “ALL OR NONE” BASIS.**
- E. Failure or inability to adhere to any of the preceding requirements may serve as the basis for bid disqualification.**
- F. Contractor will be required to call for all utility locations, prior to performing any work as per Texas Utilities Code, Chapter 251, the Underground Facility Damage Prevention and Safety Act.**

SECTION 14

COMMUNITY DEVELOPMENT REQUIREMENTS

- Parties to this contract / subcontract will ensure only documented persons lawfully admitted for permanent residence to the United States or authorized under law to be employed are hired under the terms of the contract / subcontract. Any party convicted of violating this shall repay the public subsidy with interest, at a rate of 5% per annum, not later than the 120th day after the date that the Texas Department of Housing and Community Affairs notifies Montgomery County of the violation in accordance with House Bill 1196.
- No funds awarded under this contract/subcontract will be used for influencing any employee or agency, the outcome of any election, lobbying efforts, the defeat or passage of any legislation, hiring employees of or support any candidate for the legislative, executive, or judicial branches of government for Montgomery County, the State of Texas, or the United States.
- No person shall be excluded or denied benefits, access, or discriminated against in any manner for any program or activity associated with this contract/subcontract on the grounds of race, color, national origin, religion, sex, age or handicap
- Commitment of funds and/or site approval may occur only upon a satisfactory completion of an environmental review and approval of the Texas Department of Housing and Community Affairs release of funds. The project will be conditioned upon Montgomery County’s determination to proceed, modify, or cancel the project based on the environmental review results.
- Contracts or subcontracts will not be awarded to any party debarred, suspended, excluded or ineligible for participation in federal assistance programs at any time during the period of the contract/subcontract.
- Section 3 of the HUD Act requires that parties who contract/subcontract ensure that employment and other economic activities generated by HUD financial assistance shall, to the greatest extent feasible, be directed to low and very-low income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low and very-low income persons in accordance with 24 CFR 135.1.

CERTIFICATION OF NONSEGREGATED FACILITIES - 41 CFR PART 60-1.8

Notice to Prospective Federally Assisted Construction Contractors

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a federally assisted

construction contract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001. **Notice to Prospective Subcontractors of Requirements for Certification of Non-Segregated Facilities**

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a subcontract exceeding \$10,000, which is not exempt from the provisions of the Equal Opportunity Clause.

2. Contractors receiving subcontract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

CERTIFICATION OF NONSEGREGATED FACILITIES

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally-assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

SECTION 15

APPLICABLE LAWS AND REGULATIONS

(unless specifically waived by County in writing)

Per the Code of Federal Regulations, Title 2 C.F.R., § 200.326, contracts of the non-federal entity must contain the applicable provisions described in Appendix II to Part 200 – Contract Provisions for non-federal Entity Contracts Under Federal Awards.

If applicable for Federal Funding, the following will apply:

1. Remedies
 - a) Montgomery County may terminate this contract in whole or, from time to time, in part, for Montgomery County's convenience or because of the failure of the Contractor to fulfill the contract obligations. Montgomery County shall terminate by delivering to the Contractor a Notice of Termination specifying the nature, extent, and effective date of the termination. Upon receipt of the notice, the Contractor shall (1) immediately discontinue all services affected (unless the notice directs otherwise), and (2) deliver to Montgomery County all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this contract, whether completed or in process.
 - b) If the termination is for the convenience of Montgomery County, the Contracting Officer shall make an equitable adjustment in the contract price but shall allow no anticipated profit on unperformed services.
 - c) If the termination is for failure of the Contractor to fulfill the contract obligations, Montgomery County may complete the work by contract or otherwise and the Contractor shall be liable for any additional cost incurred by the County.
 - d) If, after termination for failure to fulfill contract obligations, it is determined that the Contractor had not failed, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the County.
 - e) The rights and remedies of Montgomery County provided in this clause are in addition to any other rights and remedies provided by law or under this contract.
2. Dispute Resolution Upon County's determination of breach or default on the part of Provider, County shall give the Provider written notice of default and ten (10) days to cure, from the date of Provider's receipt of notice. If the breach is not timely remedied by Provider to the satisfaction and approval of County, default will be declared. Upon a declaration of breach of contract or default, County may exercise any and all of its rights afforded by law, including but not limited to those referenced in this Contract and/or Master Agreement provisions. In the event of litigation between the parties with respect to this Contract, or any aspect(s) thereof, subject to the INDEMNITY provision above, the losing party shall pay all costs and expenses incurred by the prevailing party in connection with such litigation, including reasonable attorneys' fees and costs. Any litigation or dispute resolution procedures shall take place at the type of Court or, if deemed appropriate by County, the local Dispute Resolution Center, that is designated and approved by County. IN NO EVENT DOES COUNTY WAIVE ANY IMMUNITY, DEFENSE OR LIABILITY CAP AVAILABLE TO IT BY LAW. Non-Appropriation: Notwithstanding anything to the contrary contained herein or in any other document, in the event funding is required outside of already available grant funds and if the Commissioners Court of Montgomery County fails to provide funding for this Contract during budget planning and adoption of the budget for the following fiscal year from the effective date of this Contract, County may terminate this Contract upon thirty (30) days written notice to Provider and/or Provider may terminate this Contract upon thirty (30) days written notice to County and such termination shall be Provider's sole remedy for County's nonappropriation of funds. The County's failure to provide funding for this Contract shall not be a default or breach under this Contract.
3. Termination for Convenience. This Agreement may be terminated by either Party, with or without cause, at any time during the initial term or any renewal or extension, upon thirty (30) days written notice to the other Party.

- LEAD-BASED PAINT

Section 302 of the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. Sec. 4831(b)) and the procedures established by the Department thereunder.

- ENVIRONMENTAL LAW AND AUTHORITIES

“Environmental Review Procedures for Recipients assuming HUD Environmental Responsibilities,” 24 CFR Part 58, and the laws and authorities specified at 24 CFR Sections 58.5 and 58.6.

- ACQUISITION/RELOCATION

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. Sec. 4601 et seq.), 24 CFR Part 42, and 24 CFR Section 570.606.

- FAITH-BASED ACTIVITIES

Executive Order 13279 of December 12, 2002 - Equal Protection of the Laws for Faith-Based and Community Organizations, and 24 CFR §200(j).

- COMPLIANCE WITH AIR AND WATER ACTS

a) In compliance with the Clean Air Act, as amended, 41 U.S.C. Sec. 7401 et.seq., and the regulations of the Environmental Protection Agency with respect thereto, the Contractor agrees that:

- 1) Any facility to be utilized in the performance of this Contract or any subcontract shall not be a facility listed on the EPA List of Violating Facilities pursuant to 40 CFR 15.20.
- 2) He will comply with all requirements of Section 114 of the Clean Air Act, as amended.
- 3) Materials utilized in the project shall be free of any hazardous materials, except as may be specifically provided for in these specifications.

b) If the Contractor encounters existing material on sites owned or controlled by Montgomery County or in material sources that are suspected by visual observation or smell to contain hazardous materials, the Contractor shall immediately notify the Engineer and Montgomery County. Montgomery County will be responsible for testing, for removal or disposition of hazardous materials on sites owned or controlled by Montgomery County. Montgomery County may suspend the work, wholly or in part during the testing, removal or disposition of hazardous materials on sites owned or controlled by Montgomery County.

- JOB OFFICES

a) The Contractor and his subcontractors may maintain such office and storage facilities on the site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. Montgomery County shall be consulted with regard to locations.

b) Upon completion of the improvements, or as directed by Montgomery County, the Contractors shall remove all such temporary structure and facilities from the site, and leave the site of the work in the condition required by the Contract.

- PARTIAL USE OF SITE IMPROVEMENTS

Montgomery County may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and be accepted as complying with the technical specifications and if in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodation for which it was intended, provided:

a) The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.

b) The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of

such sections.

The period of guarantee stipulated in the Section 10 hereof shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

§ 3703. Report of violations and withholding of amounts for unpaid wages and liquidated damages

(a) REPORTS OF INSPECTORS.—An officer or individual designated as an inspector of the work to be performed under a contract described in section 3701 of this title, or to aid in the enforcement or fulfillment of the contract, on observation or after investigation immediately shall report to the proper officer of the Federal Government, a territory of the United States, or the District of Columbia all violations of this chapter occurring in the performance of the work, together with the name of each laborer or mechanic who was required or permitted to work in violation of this chapter and the day the violation occurred.

(b) WITHHOLDING AMOUNTS.—

(1) DETERMINING AMOUNT.—The amount of unpaid wages and liquidated damages owing under this chapter shall be determined administratively.

(2) AMOUNT DIRECTED TO BE WITHHELD.—The officer or individual whose duty it is to approve the payment of money by the Government, territory, or District of Columbia in connection with the performance of the contract work shall direct the amount of—

(A) liquidated damages to be withheld for the use and benefit of the Government, territory, or District; and

(B) unpaid wages to be withheld for the use and benefit of the laborers and mechanics who were not compensated as required under this chapter.

(3) PAYMENT.—The Secretary of Labor shall pay the amount administratively determined to be due directly to the laborers and mechanics from amounts withheld on account of underpayments of wages if the amount withheld is adequate. If the amount withheld is not adequate, the Secretary of Labor shall pay an equitable proportion of the amount due.

(c) RIGHT OF ACTION AND INTERVENTION AGAINST CONTRACTORS AND SURETIES.—If the accrued payments withheld under the terms of the contract are insufficient to reimburse all the laborers and mechanics who have not been paid the wages required under this chapter, the laborers and mechanics, in the case of a department or agency of the Government, have the same right of action and intervention against the contractor and the contractor's sureties as is conferred by law on persons furnishing labor or materials. In those proceedings it is not a defense that the laborers and mechanics accepted or agreed to accept less than the required rate of wages or voluntarily made refunds.

(d) REVIEW PROCESS.—

(1) TIME LIMIT FOR APPEAL.—Within 60 days after an amount is withheld as liquidated damages, any contractor or subcontractor aggrieved by the withholding may appeal to the head of the agency of the Government or territory for which the contract work is done or which is providing financial assistance for the work, or to the Mayor of the District of Columbia in the case of liquidated damages withheld for the use and benefit of the District.

(2) REVIEW BY AGENCY HEAD OR MAYOR.—The agency head or Mayor may review the administrative determination of liquidated damages. The agency head or Mayor may issue a final order affirming the determination or may recommend to the Secretary of Labor that an appropriate adjustment in liquidated damages be made, or that the contractor or subcontractor be relieved of liability for the liquidated damages, if it is found that the amount is incorrect or that the contractor or subcontractor violated this chapter inadvertently, notwithstanding the exercise of due care by the contractor or subcontractor and the agents of the contractor or subcontractor.

(3) REVIEW BY SECRETARY.—The Secretary shall review all pertinent facts in the matter and may conduct any investigation the Secretary considers necessary in order to affirm or reject the recommendation. The decision of the Secretary is final.

(4) JUDICIAL ACTION.—A contractor or subcontractor aggrieved by a final order for the withholding of liquidated damages may file a claim in the United States Court of Federal Claims within 60 days after the final order. A final order of the agency head, Mayor, or Secretary is conclusive with respect to findings of fact if supported by substantial evidence.

(e) APPLICABILITY OF OTHER LAWS.—

(1) REORGANIZATION PLAN.—Reorganization Plan Numbered 14 of 1950 (eff. May 24, 1950, 64 Stat. 1267) applies to this chapter.

(2) SECTION 3145.—Section 3145 of this title applies to contractors and subcontractors referred to in section 3145 who are engaged in the performance of contracts subject to this chapter

§ 3704. Health and safety standards in building trades and construction industry

(a) CONDITION OF CONTRACTS.—

(1) IN GENERAL.—Each contract in an amount greater than \$100,000 that is entered into under legislation subject to Reorganization Plan Numbered 14 of 1950 (eff. May 24, 1950, 64 Stat. 1267) and is for construction, alteration, and repair, including painting and decorating, must provide that no contractor or subcontractor contracting for any part of the contract work shall require any laborer or mechanic employed in the performance of the contract to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to health or safety, as established under construction safety and health standards the Secretary of Labor prescribes by regulation based on proceedings pursuant to section 553 of title 5, provided that the proceedings include a hearing similar in nature to that authorized by section 553 of title 5.

(2) CONSULTATION.—In formulating standards under this section, the Secretary shall consult with the Advisory Committee created by subsection (d).

(b) COMPLIANCE.—

(1) ACTIONS TO GAIN COMPLIANCE.—The Secretary may make inspections, hold hearings, issue orders, and make decisions based on findings of fact as the Secretary considers necessary to gain compliance with this section and any health and safety standard the Secretary prescribes under subsection (a). For those purposes the Secretary and the United States district courts have the authority and jurisdiction provided by sections 6506 and 6507 of title 41.

(2) REMEDY WHEN NONCOMPLIANCE FOUND.—When the Secretary, after an opportunity for an adjudicatory hearing by the Secretary, establishes noncompliance under this section of any condition of a contract described in—

(A) section 3701(b)(1)(B)(i) or (ii) of this title, the governmental agency for which the contract work is done may cancel the contract and make other contracts for the completion of the contract work, charging any additional cost to the original contractor; or

(B) section 3701(b)(1)(B)(iii) of this title, the governmental agency which is providing the financial guarantee, assistance, or insurance for the contract work may withhold the guarantee, assistance, or insurance attributable to the performance of the contract.

(3) NONAPPLICABILITY.—Section 3703 of this title does not apply to the enforcement of this section.

(c) REPEATED VIOLATIONS.—

(1) TRANSMITTAL OF NAMES OF REPEAT VIOLATORS TO COMPTROLLER GENERAL.—When the Secretary, after an opportunity for an agency hearing, decides on the record that, by repeated willful or grossly negligent violations of this chapter, a contractor or subcontractor has demonstrated that subsection (b) is not effective to protect the safety and health of the employees of the contractor or subcontractor, the Secretary shall make a finding to that effect and, not sooner than 30 days after giving notice of the finding to all interested persons, shall transmit the name of the contractor or subcontractor to the Comptroller General.

(2) BAN ON AWARDING CONTRACTS.—The Comptroller General shall distribute each name transmitted under paragraph (1) to all agencies of the Federal Government. Unless the Secretary otherwise recommends, the contractor, subcontractor, or any person in which the contractor or subcontractor has a substantial interest may not be awarded a contract subject to this section until three years have elapsed from the date the name is transmitted to the Comptroller General. The Secretary shall terminate the ban if, before the end of the three-year period, the Secretary, after affording interested persons due notice and an opportunity for a hearing, is satisfied that a contractor or subcontractor whose name was transmitted to the Comptroller General will comply responsibly with the requirements of this section. The Comptroller General shall inform all Government agencies after being informed of the Secretary's action.

(3) JUDICIAL REVIEW.—A person aggrieved by the Secretary's action under this subsection or subsection (b) may file with the appropriate United States court of appeals a petition for review of the Secretary's action within 60 days after receiving notice of the Secretary's action. The clerk of the court immediately shall send a copy of the petition to the Secretary. The Secretary then shall file with the court the record on which the action is based. The findings of fact by the Secretary, if supported by substantial evidence, are final. The court may enter a decree enforcing, modifying, modifying and enforcing, or setting aside any part of, the order of the Secretary or the appropriate Government agency. The judgment of the court may be reviewed by the Supreme Court as provided in section 1254 of title 28.

(d) ADVISORY COMMITTEE ON CONSTRUCTION SAFETY AND HEALTH.—

(1) ESTABLISHMENT.—There is an Advisory Committee on Construction Safety and Health in the Department of Labor.

(2) COMPOSITION.—The Committee is composed of nine members appointed by the Secretary, without regard to chapter 33 of title 5, as follows:

(A) Three members shall be individuals representative of contractors to whom this section applies.

(B) Three members shall be individuals representative of employees primarily in the building trades and construction industry engaged in carrying out contracts to which this section applies.

(C) Three members shall be public representatives who shall be selected on the basis of their professional and technical competence and experience in the construction health and safety field.

(3) CHAIRMAN.—The Secretary shall appoint one member as Chairman. (4) DUTIES.—The Committee shall advise the Secretary—

(A) in formulating construction safety and health standards and other regulations; and

(B) on policy matters arising in carrying out this section.

(5) EXPERTS AND CONSULTANTS.—The Secretary may appoint special advisory and technical experts or consultants as may be necessary to carry out the functions of the Committee.

(6) COMPENSATION AND EXPENSES.—Committee members are entitled to receive compensation at rates the Secretary fixes, but not more than \$100 a day, including travel time, when performing Committee business, and expenses under section 5703 of title 5.

§ 3705. Safety programs

The Secretary of Labor shall—

- (1) provide for the establishment and supervision of programs for the education and training of employers and employees in the recognition, avoidance, and prevention of unsafe working conditions in employment covered by this chapter; and
- (2) collect reports and data and consult with and advise employers as to the best means of preventing injuries

§ 3706. Limitations, variations, tolerances, and exemptions

The Secretary of Labor may provide reasonable limitations to, and may prescribe regulations allowing reasonable variations to, tolerances from, and exemptions from, this chapter that the Secretary may find necessary and proper in the public interest to prevent injustice or undue hardship or to avoid serious impairment of the conduct of Federal Government business.

§ 3707. Contractor certification or contract clause in acquisition of commercial items not required

In a contract to acquire a commercial product (as defined in section 103 of title 41) or a commercial service (as defined in section 103a of title 41), a certification by a contractor or a contract clause may not be required to implement a prohibition or requirement in this chapter.

§ 3708. Criminal penalties

A contractor or subcontractor having a duty to employ, direct, or control a laborer or mechanic employed in the performance of work contemplated by a contract to which this chapter applies that intentionally violates this chapter shall be fined under title 18, imprisoned for not more than six months, or both.

Further Compliance with the Contract Work Hours and Safety Standards Act

For contracts that are only subject to Contract Work hours and Safety Standards Act and are not subject to the other statutes in 29 C.F.R § 5.1 where an additional contract provision is required.

- (1) The contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.
- (2) Records to be maintained under this provision shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Department of Homeland Security, the Federal Emergency Management Agency, and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.”

4. Clean Air Act and the Federal Water Pollution Control Act (42 U.S.C. § 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. §1251-1387)

Clean Air Act

- (1) The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
- (2) The Contractor agrees to report each violation to Montgomery County, Texas and understands, and agrees that Montgomery County, Texas will, in turn, report each violation as required to assure notification to the appropriate Environmental Protection Agency Regional Office.
- (3) The contractor agrees to include these requirements in each subcontract exceeding \$150,000 finance in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

- (1) The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §1251 et seq.
- (2) The Contractor agrees to report each violation to Montgomery County, Texas and understands, and agrees that Montgomery County, Texas will, in turn, report each violation as required to assure notification to the State of Texas General Land office, Federal Emergency Management Agency (FEMA), and the appropriate Environmental Protection Agency Regional Office.
- (3) The contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FEMA

5. Debarment and Suspension

- (1) This contract is a covered transaction for purposes of 2 C.F.R. part 180 and 2 C.F.R. part 3000. As such, the Contractor is required to verify that none of the Contractor, its principals (defined at 2 C.F.R. § 180.995) or affiliates (defined at 2 C.F.R. § 180.905), are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

- (2) The Contractor must comply with 2 C.F.R. 180, Subpart C and 2 C.F.R. part 3000, subpart C and must include the requirement to comply with these regulations in any lower tier covered transaction it enters into.
 - (3) The certification in this clause is a material representation of fact relied upon by Montgomery County. If it is later determined that the contractor did not comply with 2 C.F.R. part 180, subpart C and 2 C.F.R. part 3000, subpart C, in addition to remedies available to Montgomery County, the Federal Government may pursue available remedies, including, but not limited to, suspension and/or debarment.
 - (4) The bidder or respondent agrees to comply with the requirements of 2 C.F.R. part 180, subpart C and 2 C.F.R. part 3000, subpart C, while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or respondent further agrees to include a provision requiring such compliance in its lower tier covered transactions.
6. Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)
Contractors who apply or bid for an award of \$100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used federally appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the federal awarding agency..
Attached 44 C.F.R. part 18 Certification Regarding Lobbying to be submitted with each bid or offer exceeding \$100,000
7. Procurement of Recovered Materials (§200.323)
(1) In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired –
 - i. Competitively within a time frame providing for compliance with the contract performance schedule;
 - ii. Meeting contract performance requirements; or
 - iii. At a reasonable price.
(2) Information about this requirement is available at EPA’s Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>
(3) [The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.](#)
8. Access to Records. The following access to records requirements apply to this contract:
(1) The Contractor agrees to provide Montgomery County, Texas Office of Community Development, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions.
(2) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
(3) The contractor agrees to provide the any authorized representative access to construction or other work sites pertaining to the work being completed under the contract.
9. DHS Seal, Logo, and Flags
The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval. The contractor shall include this provision in any subcontracts.
10. Compliance with Federal Law, Regulations, and Executive Orders.
This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion of the contract. The contractor will comply will all applicable federal law, regulations, executive orders, FEMA policies, procedures, and directives.
11. No Obligation by Federal Government.
The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.
12. Program Fraud and False or Fraudulent Statements or Related Acts
The contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the contractor’s actions pertaining to this contract.
13. Prohibition on certain telecommunications and video surveillance services or equipment.
CFR §200.216 prohibits expending federal loan or grant funds to procure or obtain certain telecommunications and video surveillance services or equipment. To the extent applicable and when required by Montgomery County, Texas, Vendor agrees

to provide such information or certification as may reasonably be requested by Montgomery County, Texas, to confirm whether any telecommunications or video surveillance services or equipment provided by Vendor is covered equipment or covered services under 2 CFR §200.216.

(a) Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:

- (1) Procure or obtain;
- (2) Extend or renew a contract to procure or obtain; or
- (3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115–232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

(b) In implementing the prohibition under Public Law 115–232, section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained.

CFR §200.216

(a) Costs incurred for telecommunications and video surveillance services or equipment such as phones, internet, video surveillance, cloud servers are allowable except for the following circumstances:

(b) Obligating or expending covered telecommunications and video surveillance services or equipment or services as described in § 200.216 to:

- (1) Procure or obtain, extend or renew a contract to procure or obtain;
- (2) Enter into a contract (or extend or renew a contract) to procure; or
- (3) Obtain the equipment, services, or systems.

(a) Definitions. As used in this clause, the terms backhaul; covered foreign country; covered telecommunications equipment or services; interconnection arrangements; roaming; substantial or essential component; and telecommunications equipment or services have the meaning as defined in FEMA Policy 405-143-1, Prohibitions on Expending FEMA Award Funds for Covered Telecommunications Equipment or Services (Interim), as used in this clause—

(b) Prohibitions.

(1) Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of an executive agency on or after Aug. 13, 2020, from obligating or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons.

(2) Unless an exception in paragraph (c) of this clause applies, the contractor and its subcontractors may not use grant, cooperative agreement, loan, or loan guarantee funds from the Federal Emergency Management Agency to:

- i. Procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;
- ii. Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;
- iii. Enter into, extend, or renew contracts with entities that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system; or
- iv. Provide, as part of its performance of this contract, subcontract, or other contractual instrument, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

(c) Exceptions.

(1) This clause does not prohibit contractors from providing—

- i. A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or
- ii. Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

- (2) By necessary implication and regulation, the prohibitions also do not apply to:
 - i. Covered telecommunications equipment or services that:
 - i. Are not used as a substantial or essential component of any system; and
 - ii. Are not used as critical technology of any system.
 - ii. Other telecommunications equipment or services that are not considered covered telecommunications equipment or services.

(d) Reporting requirement.

(1) In the event the contractor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the contractor is notified of such by a subcontractor at any tier or by any other source, the contractor shall report the information in paragraph (d)(2) of this clause to the recipient or subrecipient, unless elsewhere in this contract are established procedures for reporting the information.

(2) The Contractor shall report the following information pursuant to paragraph (d)(1) of this clause:

- i. Within one business day from the date of such identification or notification: The contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.
- ii. Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: Any further available information about mitigation actions undertaken or recommended. In addition, the contractor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) Subcontracts. The Contractor shall insert the substance of this clause, including this paragraph (e), in all subcontracts and other contractual instruments.

14. Right to inventions made under a contract or agreement:

If Montgomery County, Texas', Federal award meets the definition of "funding agreement" under 37 CFR 401.2(a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance or experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency. Vendor agrees to comply with the above requirements when applicable.

15. Domestic preferences for procurement (§200.322(a))

(a) As appropriate and to the extent consistent with law, the non-Federal entity should, to the greatest extent practicable under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award.

(b) For purposes of this section:

(1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

(2) "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

(c) Federal agencies providing Federal financial assistance for infrastructure projects must implement the Buy America preferences set forth in 2 CFR part 184.

16. Profit as a separate element of price:

For purchases using federal funds in excess of the Simplified Acquisition Threshold, Montgomery County, Texas may be required to negotiate profit as a separate element of the price. See, 2 CFR 200.324(b). When required by Montgomery County, Texas, Vendor agrees to provide information and negotiate with Montgomery County, Texas regarding profit as a separate element of the price for a particular purchase.

17. Affirmative Socioeconomic Steps.

If subcontracts are to be let, the prime contractor is required to take all necessary steps identified in 2 C.F.R. §200.321(b)(1)-(5) to ensure that small and minority businesses, women's business enterprises, and labor surplus area firms are used when possible.

18. License and Delivery of Works Subject to Copyright and Data Rights

The Contractor grants to Montgomery County, Texas, a paid-up, royalty-free, nonexclusive, irrevocable, worldwide license in data first produced in the performance of this contract to reproduce, publish, or otherwise use, including prepare derivative works, distribute copies to the public, and perform publicly and display publicly such data. For data required by the contract but not first produced in the performance of this contract, the Contractor will identify such data and grant to Montgomery County, Texas or acquires on its behalf a license of the same scope as for data first produced in the performance of this contract. Data, as used herein, shall include any work subject to copyright under 17 U.S.C. § 102, for example, any written reports or literary works, software and/or source code, music, choreography, pictures or images, graphics, sculptures, videos, motion pictures or other audiovisual works, sound and/or video recordings, and architectural works. Upon or before the completion of this contract, the Contractor will deliver to Montgomery County, Texas data first produced in the performance of this contract and data required by the contract but not first produced in the performance of this contract in formats acceptable by Montgomery County, Texas.

19. Buy America Preferences for Infrastructure Projects, 2 C.F.R. Part 184

§ 184.2 Purpose and policy.

(a) Purpose. This part provides guidance to Federal awarding agencies on the implementation of the Buy America Preference applicable to Federal financial assistance set forth in part I of subtitle A, Buy America Sourcing Preferences, of the Build America, Buy America Act included in the Infrastructure Investment and Jobs Act (Pub. L. 117-58) at division G, title IX, subtitle A, part I, sections 70911 through 70917.

(b) Policy. The head of each Federal agency must ensure that none of the funds made available for a Federal award for an infrastructure project may be obligated unless all of the iron, steel, manufactured products, and construction materials incorporated into the project are produced in the United States. See section 70914(a) of the Build America Buy America Act.

§ 184.2 Applicability, effective date, and severability.

(a) Non-applicability of this part to existing Buy America Preferences. This part does not apply to a Buy America Preference meeting or exceeding the requirements of section 70914 of the Build America, Buy America Act applied by a Federal Awarding Agency to Federal awards for infrastructure projects before November 15, 2021.

(b) Effective date of this part. The effective date of this part is October 23, 2023. Except as provided in paragraph (c) of this section, this part applies to Federal awards obligated on or after its effective date. Awards obligated on or after May 14, 2022, the effective date of the Build America, Buy America Act, and before the effective date of this part, are instead subject to OMB Memorandum M-22-11.

(c) Modified effective date of this part for certain infrastructure projects. If an infrastructure project that has previously received a Federal award obligated on or after May 14, 2022, but before the effective date of this part receives an additional Federal award obligated within one year of the effective date of this part, the additional Federal award is subject to OMB Memorandum M-22-11. However, if significant design or planning changes are made to the infrastructure project, the Federal awarding agency may apply this part to the additional Federal award. Federal awards for an infrastructure project obligated after one year from the effective date of this part are subject to this part, regardless of whether this part applied to previous awards for the project.

(d) Severability. The provisions of this part are separate and severable from one another. OMB intends that if a provision of this part is held to be invalid or unenforceable as applied to a particular person or circumstance, the provision should be construed so as to continue to give the maximum effect permitted by law as applied to other persons not similarly situated or to dissimilar circumstances. If any provision is determined to be wholly invalid and unenforceable, it should be severed from the remaining provisions of this part, which should remain in effect.

§ 184.3 Definitions.

Acronyms used in this part have the same meaning as provided in 2 CFR 200.0. Terms not defined in this part have the same meaning as provided in 2 CFR 200.1. As used in this part:

Build America, Buy America Act means division G, title IX, subtitle A, parts I–II, sections 70901 through 70927 of the Infrastructure Investment and Jobs Act (Pub. L. 117–58).

Buy America Preference means the “domestic content procurement preference” set forth in section 70914 of the Build America, Buy America Act, which requires the head of each Federal agency to ensure that none of the funds made available for a Federal award for an infrastructure project may be obligated unless all of the iron, steel, manufactured products, and construction materials incorporated into the project are produced in the United States.

Component means an article, material, or supply, whether manufactured or unmanufactured, incorporated directly into: a manufactured product; or, where applicable, an iron or steel product.

Construction materials means articles, materials, or supplies that consist of only one of the items listed in paragraph (1) of this definition, except as provided in paragraph (2) of this definition. To the extent one of the items listed in paragraph (1) contains as inputs other items listed in paragraph (1), it is nonetheless a construction material.

(1) The listed items are:

- (i) Non-ferrous metals;
- (ii) Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- (iii) Glass (including optic glass);
- (iv) Fiber optic cable (including drop cable);
- (v) Optical fiber;
- (vi) Lumber;
- (vii) Engineered wood; and
- (viii) Drywall.

(2) Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material.

Infrastructure project means any activity related to the construction, alteration, maintenance, or repair of infrastructure in the United States regardless of whether infrastructure is the primary purpose of the project. See also paragraphs (c) and (d) of § 184.4.

Iron or steel products means articles, materials, or supplies that consist wholly or predominantly of iron or steel or a combination of both.

Manufactured products means:

(1) Articles, materials, or supplies that have been:

- (i) Processed into a specific form and shape; or
- (ii) Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

(2) If an item is classified as an iron or steel product, a construction material, or a section 70917(c) material under § 184.4(e) and the definitions set forth in this section, then it is not a manufactured product. However, an article,

material, or supply classified as a manufactured product under § 184.4(e) and paragraph (1) of this definition may include components that are construction materials, iron or steel products, or section 70917(c) materials.

Manufacturer means the entity that performs the final manufacturing process that produces a manufactured product.

Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.

Produced in the United States means:

(1) In the case of iron or steel products, all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

(2) In the case of manufactured products:

(i) The product was manufactured in the United States; and

(ii) The cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard that meets or exceeds this standard has been established under applicable law or regulation for determining the minimum amount of domestic content of the manufactured product. See § 184.2(a). The costs of components of a manufactured product are determined according to § 184.5.

(3) In the case of construction materials, all manufacturing processes for the construction material occurred in the United States. See § 184.6 for more information on the meaning of “all manufacturing processes” for specific construction materials.

Section 70917(c) materials means cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives. See section 70917(c) of the Build America, Buy America Act.

§ 184.4 Applying the Buy America Preference to a Federal award.

(a) Applicability of Buy America Preference to infrastructure projects. The Buy America Preference applies to Federal awards where funds are appropriated or otherwise made available for infrastructure projects in the United States, regardless of whether infrastructure is the primary purpose of the Federal award.

(b) Including the Buy America Preference in Federal awards. All Federal awards with infrastructure projects must include the Buy America Preference in the terms and conditions. The Buy America Preference must be included in all subawards, contracts, and purchase orders for the work performed, or products supplied under the Federal award. The terms and conditions of a Federal award flow down to subawards to subrecipients unless a particular section of the terms and conditions of the Federal award specifically indicate otherwise.

(c) Infrastructure in general. Infrastructure encompasses public infrastructure projects in the United States, which includes, at a minimum, the structures, facilities, and equipment for roads, highways, and bridges; public transportation; dams, ports, harbors, and other maritime facilities; intercity passenger and freight railroads; freight and intermodal facilities; airports; water systems, including drinking water and wastewater systems; electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property; and structures, facilities, and equipment that generate, transport, and distribute energy including electric vehicle (EV) charging.

(d) Interpretation of infrastructure. The Federal awarding agency should interpret the term “infrastructure” broadly and consider the description provided in paragraph (c) of this section as illustrative and not exhaustive. When determining if a particular project of a type not listed in the description in paragraph (c) constitutes “infrastructure,” the Federal awarding agency should consider whether the project will serve a public function, including whether the project is publicly owned and operated, privately operated on behalf of the public, or is a place of public accommodation, as opposed to a project that is privately owned and not open to the public.

(e) Categorization of articles, materials, and supplies.

(1) An article, material, or supply should only be classified into one of the following categories:

- (i) Iron or steel products;
- (ii) Manufactured products;
- (iii) Construction materials; or
- (iv) Section 70917(c) materials.

(2) An article, material, or supply should not be considered to fall into multiple categories. In some cases, an article, material, or supply may not fall under any of the categories listed in paragraph (e)(1) of this section. The classification of an article, material, or supply as falling into one of the categories listed in paragraph (e)(1) must be made based on its status at the time it is brought to the work site for incorporation into an infrastructure project. In general, the work site is the location of the infrastructure project at which the iron, steel, manufactured products, and construction materials will be incorporated.

(f) Application of the Buy America Preference by category. An article, material, or supply incorporated into an infrastructure project must meet the Buy America Preference for only the single category in which it is classified.

§ 184.5 Determining the cost of components for manufactured products.

In determining whether the cost of components for manufactured products is greater than 55 percent of the total cost of all components, use the following instructions:

- (a) For components purchased by the manufacturer, the acquisition cost, including transportation costs to the place of incorporation into the manufactured product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or
- (b) For components manufactured by the manufacturer, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (a) of this section, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the manufactured product.

§ 184.6 Construction material standards.

(a) The Buy America Preference applies to the following construction materials incorporated into infrastructure projects. Each construction material is followed by a standard for the material to be considered “produced in the United States.”

- (1) Non-ferrous metals. All manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.
- (2) Plastic and polymer-based products. All manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.
- (3) Glass. All manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.
- (4) Fiber optic cable (including drop cable). All manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.
- (5) Optical fiber. All manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.
- (6) Lumber. All manufacturing processes, from initial debarking through treatment and planing, occurred in the United States.
- (7) Drywall. All manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

(8) Engineered wood. All manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

(b) Except as specifically provided, only a single standard under paragraph (a) of this section should be applied to a single construction material.

§ 184.7 Federal awarding agency's issuance of a Buy America Preference waiver.

(a) Justification of waivers. A Federal awarding agency may waive the application of the Buy America Preference in any case in which it finds that:

(1) Applying the Buy America Preference would be inconsistent with the public interest (a “public interest waiver”);

(2) Types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality (a “nonavailability waiver”); or

(3) The inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall infrastructure project by more than 25 percent (an “unreasonable cost waiver”).

(b) Requesting a waiver. Recipients may request waivers from a Federal awarding agency if the recipient reasonably believes a waiver is justified under paragraph (a) of this section. A request from a recipient to waive the application of the Buy America Preference must be provided to the Federal awarding agency in writing. Federal awarding agencies must provide waiver request submission instructions and guidance on the format, contents, and supporting materials required for waiver requests from recipients.

(c) Before issuing a proposed waiver. Before issuing a proposed waiver, the Federal awarding agency must prepare a detailed written explanation for the proposed determination to issue the waiver based on a justification listed under paragraph (a) of this section, including for waivers requested by a recipient.

(d) Before issuing a final waiver. Before issuing a final waiver, the Federal awarding agency must:

(1) Make the proposed waiver and the detailed written explanation publicly available in an easily accessible location on a website designated by the Federal awarding agency and the Office of Management and Budget;

(2) Except as provided in paragraph (e) of this section, provide a period of not less than 15 calendar days for public comment on the proposed waiver; and

(3) Unless the Director of OMB provides otherwise, submit the waiver determination to the Made in America Office in OMB for final review pursuant to Executive Order 14005 and section 70923(b) of the Build America, Buy America Act.

(e) Waivers of general applicability. Waivers of general applicability mean waivers that apply generally across multiple Federal awards. A Federal agency must provide a period of not less than 30 days for public comment on a proposal to modify or renew a waiver of general applicability.

§ 184.8 Exemptions to the Buy America Preference.

(a) The Buy America Preference does not apply to expenditures for assistance authorized under section 402, 403, 404, 406, 408, or 502 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170a, 5170b, 16 5170c, 5172, 5174, or 5192) relating to a major disaster or emergency declared by the President under section 401 or 501, respectively, of such Act (42 U.S.C. 5170, 5191) or pre and post disaster or emergency response expenditures.

(b) “Pre and post disaster or emergency response expenditures” consist of expenditures for financial assistance that are:

(1) Authorized by statutes other than the Stafford Act, 42 U.S.C. 5121 et seq.; and

(2) Made in anticipation of or response to an event or events that qualify as an “emergency” or “major disaster” within the meaning of the Stafford Act, 42 U.S.C. 5122(1), (2).

SECTION 16

FEDERAL LABOR STANDARDS PROVISIONS

Federal Labor Standards Provisions

TITLE 24 U.S. Department of Housing and Urban Development

§ 1.1 Purpose.

The purpose of this part 1 is to effectuate the provisions of title VI of the Civil Rights Act of 1964 (hereafter referred to as the Act) to the end that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal financial assistance from the Department of Housing and Urban Development.

§ 1.1 Purpose.

These regulations are to carry out the requirements of E.O. 11063 that all action necessary and appropriate be taken to prevent discrimination because of race, color, religion (creed), sex or national origin in the sale, rental, leasing or other disposition of residential property and related facilities or in the use or occupancy thereof where such property or facilities are owned or operated by the Federal Government, or provided with Federal assistance by the Department of Housing and Urban Development and in the lending practices with respect to residential property and related facilities of lending institutions insofar as such practices relate to loans insured, guaranteed or purchased by the Department. These regulations are intended to assure compliance with the established policy of the United States that the benefits under programs and activities of the Department which provide financial assistance, directly or indirectly, for the provision, rehabilitation, or operation of housing and related facilities are made available without discrimination based on race, color, religion (creed), sex or national origin. These regulations are also intended to assure compliance with the policy of this Department to administer its housing programs affirmatively, so as to achieve a condition in which individuals of similar income levels in the same housing market area have a like range of housing choices available to them regardless of their race, color, religion (creed), sex or national origin.

§ 107.60 Sanctions and penalties.

(a) Failure or refusal to comply with E.O. 11063 or the requirements of this part shall be proper basis for applying sanctions. Violations of title VIII of the Civil Rights Act of 1968 or a state or local fair housing law, with respect to activities covered by the Executive order, or of the regulations and requirements under E.O. 11063 of other Federal Departments and agencies may also result in the imposition of sanctions by this Department.(b) Such sanctions as are specified by E.O. 11063, the contract through which federal assistance is provided, and such sanctions as are specified by the rules or regulations of the Department governing the program under which federal assistance to the project is provided shall be applied in accordance with the relevant regulations. Actions that may be taken include: cancellation or termination, in whole or in part, of the contract or agreement; refusal to approve a lender or withdrawal of approval; or a determination of ineligibility, suspension, or debarment from any further assistance or contracts; provided, however, that sanctions of debarment, suspension, and ineligibility are subject to the Department's regulations under 2 CFR part 2424, and, further, that no sanction under section 302 (a), (b), and (c) of Executive Order 11063 shall be applied by the Assistant Secretary for Fair Housing and Equal Opportunity without the concurrence of the Secretary.(c) The Department shall use its good offices in order to promote the abandonment of discriminatory practices with regard to residential property and related facilities provided with assistance prior to the effective date of E.O. 11063 and take appropriate actions permitted by law including the institution of appropriate litigation to provide such equal housing opportunities.(d) In any case involving the failure of a lender to comply with the requirements of the

Executive order or this part, the Assistant Secretary for FH&EO shall notify the Federal financial regulatory agency having jurisdiction over the lender of the findings in the case.

CIVIL RIGHTS

Title VIII of the Civil Rights Act of 1968, "The Fair Housing Act of 1968" (42 U.S.C. Sec 3601 et seq.), as amended, and implementing regulations, and it will affirmatively further fair housing;

The Age Discrimination Act of 1975 (42 U.S.C. Sec. 6101 et seq.);

Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. Sec. 794.) and "Nondiscrimination Based on Handicap in Federally-Assisted Programs and Activities of the Department of Housing and Urban Development", 24 CFR Part 8. By signing this Contract, the Subrecipient understands and agrees that the activities funded shall be operated in accordance with 24 CFR Part 8; and the Architectural Barriers Act of 1968 (42 U.S.C. Sec. 4151 et seq.), including the use of a telecommunications device for deaf persons (TDDs) or equally effective communication system.

§ 60-1.4 Equal opportunity clause – the following equal opportunity requirements apply to the underlying contract.

- Race, Color, Creed, National Origin, Sex – In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.
- Age – In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § § 623 and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age.
- Disabilities – In accordance with section 102 of the Americans with Disabilities Act as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of the U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. Contractor further agrees to comply with, and that this contract is subject to, the requirements of Section 504 of the Rehabilitation Act of 1973, including any statutory provisions enacted later.

(a) Government contracts. Except as otherwise provided, each contracting agency shall include the following equal opportunity clause contained in section 202 of the order in each of its Government contracts (and modifications thereof if not included in the original contract): During the performance of this contract, the contractor agrees as follows:(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national

origin.(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.(4) The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.(7) In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.(8) The contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase

order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.
Code of Federal Regulations / Title 41 - Public Contracts and Property Management / Vol. 1 / 2018-07-01103

(b) Federally assisted construction contracts. (1) Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause: The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:During the performance of this contract, the contractor agrees as follows:(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf

of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.(4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies

invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Code of Federal Regulations / Title 41 - Public Contracts and Property Management / Vol. 1 / 2018-07-01104

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States. The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract. The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance. The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering

agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.(2) [Reserved](c) Subcontracts. Each nonexempt prime contractor or subcontractor shall include the equal opportunity clause in each of its nonexempt subcontracts.(d) Inclusion of the equal opportunity clause by reference. The equal opportunity clause may be included by reference in all Government contracts and subcontracts, including Government bills of lading, transportation requests, contracts for deposit of Government funds, and contracts for issuing and paying U.S. savings bonds and notes, and such other contracts and subcontracts as the Director of OFCCP may designate.(e) Incorporation by operation of the order. By operation of the order, the equal opportunity clause shall be considered to be a part of every contract and subcontract required by the order and the regulations in this part to include such a clause whether or not it is physically incorporated in such contracts and whether or not the contract between the agency and the contractor is written.(f) Adaptation of language. Such necessary changes in language may be made in the equal opportunity clause as shall be appropriate to identify properly the parties and their undertakings.

Davis-Bacon Act and Copeland Anti-Kickback Act

Compliance with the Davis-Bacon Act

Contractor. For construction contracts in excess of \$2,000, contractor shall comply with the Davis-Bacon Act (40 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage rate and fringe benefits therefore only when the following criteria have been met.

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives,

and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140).

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140).

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of an laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140).

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract, in the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates or contributions or costs anticipated for bona fide fringe benefits or cash equivalents there of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017).

(ii)(a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3) (i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-0014-1), U. S. Government Printing Office,

Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149).

(b) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph A.3.(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3.(i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

(4) Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman’s hourly rate) specified in the contractor’s or subcontractor’s registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice’s level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee’s level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program

associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements.

- (1) Contractor. The contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.
- (2) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
- (3) Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may be appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the David-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part "Whoever, for the purpose of ... influencing in any way the action of such Administration... makes, utters or publishes any statement, knowing the same to be false... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

Compliance with the Contract Work Hours and Safety Standards Act 40 U.S.C. § 3701-3708

(a) STANDARD WORKWEEK.—The wages of every laborer and mechanic employed by any con- Page 137 TITLE 40—PUBLIC BUILDINGS, PROPERTY, AND WORKS § 3703 tractor or subcontractor in the performance of work on a contract described in section 3701 of this title shall be computed on the basis of a standard workweek of 40 hours. Work in excess of the standard workweek is permitted subject to this section. For each workweek in which the laborer or mechanic is so

employed, wages include compensation, at a rate not less than one and one-half times the basic rate of pay, for all hours worked in excess of 40 hours in the workweek.

(b) A contract described in section 3701 of this title, and any other obligation of the Federal Government, a territory of the United States, or the District of Columbia in connection with that contract, must provide that -

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of eight hours or in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

(c) LIQUIDATED DAMAGES.—Liquidated damages under subsection (b)(2)(B) shall be computed for each individual employed as a laborer or mechanic in violation of this chapter and shall be equal to \$10 for each calendar day on which the individual was required or permitted to work in excess of the standard workweek without payment of the overtime wages required by this chapter.

(d) AMOUNTS WITHHELD TO SATISFY LIABILITIES.—Subject to section 3703 of this title, Montgomery County may withhold, or have withheld, from money payable because of work performed by a contractor or subcontractor, amounts administratively determined to be necessary to satisfy the liabilities of the contractor or subcontractor for unpaid wages and liquidated damages as provided in this section.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat.96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing success.

12. Title 29 – LABOR, PART 3 CONTRACTORS AND SUBCONTRACTOR ON PUBLIC BUILDING OR PUBLIC WORK FINANCED IN WHOLE OR IN PART BY LOANS OR GRANTS FROM THE UNITED STATES

§3.1 Purpose and scope.

This part prescribes “anti-kickback” regulations under section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c), popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction, prosecution, completion, or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States. The part is intended to aid in the enforcement of the minimum wage

provisions of the Davis-Bacon Act and the various statutes dealing with federally assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

§3.2 Definitions.

As used in the regulations in this part:

(a) The terms building or work generally include construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work. The terms include, without limitation, buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, powerlines, pumping stations, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals; dredging, shoring, scaffolding, drilling, blasting, excavating, clearing, and landscaping. Unless conducted in connection with and at the site of such a building or work as is described in the foregoing sentence, the manufacture or furnishing of materials, articles, supplies, or equipment (whether or not a Federal or State agency acquires title to such materials, articles, supplies, or equipment during the course of the manufacture or furnishing, or owns the materials from which they are manufactured or furnished) is not a building or work within the meaning of the regulations in this part.

(b) The terms construction, prosecution, completion, or repair mean all types of work done on a particular building or work at the site thereof, including, without limitation, altering, remodeling, painting and decorating, the transporting of materials and supplies to or from the building or work by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the building or work, by persons employed at the site by the contractor or subcontractor.

(c) The terms public building or public work include building or work for whose construction, prosecution, completion, or repair, as defined above, a Federal agency is a contracting party, regardless of whether title thereof is in a Federal agency.

(d) The term building or work financed in whole or in part by loans or grants from the United States includes building or work for whose construction, prosecution, completion, or repair, as defined above, payment or part payment is made directly or indirectly from funds provided by loans or grants by a Federal agency. The term includes building or work for which the Federal assistance granted is in the form of loan guarantees or insurance.

(e) Every person paid by a contractor or subcontractor in any manner for his labor in the construction, prosecution, completion, or repair of a public building or public work or building or work financed in whole or in part by loans or grants from the United States is employed and receiving wages, regardless of any contractual relationship alleged to exist between him and the real employer.

(f) The term any affiliated person includes a spouse, child, parent, or other close relative of the contractor or subcontractor; a partner or officer of the contractor or subcontractor; a corporation closely connected with the contractor or subcontractor as parent, subsidiary, or otherwise, and an officer or agent of such corporation.

(g) The term Federal agency means the United States, the District of Columbia, and all executive departments, independent establishments, administrative agencies, and instrumentalities of the United States and of the District of Columbia, including corporations, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or any of the foregoing departments, establishments, agencies, and instrumentalities.

[29 FR 97, Jan. 4, 1964, as amended at 38 FR 32575, Nov. 27, 1973]

§3.3 Weekly statement with respect to payment of wages.

(a) As used in this section, the term employee shall not apply to persons in classifications higher than that of laborer or mechanic and those who are the immediate supervisors of such employees.

(b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by this part 3 and part 5 of this title during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer or employee of the contractor or subcontractor who supervises the payment of wages, and shall be on the back of Form WH 347, "Payroll (For Contractors Optional Use)" or on any form with identical wording. Copies of WH 347 may be obtained from the Government contracting or sponsoring agency or from the Wage and Hour Division Web site at <http://www.dol.gov/whd/forms/index.htm> or its successor site.

(c) The requirements of this section shall not apply to any contract of \$2,000 or less.

(d) Upon a written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.

[29 FR 97, Jan. 4, 1964, as amended at 33 FR 10186, July 17, 1968; 47 FR 23679, May 28, 1982; 73 FR 77511, Dec. 19, 2008; 82 FR 2224, Jan. 9, 2017]

§3.4 Submission of weekly statements and the preservation and inspection of weekly payroll records.

(a) Each weekly statement required under §3.3 shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or, if there is no representative of a Federal or State agency at the site of the building or work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the

building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.

(b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years from date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer or his authorized representative, and by authorized representatives of the Department of Labor.

(Reporting and recordkeeping requirements in paragraph (b) have been approved by the Office of Management and Budget under control number 1235-0008)

[29 FR 97, Jan. 4, 1964, as amended at 47 FR 145, Jan. 5, 1982; 82 FR 2224, Jan. 9, 2017]

§3.5 Payroll deductions permissible without application to or approval of the Secretary of Labor.

Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application to and approval of the Secretary of Labor:

- (a) Any deduction made in compliance with the requirements of Federal, State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.
- (b) Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A bona fide prepayment of wages is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.
- (c) Any deduction of amounts required by court process to be paid to another, unless the deduction is in favor of the contractor, subcontractor, or any affiliated person, or when collusion or collaboration exists.
- (d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: Provided, however, That the following standards are met:
 - (1) The deduction is not otherwise prohibited by law;
 - (2) It is either:
 - (i) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or
 - (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees;
 - (3) No profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise; and
 - (4) The deductions shall serve the convenience and interest of the employee.
- (e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.
- (f) Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.
- (g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasigovernmental agencies, such as the American Red Cross.
- (h) Any deduction voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.
- (i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments: Provided, however, That a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.
- (j) Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and part 531 of this title. When such a deduction is made the additional records required under §516.25(a) of this title shall be kept.
- (k) Any deduction for the cost of safety equipment of nominal value purchased by the employee as his own property for his personal protection in his work, such as safety shoes, safety glasses, safety gloves, and hard hats, if such equipment is not required by law to be furnished by the employer, if such deduction is not violative of the Fair Labor Standards Act or prohibited by other law, if the cost on which the deduction is based does not exceed the actual cost to the employer where the equipment is purchased from him and does not include any direct or indirect monetary return to the employer where the equipment is purchased from a third person, and if the deduction is either
 - (1) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance; or
 - (2) Provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees.

[29 FR 97, Jan. 4, 1964, as amended at 36 FR 9770, May 28, 1971]

§3.6 Payroll deductions permissible with the approval of the Secretary of Labor.

Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under §3.5. The Secretary may grant permission whenever he finds that:

- (a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the

deduction either in the form of a commission, dividend, or otherwise;

(b) The deduction is not otherwise prohibited by law;

(c) The deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; and

(d) The deduction serves the convenience and interest of the employee.

§3.7 Applications for the approval of the Secretary of Labor.

Any application for the making of payroll deductions under §3.6 shall comply with the requirements prescribed in the following paragraphs of this section:

(a) The application shall be in writing and shall be addressed to the Secretary of Labor.

(b) The application need not identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions on all current and future contracts of the applicant for a period of 1 year. A renewal of permission to make such payroll deduction will be granted upon the submission of an application which makes reference to the original application, recites the date of the Secretary of Labor's approval of such deductions, states affirmatively that there is continued compliance with the standards set forth in the provisions of §3.6, and specifies any conditions which have changed in regard to the payroll deductions.

(c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of §3.6. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.

(d) The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deduction would be made.

(e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

[29 FR 97, Jan. 4, 1964, as amended at 36 FR 9771, May 28, 1971]

§3.8 Action by the Secretary of Labor upon applications.

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provisions of §3.6; and shall notify the applicant in writing of his decision.

§3.9 Prohibited payroll deductions.

Deductions not elsewhere provided for by this part and which are not found to be permissible under §3.6 are prohibited.

§3.10 Methods of payment of wages.

The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible under this part. No other methods of payment shall be recognized on work subject to the Copeland Act.

§3.11 Regulations part of contract.

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see §5.5(a) of this subtitle.

SECTION 17

CONTRACTOR’S LOCAL OPPORTUNITY PLAN

_____, agrees to implement the following specific affirmative action steps directed at increasing the utilization of lower income residents and businesses within Montgomery County.

- a. To ascertain from the Grant Recipient's CDBG program official the exact boundaries of the project area and where advantageous, seek the assistance of local officials in preparing and implementing the affirmative action plan.
- b. To attempt to recruit from within the city the necessary number of lower income residents through: local advertising media, signs placed at the proposed site for the project, and community organizations and public or private institutions operating within and servicing the project area such as Service Employment and Redevelopment (SER), Opportunities Industrialization Center (OIC), Urban League, Concentrated Employment Program, Hometown Plan, or the U.S. Employment Service.
- c. To maintain a list of all lower income residents who have applied either on their own or on referral from any source, and to employ such persons, if otherwise eligible and if a vacancy exists.
- d. To insert this plan in all bid documents and to require all bidders on subcontracts to submit an affirmative action plan including utilization goals and the specific steps planned to accomplish these goals.
- e. To insure that subcontracts (greater than \$10,000), which are typically let on a negotiated rather than a bid basis in areas other than the covered project area, are also let on a negotiated basis, whenever feasible, in a covered project area.
- f. To formally contact unions, subcontractors, and trade associations to secure their cooperation in this effort.
- g. To insure that all appropriate project area business concerns are notified of pending sub contractual opportunities.
- h. To maintain records, including copies of correspondence, memoranda, etc., which document that all of the above affirmative action steps have been taken.
- i. To appoint or recruit an executive official of the company or agency as Equal Opportunity Officer to coordinate the implementation of this plan.
- j. To maintain records concerning the amount and number of contracts, subcontracts, and purchases which contribute to objectives.
- k. To maintain records of all projected work force needs for all phases of the project by occupation, trade, skill level, and number of positions and to update these projections based on the extent to which hiring meets these Local Opportunity objectives.

As officers and representatives of _____, we the undersigned have read and fully agree to this Plan, and become a party to the full implementation of the program and its provisions.

Signature

Title

Date

SECTION 18
PROJECT SIGN REQUIREMENTS

Public buildings, facilities, and centers constructed with Housing of Urban Development (HUD) assistance shall have permanent signage placed in a prominent visible public area with the wording provided below. The formatting of such signage will be at local discretion to best fit the architectural design of the facility constructed but should be legible from at least three (3) feet distance. The United States Department of Housing and Urban Development logos should be included on the sign.

Other construction projects, e.g., water transmission lines, sewer collection lines, drainage, roadways, housing rehabilitation, etc. utilizing United States Department of Housing and Urban Development funding shall have temporary signage erected in a prominent location at the construction project site or along a major thoroughfare within the locality as directed by the owner.

Project Sign Wording:

“This project is funded through a Community Development Block Grant funds From the U.S.
Department of Housing and Urban Development.”

End of Document

COUNTY PURCHASING AGENT

O qpv i qo gt { County, Texas

Gilbert D. Jalomo, Jr., CPPB
County Purchasing Agent

(; 58) 982/8; 28
Fax (; 58) 982/8; 98

Vendor Information

Federal ID # or S.S #		Dun and Bradstreet #
Type of Business	<input type="checkbox"/> Corporation/LLC <input type="checkbox"/> Sole Proprietor/Individual <input type="checkbox"/> Partnership <input type="checkbox"/> Tax Exempt Organization	
Legal Company Name	Year Business was Established _____	
Remittance Address		
City/State/Zip		
Physical Address		
City/State/Zip		
County	<input type="checkbox"/> O qpv i qo gt { County Other: _____	
Phone/Fax Number	Phone: _____ Fax: _____	
Contact Person		
E-mail		
Special Notes		
The Company listed above is a (check all that apply and attached certificate).	<input type="checkbox"/> DBE-Disadvantaged Business Enterprise Certification # _____ <input type="checkbox"/> SBE-Small Business Enterprise Certification # _____ <input type="checkbox"/> HUB-Texas Historically Underutilized Business Certification # _____ <input type="checkbox"/> WBE-Women's Business Enterprise Certification # _____ <input type="checkbox"/> MBE-Minority Business Enterprise Certification # _____	
Company's gross annual receipts:	<input type="checkbox"/> < \$500,000 <input type="checkbox"/> \$500,000-\$4,999,999 <input type="checkbox"/> \$5,000,000-\$16,999,999 <input type="checkbox"/> \$17,000,000-\$22,399,999 <input type="checkbox"/> >\$22,400,000	
Eqo o qf kkgu (Please enter all that apply).		

PLEASE NOTE: W-9 needs to be attached in order to be entered into our system

ACKNOWLEDGMENT

CORPORATE

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, this day personally appeared _____, known to me to be the _____ of the _____ Corporation, who being by me first duly sworn, deposed and said that he/she had executed the above and foregoing Document in the capacity stated as the authorized act and deed of said Corporation.

NOTARY PUBLIC

Printed Name _____

Commission Expires: _____

PARTNERSHIP

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, this day personally appeared _____, a General Partner of the _____ Partnership, who being by me first duly sworn, deposed and said that he/she had executed the above and foregoing Document in the capacity stated as the authorized act and deed of said Partnership.

NOTARY PUBLIC

Printed Name: _____

Commission Expires: _____

ACKNOWLEDGMENT CONTINUED

INDIVIDUAL OR SOLE PROPRIETORSHIP

THE STATE OF _____ §

COUNTY OF _____ §

BEFORE ME, the undersigned authority, this day personally appeared _____, an individual doing business as _____, who being by me first duly sworn, deposed and said that he/she had executed the above and foregoing Document in the capacity stated and for the purposes and consideration set forth therein.

NOTARY PUBLIC

Printed Name _____

Commission Expires _____

***(EXECUTE APPROPRIATE ACKNOWLEDGMENT FOR CORPORATION, PARTNERSHIP OR INDIVIDUAL CONTRACTOR.)**

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

▶ Go to www.irs.gov/FormW9 for instructions and the latest information.

Print or type. See Specific Instructions on page 3.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):
	<input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate	Exempt payee code (if any) _____
	<input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____ Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.	Exemption from FATCA reporting code (if any) _____ <small>(Applies to accounts maintained outside the U.S.)</small>
	<input type="checkbox"/> Other (see instructions) ▶ _____	
	5 Address (number, street, and apt. or suite no.) See instructions.	Requester's name and address (optional)
	6 City, state, and ZIP code	
	7 List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number								
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; border: 1px solid black;"> </td> <td style="width: 25%; border: 1px solid black;"> </td> <td style="width: 25%; border: 1px solid black;"> </td> <td style="width: 25%; border: 1px solid black;"> </td> </tr> <tr> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> </table>					-	-	-	-
-	-	-	-					
or								
Employer identification number								
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; border: 1px solid black;"> </td> <td style="width: 25%; border: 1px solid black;"> </td> <td style="width: 25%; border: 1px solid black;"> </td> <td style="width: 25%; border: 1px solid black;"> </td> </tr> <tr> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> </table>					-	-	-	-
-	-	-	-					

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor ²
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
6. Sole proprietorship or disregarded entity owned by an individual	The owner ³
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor [*]
For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity ⁴
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

***Note:** The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

BIDDER/OFFEROR SELF CERTIFICATION

- 1.) The Bidder/Offeror certifies that the manufactured good(s) furnished will meet or exceed the specifications, and/or that the services rendered will comply with the terms of the solicitation or contract.
- 2.) The Bidder/Offeror certifies that it has read all of the bid, proposal, or contract documents and agrees to abide by the terms, certifications, and conditions thereof.

Description of Commodity or Service: _____

SIGNATURE _____

NAME _____

TITLE _____

COMPANY _____

DATE _____

CERTIFICATION REGARDING LOBBYING

The Bidder/Offeror certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any persons for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding to any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (PL 104-65, to be codified at 2 U.S.C. 1601, *et seq.*)]
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance is placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transactions imposed by 31, U.S.C. 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 for each such expenditure or failure.]

The Bidder/Offeror certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Bidder/Offeror understands and agrees that the provisions of 31 U.S.C. Section A 3801 *et seq.*, apply to this certification and disclosure, if any.

SIGNATURE _____ COMPANY _____

NAME & TITLE _____ DATE _____

**CERTIFICATION
REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY
AND VOLUNTARY EXCLUSION FOR COVERED CONTRACTS**

Federal Executive Orders 12549 and 12689 requires Montgomery County to screen each covered potential contractor to determine whether each has a right to obtain a contract in accordance with federal regulations on debarment, suspension, ineligibility, and voluntary exclusion. Each covered contractor must also screen each of its covered subcontractors.

In this certification "contractor" refers to both contractor and subcontractor; "contract" refers to both contract and subcontract.

By signing and submitting this certification, the potential contractor accepts the following terms:

1. The certification herein below is a material representation of fact upon which reliance was placed when this contract was entered into. If it is later determined that the potential contractor knowingly rendered an erroneous certification, in addition to other remedies available to the federal government, the Department of Health and Human Services, United States Department of Agriculture or other federal department or agency, or Montgomery County may pursue available remedies, including suspension and/or debarment.
2. The potential contractor will provide immediate written notice to the person to which this certification is submitted if at any time the potential contractor learns that the certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
3. The words "covered contract", "debarred", "suspended", "ineligible", "participant", "person", "principal", "proposal", and "voluntarily excluded", as used in this certification have meanings based upon materials in the Definitions and Coverage sections of federal rules implementing Executive Order 12549. Usage is as defined in the attachment.
4. The potential contractor agrees by submitting this certification that, should the proposed covered contract be entered into, it will not knowingly enter into any subcontract with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the Department of Health and Human Services, United States Department of Agriculture or other federal department or agency, and/or Montgomery County as applicable.

Do you have or do you anticipate having subcontractors under this proposed contract? Yes No

5. The potential contractor further agrees by submitting this certification that it will include this certification titled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion for Covered Contracts" without modification, in all covered subcontracts and in solicitations for all covered subcontracts.
6. A contractor may rely upon a certification of a potential subcontractor that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered contract, unless it knows that the certification is erroneous. A contractor must, at a minimum, obtain certifications from its covered subcontractors upon each subcontract's initiation and upon each renewal.
7. Nothing contained in all the foregoing will be construed to require establishment of a system of records in order to render in good faith the certification required by this certification document. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
8. Except for contracts authorized under paragraph 4 of these terms, if a contractor in a covered contract knowingly enters into a covered subcontract with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the federal government, Department of Health and Human Services, United States Department of Agriculture, or other federal department or agency, as applicable, and/or Montgomery County may pursue available remedies, including suspension and/or debarment.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION FOR COVERED CONTRACTS

Indicate in the appropriate box which statement applies to the covered potential contractor:

The potential contractor certifies, by submission of this certification, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this contract by any federal department or agency or by the State of Texas.

The potential contractor is unable to certify to one or more of the terms in this certification. In this instance, the potential contractor must attach an explanation for each of the above terms to which he is unable to make certification. Attach the explanation(s) to this certification.

Name of Potential Contractor	Tax ID No	Contract No (if applicable)
------------------------------	-----------	-----------------------------

Printed/Typed Name and Title of Authorized Representative

Signature of Authorize Representative Date

CERTIFICATION
REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY
AND VOLUNTARY EXCLUSION FOR COVERED CONTRACTS

DEFINITIONS

Covered Contracts/Subcontract.

- (1) Any nonprocurement transaction which involves federal funds (regardless of amount and including such arrangements as subgrant and are between Montgomery County or its agents and another entity.
- (2) Any procurement contract for goods or services between a participant and a person, regardless of type, expected to equal or exceed the federal procurement small purchase threshold under a grant or subgrant.
- (3) Any procurement contract for goods or services between a participant and a person under a covered grant, subgrant, contract or subcontract, regardless of amount, under which that person will have a critical influence on or substantive control over that covered transaction:
 - a. Principal investigators.
 - b. Providers of audit services required by Montgomery County or federal funding source.
 - c. Researchers.

Debarment. An action taken by a debarring official in accordance with the most current applicable federal regulations to exclude a person from participating in covered contracts. A person so excluded is “debarred”.

Grant. An award of financial assistance, including cooperative agreements, in the form of money, or property in lieu of money, by the federal government to an eligible grantee.

Ineligible. Excluded from participation in federal nonprocurement programs pursuant to a determination of ineligibility under statutory, executive order, or regulatory authority, other than Executive Order 12549 and its agency implementing regulations; for example, excluded pursuant to the Davis-Bacon Act and its implement regulations, the equal employment opportunity acts and executive orders, or the environmental protection acts and executive orders. A person is ineligible where the determination of ineligibility affects such person’s eligibility to participate in more than one covered transaction.

Participant. Any person who submits a proposal for, enters into, or reasonably may be expected to enter into a covered contract. This term also includes any person who acts on behalf of or is authorized to commit a participant in a covered contract as an agent or representative of another participant.

Person. Any individual, corporation, partnership, association, unit of government, or legal entity, however organized, except: foreign governments or foreign governmental entities, public international organizations, foreign government owned (in whole or in part) or controlled entities, and entities consisting wholly or partially of foreign governments or foreign governmental entities.

Principal. Officer, director, owner, partner, key employee, or other person within a participant with primary management or supervisory responsibilities; or a person who has a critical influence on or substantive control over a covered contract whether or not the person is employed by the participant. Persons who have a critical influence on or substantive control over a covered transaction are:

- (1) Principal investigators.
- (2) Providers of audit services required by Montgomery County or federal funding source.
- (3) Researchers.

Proposal. A solicited or unsolicited bid, application, request, invitation to consider or similar communication by or on behalf of a person seeking to receive a covered contract.

Suspension. An action taken by a suspending official in accordance with the most current applicable federal regulations that immediately excludes a person from participating in covered contracts for a temporary period, pending completion of an investigation and such legal, debarment, or Program Fraud Civil Remedies Act proceedings as may ensue. A person so excluded is “suspended”.

Voluntary exclusion or voluntarily excluded. A status of nonparticipation or limited participation in covered transactions assumed by a person pursuant to the terms of a settlement.

CERTIFICATE OF INDEPENDENT PRICE DETERMINATION

The undersigned affirms he/she is duly authorized to submit this bid and execute a contract in accordance with the terms of this BID, that this bid has not been prepared in collusion with any other bidders, and that the contents of this bid have not been communicated to any other bidder prior to the official opening of this bid.

Signed By: _____ Title: _____

Typed or Printed Name: _____

Company Name: _____ Phone No.: _____

Mailing Address: _____
P.O. Box or Street City State/Zip

Employer Identification Number: _____

CORPORATE SEAL IF SUBMITTED BY A CORPORATION

Israel Boycott Statement Explanation

1. Prohibition on Investment in companies that boycott Israel

1.1 SECTION 1. Prohibition on contracts with companies boycotting Israel per Government Code 2271.001 Definitions:

(1) "Boycott Israel" has the meaning assigned by Section 808.001.

(2) "Company" has the meaning assigned by Section 808.001 except that the term does not include a sole proprietorship.

(3) "Governmental entity" has the meaning assigned by Government Code, Section 2271.002.

PROVISION REQUIRED IN CONTRACT. (a) This section applies only to a contract that:

(a)

(1) is between a governmental entity and a company with 10 or more full-time employees; and

(2) has a value of \$100,000 or more that is to be paid wholly or partly from public funds of the governmental agency.

(b) A governmental entity may not enter into a contract with a company for goods or services unless the contract contains a written verification from the company that it:

(1) does not boycott Israel; and

(2) will not boycott Israel during the term of the contract.

2. Prohibition on contracting with a company doing business with Iran, Sudan, or a foreign terrorist organization

2.1 Prohibition on contracts with certain companies per Government Code 2252.151

Definitions:

(1) "Company" has the meaning assigned by Section 806.001.

(2) "Foreign terrorist organization" means an organization designated as a foreign terrorist organization by the United States secretary of state as authorized by 8 U.S.C. Section 1189.

(3) "Governmental contract" means a contract awarded by a governmental entity for general construction, an improvement, a service, or a public works project for a purchase of supplies, materials, or equipment. The term includes a contract to obtain a professional or consulting service subject to Government Code, Chapter 2254.

(4) "Governmental entity" has the meaning assigned by Government Code, Section 2252.001.

2.2 Section 2252.152 - Contracts with companies engaged in business with Iran, Sudan, or foreign terrorist organization prohibited. A governmental entity may not enter into a governmental contract with a company that is identified on a list prepared and maintained under Section 806.051, 807.051, or 2252.153.

2.3 Section 2252.153 – Listed Companies. The comptroller shall prepare and maintain, and make available to each governmental entity, a list of companies known to have contracts with or provide supplies or services to a foreign terrorist organization.

Mandatory

Israel Boycott Statement

Date: _____

Name of Individual: _____

Title: _____

Business Name of Proponent: _____

County of Proponent: _____

Individual on oath swears that the following statements are true:

1. Individual has the authorization by Proponent to make this statement for Proponent.
2. Individual is fully aware of the facts stated in this statement.
3. Individual can read the English language.
4. In accordance with Texas Government Code Section 2271.002, this company does not boycott Israel and will not boycott Israel during the term of this contract.

Signature of Individual

Address

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

2 Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

Yes No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

Yes No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

6 Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed;
- or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or
- (C) of a family relationship with a local government officer.

Certificate of **Compliance** with Buy America Requirements

The bidder or offeror hereby certifies that it will comply with the requirements of [2 CFR Part 184](#).

Date _____

Signature _____

Company _____

Name _____

Title _____

Certificate of **Non-Compliance** with Buy America Requirements

The bidder or offeror hereby certifies that it cannot comply with the requirements of [2 CFR Part 184](#), but it may qualify for a waiver to the requirement pursuant to [2 CFR part 184.7](#).

Date _____

Signature _____

Company _____

Name _____

Title _____

TECHNICAL SPECIFICATIONS

FOR CONSTRUCTION OF
WATERLINES, SANITARY SEWER, DRAINAGE, & DETENTION
TO SERVE

NEW DANVILLE MEADOWBROOK EXPANSION

IN MONTGOMERY COUNTY, TEXAS

FOR

NEW DANVILLE

FEBRUARY 2024



Nickolas Hemann 2024.02.15
12:19:30-06'00'

Prepared By:



F-390

2203 TIMBERLOCH PLACE, SUITE 124

THE WOODLANDS, TEXAS 77380

281-651-2972

INDEX FOR CIVIL SPECIFICATIONS

SECTION #	TITLE
01410	TPDES Requirements
01502	Mobilization
01570	Storm Water Pollution Prevention Control
01575	Stabilized Construction Access
02082	Precast Concrete Manholes
02090	Frames, Grates, Rings, and Covers
02233	Clearing and Grubbing
02260	Trench Safety System
02316	Excavation and Backfill for Structures
02317	Excavation and Backfill for Utilities
02319	Borrow
02320	Utility Backfill Materials
02321	Cement Stabilized Sand
02330	Embankment
02505	High Density Polyethylene (HDPE) Solid and Profile Wall Pipe
02506	Polyvinyl Chloride Pipe
02511	Water Lines
02512	Water Tap and Service Line Installation
02513	Wet Connections
02514	Disinfection of Water Lines
02515	Hydrostatic Testing of Pipelines
02520	Fire Hydrants
02521	Gate Valves
02531	Gravity Sanitary Sewers
02533	Acceptance Testing for Sanitary Sewers
02534	Sanitary Sewer Service Stubs or Reconnections
02611	Reinforced Concrete Pipe
02631	Storm Sewers
02633	Precast Concrete Inlets, Headwalls, and Wingwalls
02921	Hydro Mulch Seeding

SECTION 01410

TPDES REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Documentation to be prepared and signed by Contractor/Operator before conducting construction operations, in accordance with the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit Number TXR150000 issued on February 8, 2018(the Construction General Permit).
- B. Implementation, maintenance inspection, and termination of storm water pollution prevention control measures including, but not limited to, erosion and sediment controls, storm water management plans, waste collection and disposal, off-site vehicle tracking, and other appropriate practices shown on the Drawings or specified elsewhere in the Contract.
- C. Review of the Storm Water Pollution Prevention Plan (SWP3) implementation in a meeting with Project Manager prior to start of construction.

1.02 DEFINITIONS

- A. Commencement of Construction Activities: The exposure of soil resulting from activities such as clearing, grading, and excavation activities, as well as other construction related activities (e.g., stock piling of fill material, demolition).
- B. Large Construction Activity: Project that:
 - 1. disturbs five acres or more, or
 - 2. disturbs less than five acres but is part of a larger common plan of development that will disturb five acres or more of land.
- C. Small Construction Activity: Project that:
 - 1. disturbs one or more acres but less than five acres, or
 - 2. are part of a larger common plan of development that will disturb at least 1 but less than 5 Ac
- D. TPDES Operator:
 - 1. Operator - The person or persons associated with a large or small construction activity that is either a primary or secondary as defined below:

2. Primary Operator - the person or persons associated with a large or small construction activity that meets either of the following two criteria:
 - a. the persons have operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications or
 - b. the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a storm water pollution prevention plan (SWP3) for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).
3. Secondary Operator -The person or entity, often the property owner, whose operational control is limited to:
 - a. the employment of other operators, such as a general contractor, to perform or supervise construction activities, or
 - b. the ability to approve or disapprove changes to construction plans and specifications, but who does not have day-to-day on-site operational control over construction activities at the site.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWP3)

- A. Prepare a SWP3 following Part III of the Construction General Permit and the Storm Water Management Handbook for Construction Activities.

If conflicts exist between the Construction General Permit and the handbook, the more stringent requirements will apply.
- B. Update or revise the SWP3 as needed during the construction following Part III, Section E of the Construction General Permit.
- C. Submit the SWP3 and any updates or revisions to Project Manager for review and address comments prior to commencing, or continuing, construction activities.

3.02 NOTICE OF INTENT FOR LARGE CONSTRUCTION ACTIVITY

- A. Fill out, sign, and date TCEQ Form 20022 (03/06/2018) Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000, ATTACHMENT 1 of this Section 01410.

- B. Transmit the signed Contractor's copy of TCEQ Form 20022 (03/06/2018), along with a \$325.00 check, made out to Texas Commission on Environmental Quality, and the completed Payment Submittal Form to Project Manager.
- C. Project Manager will complete a separate TCEQ Form 20022 (03/06/2018) for the Notice of Intent, and will submit both Notices, along with checks for application fees, to the TCEQ.
- D. Submission of the Notice of Intent form by both the county and Contractor to TCEQ if mailing is required a minimum of seven days before Commencement of Construction Activities.

3.03 CONSTRUCTION SITE NOTICE FOR SMALL CONSTRUCTION ACTIVITY

- A. Fill out, sign, and date the Construction Site Notice, Attachment 2 to TPDES General Permit TXR150000, "Small Construction Site Notice", ATTACHMENT 2 of this Section 01410.
- B. Transmit the signed Construction Site Notice to Project Manager at least seven days prior to Commencement of Construction Activity.

3.04 CERTIFICATION REQUIREMENTS

- A. Fill out TPDES Operator's Information form, ATTACHMENT 3 of this Section 01410, including Contractor's name, address, and telephone number, and the names of persons or firms responsible for maintenance and inspection of erosion and sediment control measures. Use multiple copies as required to document full information.
- B. Contractor and Subcontractors shall sign and date the Contractor's / Subcontractor's Certification for TPDES Permitting, ATTACHMENT 4 of this Section 01410. Include this certification with other Project certification forms.
- C. Submit properly completed certification forms to Project Manager for review before beginning construction operations.
- D. Conduct inspections in accordance with TCEQ requirements. Ensure persons or firms responsible for maintenance and inspection of erosion and sediment control measures read, fill out, sign, and date the Erosion Control Contractor's certification for Inspection and Maintenance.

3.05 RETENTION OF RECORDS

- A. Keep a copy of this document and the SWP3 in a readily accessible location at the construction site from Commencement of Construction Activity until submission of the Notice of Termination (NOT) for Storm Water Discharges Associated with Construction Activity under TPDES Construction General Permit (TXR150000). Contractors with day-to-day operational control over SWP3 implementation shall have a copy of the SWP3 available at a central location, on-site, for the use of all operators and those identified as having responsibilities under the SWP3. Upon submission of the NOT, submit all required forms and a copy of the SWP3 with all revisions to Project Manager.

3.06 REQUIRED NOTICES

- A. Post the following notices from effective date of the SWP3 until date of final site stabilization as defined in the Construction General Permit:
 - 1. Post the TPDES permit number for Large Construction Activity, with a signed TCEQ Construction Site Notice for large or Small Construction Activity.
 - 2. Post notices near the main entrance of the construction site in a prominent place where it is safely and readily available for viewing by General Public, Local, State, and Federal Authorities. Post name and telephone number of Contractor's local contact person, brief project description and location of the SWP3.
 - a. If posting near a main entrance is not feasible due to safety concerns, coordinate posting of notice with Project Manager to conform to requirements of the Construction General Permit.
 - b. If Project is a linear construction project (e.g.: road, utilities, etc.), post notice in a publicly accessible location near active construction. Move notice as necessary.
 - 3. Post a notice to equipment and vehicles operators, instructing them to stop, check, and clean tires of debris and mud before driving onto traffic lanes. Post at each stabilized construction access area.
 - 4. Post a notice of waste disposal procedures in a readily visible location on site.

3.07 ON-SITE WASTE MATERIAL STORAGE

- A. On-site waste material storage shall be self-contained and shall satisfy appropriate local, state, and federal rules and regulations.
- B. Prepare list of waste material to be stored on-site. Update list as necessary to include up-to-date information. Keep a copy of updated list with the SWP3.

- C. Prepare description of controls to reduce pollutants generated from on-site storage. Include storage practices necessary to minimize exposure of materials to storm water, and spill prevention and response measures consistent with best management practices. Keep a copy of the description with the SWP3.

3.08 NOTICE OF TERMINATION

- A. Submit a NOT, ATTACHMENT 6 of this Section 01410, to Project Manager within 30 days after:
 - 1. Final stabilization has been achieved on all portions of the site that are the responsibility of the Contractor or
 - 2. Another operator has assumed control over all areas of the site that have not been stabilized and
 - 3. All silt fences and other temporary erosion controls have either been removed, scheduled to be removed as defined in the SWP3, or transferred to a new operator if the new operator has sought permit coverage.
- B. Project Manager will complete the NOT and submit Contractor and county notices to the TCEQ and MS4 entities.

END OF SECTION

ATTACHMENT 1

TCEQ Office Use Only
Permit No:
CN:
RN:



Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000

IMPORTANT INFORMATION

Please read and use the General Information and Instructions prior to filling out each question in the NOI form.

Use the NOI Checklist to ensure all required information is completed correctly.
Incomplete applications delay approval or result in automatic denial.

Once processed your permit authorization can be viewed by entering the following link into your internet browser: http://www2.tceq.texas.gov/wq_dpa/index.cfm or you can contact TCEQ Stormwater Processing Center at 512-239-3700.

ePERMITS

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

To submit an NOI electronically, enter the following web address into your internet browser and follow the instructions: <https://www3.tceq.texas.gov/steers/index.cfm>

APPLICATION FEE AND PAYMENT

The application fee for submitting a paper NOI is \$325. The application fee for electronic submittal of a NOI through the TCEQ ePermits system (STEERS) is \$225.

Payment of the application fee can be submitted by mail or through the TCEQ ePay system. The payment and the NOI must be mailed to separate addresses. To access the TCEQ ePay system enter the following web address into your internet browser: <http://www.tceq.texas.gov/epay>.

Provide your payment information for verification of payment:

- If payment was mailed to TCEQ, provide the following:
 - Check/Money Order Number: [REDACTED]
 - Name printed on Check: [REDACTED]
- If payment was made via ePay, provide the following:
 - Voucher Number: [REDACTED]
 - A copy of the payment voucher is attached to this paper NOI form.

(If a governmental entity, a subsidiary, or part of a larger corporation, check No.)

f) Number of Employees. Select the range applicable to your company.

0-20

251-500

21-100

501 or higher

101-250

g) Customer Business Tax and Filing Numbers: (**Required** for Corporations and Limited Partnerships. **Not Required** for Individuals, Government, or Sole Proprietors.)

State Franchise Tax ID Number:

Federal Tax ID:

Texas Secretary of State Charter (filing) Number:

DUNS Number (if known):

SECTION 2. APPLICATION CONTACT

Is the application contact the same as the applicant identified above?

Yes, go to Section 3

No, complete this section

Prefix (Mr. Ms. Miss):

First and Last Name: Suffix:

Title: Credential:

Organization Name:

Phone Number: Fax Number:

E-mail:

Mailing Address:

Internal Routing (Mail Code, Etc.):

City, State, and Zip Code:

Mailing information if outside USA:

Territory:

Country Code: Postal Code:

SECTION 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) If this is an existing permitted site, what is the Regulated Entity Number (RN) issued to this site? RN

(Refer to Section 3.a) of the Instructions)

- b) Name of project or site (the name known by the community where it's located):
New Danville Community
- c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): Residential Infrastructure
- d) County or Counties (if located in more than one): MONTGOMERY COUNTY
- e) Latitude: Longitude:
- f) Site Address/Location

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete *Section A*.

If the site does not have a physical address, provide a location description in *Section B*.
Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section A:

Street Number and Name: 10951 Shepard Hill Rd.
City, State, and Zip Code: Willis, TX 77318

Section B:

Location Description:
City (or city nearest to) where the site is located:
Zip Code where the site is located:

SECTION 4. GENERAL CHARACTERISTICS

- a) Is the project or site located on Indian Country Lands?
 - Yes, do not submit this form. You must obtain authorization through EPA Region 6.
 - No
- b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?
 - Yes. Note: The construction stormwater runoff may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA Region 6.
 - No
- c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?
- d) What is the Secondary SIC Code(s), if applicable?
- e) What is the total number of acres to be disturbed? 6.5 Acres
- f) Is the project part of a larger common plan of development or sale?

Yes

No. The total number of acres disturbed, provided in e) above, must be 5 or more. If the total number of acres disturbed is less than 5, do not submit this form. See the requirements in the general permit for small construction sites.

g) What is the estimated start date of the project? April 2024

h) What is the estimated end date of the project? June 2024

i) Will concrete truck washout be performed at the site? Yes No

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site? Shepard Branch

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach? Shepard Branch

l) Is the discharge into a Municipal Separate Storm Sewer System (MS4)?

Yes No

If Yes, provide the name of the MS4 operator:

Note: The general permit requires you to send a copy of this NOI form to the MS4 operator.

m) Is the discharge or potential discharge from the site within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?

Yes, complete the certification below.

No, go to Section 5

I certify that the copy of the TCEQ-approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) that is included or referenced in the Stormwater Pollution Prevention Plan will be implemented. Yes

SECTION 5. NOI CERTIFICATION

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the Construction General Permit (TXR150000). Yes

Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3, provided all obligations are confirmed by at least one operator.

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name: [REDACTED]

Operator Signatory Title: [REDACTED]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

ATTACHMENT 2



SMALL CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Stormwater Program
TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.E.2.** of the TCEQ General Permit Number TXR150000 for discharges of stormwater runoff from small construction sites. Additional information regarding the TCEQ stormwater permit program may be found on the internet at:

http://www.tceq.state.tx.us/nav/permits/wq_construction.html

Operator Name:	
Contact Name and Phone Number:	
Project Description: <i>Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized</i>	
Location of Stormwater Pollution Prevention Plan:	

For Small Construction Activities Authorized Under Part II.E.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.E.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A stormwater pollution prevention plan has been developed and will be implemented prior to construction, according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

Signature and Title _____ Date _____

_____ *Date Notice Removed*

_____ *MS4 operator notified per Part II.F.3.*

ATTACHMENT 3

TPDES OPERATOR'S INFORMATION

Owner's Name and Address: New Danville

Mike Painter
CEO
New Danville

10951 Shepard Hill Road
Willis, TX 77318

Contractors' Names and Addresses:

General Contractor: _____

Telephone: _____

Site Superintendent: _____

Telephone: _____

Erosion Control and
Maintenance Inspection: _____

Telephone: _____

Subcontractors' Names and Addresses:

Phone: _____

Phone: _____

Note: Insert name, address, and telephone number of person or firms

ATTACHMENT 4

CONTRACTOR'S / SUBCONTRACTOR'S

CERTIFICATION FOR TPDES PERMITTING

I certify under penalty of law that I understand the terms and conditions of TPDES General Permit No. TXR150000 and the Storm Water Pollution Prevention Plan for the construction site identified as part of this certification.

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

TCEQ Office Use Only
Permit No:
CN:
RN:
Region:



Notice of Termination (NOT) for Authorizations under TPDES General Permit TXR150000

IMPORTANT INFORMATION:

Please read and use the General Information and Instructions prior to filling out each question in the form.

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

ePermits: This form is available on our online permitting system.
Sign up for online permitting at: <https://www3.tceq.texas.gov/steers/>

What is the permit number to be terminated?

TXR15 [redacted] TXRCW [redacted]

Section 1. OPERATOR (Permittee)

a) What is the Customer Number (CN) issued to this entity?

CN [redacted]

b) What is the Legal Name of the current permittee?

[redacted]

c) Provide the contact information for the Operator (Responsible Authority).

Prefix (Mr. Ms. or Miss): [redacted]

First and Last Name: [redacted] Suffix: [redacted]

Title: [redacted] Credentials: [redacted]

Phone Number: [redacted] Fax Number: [redacted]

Email: [redacted]

Mailing Address: [redacted]

City, State, and Zip Code: [redacted]

Country Mailing Information, if outside USA: [redacted]

Section 2. APPLICATION CONTACT

This is the person TCEQ will contact if additional information is needed regarding this application.

Is the application contact the same as the permittee identified above?

Yes, go to Section 3.

No, complete section below

Prefix (Mr. Ms. or Miss):

First and Last Name: Suffix:

Title: Credentials:

Phone Number: Fax Number:

Email:

Mailing Address:

City, State, and Zip Code:

Country Mailing Information, if outside USA:

Section 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) TCEQ issued RE Reference Number(RN): RN

b) Name of project or site as known by the local community:

c) County, or counties if more than 1:

d) Latitude: Longitude:

e) Site Address/Location:

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete Section 3A.

If the site does not have a physical address, provide a location description in Section 3B. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section 3A: Physical Address of Project or Site:

Street Number and Name:

City, State, and Zip Code:

Section 3B: Site Location Description:

Location description:

City where the site is located or, if not in a city, what is the nearest city:

Zip Code where the site is located:

Section 4. REASON FOR TERMINATION

Check the reason for termination:

- Final stabilization has been achieved on all portions of the site that are the responsibility of the Operator and all silt fences and other temporary erosion controls have been removed, or scheduled for removal as defined in the SWP3.

- Another permitted Operator has assumed control over all areas of the site that have not been finally stabilized, and temporary erosion controls that have been identified in the SWP3 have been transferred to the new Operator.
- The discharge is now authorized under an alternate TPDES permit.
- The activity never began at this site that is regulated under the general permit.

Section 5. CERTIFICATION

Signatory Name: _____

Signatory Title: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

SECTION 01502

MOBILIZATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Mobilization of construction equipment and facilities onto the site.

1.02 RELATED SECTIONS

- A. Document 00700 – General Conditions
- B. Section 01145 – Use of Premises
- C. Section 01292 – Schedule of Values
- D. Section 01321 – Construction Photographs
- E. Section 01325 – Construction Schedule
- F. Section 01326 – Construction Schedule (Bar Chart)
- G. Section 01330 – Submittal Procedures
- H. Section 01410 – TPDES Requirements
- I. Section 01450 – Contractor's Quality Control
- J. Section 01520 – Temporary Field Office
- K. Section 01555 – Traffic Control and Regulation
- L. Section 01578 – Control of Ground and Surface Water
- M. Section 01580 – Project Identification Signs
- N. Section 01582 – Build Houston Forward Project Identification Signs
- O. Section 02260 – Trench Safety System

1.03 MEASUREMENT AND PAYMENT

- A. Unit Price Contracts. If Contract is Unit Price Contract, measurement for mobilization is on a lump sum basis.
- B. Stipulated Price (Lump Sum) Contract. If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

- C. Mobilization payments will be included in monthly payment estimates upon written application by Contractor subject to the following provisions:
1. Authorization for payment of 50 percent of that portion of Contract Price designated for mobilization will be made upon receipt and approval by Project Manager of the following items, as applicable:
 - a. Safety Program (Document 00700, Paragraph 10.1.1).
 - b. Site Utilization Plan (Section 01145).
 - c. Schedule of Values (Section 01292), if any.
 - d. Initial Construction Photographs (Section 01321), if needed.
 - e. Preliminary Construction Schedule and Billing Forecast (Section 01325).
 - f. Construction Schedule (Section 01325 or Section 01326, as applicable).
 - g. Submittal Schedule (Section 01330).
 - h. Site specific Storm Water Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) along with storm water application fee (Section 01410), if required.
 - i. Contractor's Quality Control Plan (Section 01450), if required.
 - j. Establishment of a Field Office for Project Manager meeting requirements of Section 01520 – Temporary Field Office.
 - k. Traffic Control Plan (Section 01555), if required.
 - l. Plan for Control of Ground and Surface Water (Section 01578), if required.
 - m. Project Signs Submittal (Section 01580 or Section 01582).
 - n. Trench Safety Program (Section 02260), if required.
 - o. Dewatering plan, when required.
 2. Authorization for payment of the balance of that portion of Contract Price designated for mobilization will be made upon completion of the Work amounting to five percent of Original Contract Price. The amount of Contract Price designated for mobilization may not be applied in computing whether or not five percent of the Original Contract Price has been obtained.

3. Mobilization payments will be subject to retainage amounts stipulated in Document 00700 – General Conditions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01570

STORM WATER POLLUTION PREVENTION CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Implementation of Storm Water Pollution Prevention Plans (SWP3) described in Section 01410 - TPDES Requirement.
- B. Installation, maintenance and removal, of storm water pollution prevention structures: diversion dikes, interceptor dikes, diversion swales, interceptor swales, down spout extenders, pipe slope drains, paved flumes and level spreaders. Structures are used during construction and prior to final development of the site.
- C. Filter Fabric Barriers:
 - 1. Type 1: Temporary filter fabric barrier for erosion and sediment control in non-channelized flow areas.
 - 2. Type 2: Temporary reinforced filter fabric barrier for erosion and sediment control in channelized flow areas.
- D. Hay Bale Fence.
- E. Drop Inlet Basket
- F. Inlet Sediment Traps
- G. Brush Berm
- H. Sand Bag Barrier
- I. Bagged Gravel Barrier
- J. Sediment Basin
- K. Inlet Protection Barrier

1.02 RELATED SECTIONS

- A. Document 00410 – Bid Form
- B. Section 01270 – Measurement and Payment
- C. Section 01330 – Submittal Procedures
- D. Section 01410 – TPDES Requirements

- E. Section 01504 - Temporary Facilities and Controls
- F. Section 01562 - Tree and Plant Protection
- G. Section 01575 - Stabilized Construction Access
- H. Section 01576 - Waste Material Disposal
- I. Section 02233 - Clearing and Grubbing
- J. Section 02315 - Roadway Excavation
- K. Section 02317 - Excavation and Backfill for Utilities
- L. Section 02320 - Utility Backfill Materials
- M. Section 02505 - High Density Polyethylene (HDPE) Solid and Profile Wall Pipe
- N. Section 02506 - Polyvinyl Chloride Pipe
- O. Section 02642 - Corrugated Metal Pipe
- P. Section 03315 - Concrete for Utility Construction

1.03 MEASUREMENT AND PAYMENT

A. UNIT PRICES

1. Payment for filter fabric barrier is on a linear foot basis measured between limits of beginning and ending of stakes.
2. Payment for reinforced filter fabric barrier is on a linear foot basis measured between limits of beginning and ending of stakes.
3. Payment for drop inlet baskets is on a unit price basis for each drop inlet basket.
4. Payment for storm inlet sediment traps is on a unit price basis for each storm inlet sediment trap.
5. Payment for storm water pollution prevention structures is on a lump sum basis for the project. Earthen structures with outlet and piping include diversion dikes, interceptor dikes, diversion swales, interceptor swales, and excavated earth-outlet sediment trap, embankment earth-outlet sediment trap, down spout extenders, pipe slope drains, paved flumes, stone outlet sediment trap, and level spreaders.
6. Payment for hay bale barrier, if included in Document 00410 - Bid Form, is on a linear foot of accepted bale barriers, if not include in cost of storm water pollution prevention structures.

7. Payment for brush berm, if included in Document 00410 - Bid Form, is on a linear foot of accepted brush berm, if not include in cost of storm water pollution prevention structures.
 8. Payment for sandbag barrier, if included in Document 00410 - Bid Form, is on a linear foot basis measured between limits of beginning and ending of sandbags, if not include in cost of storm water pollution prevention structures.
 9. Payment for bagged gravel barrier, if included in Document 00410 - Bid Form, is on a linear foot basis measured between limits of beginning and ending of bagged gravel barrier, if not include in cost of storm water pollution prevention controls.
 10. Payment for inlet protection barriers, if included in Document 00410 - Bid Form, is on a linear foot basis measured along outside face of inlet protection barrier, if not include in cost of storm water pollution prevention structures.
 11. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum) Contract. If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated

1.04 REFERENCE STANDARDS

- A. ASTM
1. A 36 - Standard Specification for Carbon Structural Steel.
 2. D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³)).
 3. D3786 - Standard Test Method for Hydraulic Bursting Strength for knitted Goods and Nonwoven Fabrics.
 4. D 4355 - Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).
 5. D 4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 6. D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
 7. D 4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
 8. D 6382 - Standard Practice for Dynamic Mechanical Analysis and Thermogravimetry of Roofing and Waterproofing Membrane Material.

1.05 SYSTEM DESCRIPTIONS

- A. Filter Fabric Barrier Type 1 and Type 2: Install to allow surface or channel runoff percolation through fabric in sheet-flow manner and to retain and accumulate sediment. Maintain Filter Fabric Barriers to remain in proper position and configuration at all times.
- B. Hay Bale Fence: Install to allow surface runoff percolation through hay in sheet-flow manner and to retain and accumulate sediment. Maintain Hay Bale Fence to remain in proper position and configuration at all times.
- C. Interceptor Dikes and Swales: Construct to direct surface or channel runoff around the project area or runoff from project area into sediment traps.
- D. Drop Inlet Baskets: Install to allow runoff percolation through the basket and to retain and accumulate sediment. Clean accumulation of sediment to prevent clogging and backups.
- E. Sediment Traps: Construct to pool surface runoff from construction area to allow sediment to settle onto the bottom of trap.
- F. Sand Bags: Are used during construction activities in unstabilized minor swales, ditches, or streambeds when the contributing drainage area is no greater than 2 acres. It is also sediment barrier for stage one Inlet.
- G. Bagged Gravel Barrier: Are used during construction activities in unstabilized minor swales, ditches, or streambeds when the contributing drainage area is no greater than 2 acres. It is also sediment barrier for stage two Inlet.
- H. Drop Inlet Insert Basket: Is a temporary barrier placed within a storm drain inlet (Lower Portion of Stage I and Upper Portion of Stage II Inlets) consisting of a filter fabric supported by a metal frame work to prevent sediment and other pollutants from entering convey system.
- I. Brush Berm: Brush Berm is constructed at the perimeter of a distribute site within the developing area.

1.06 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit manufacturer's literature for product specifications and installation instructions.
- C. Submit manufacturer's catalog sheets and other product data on geotextile or filter fabrics, outlet pipe, perforated riser and connectors.

- D. Submit proposed methods, equipment, materials, and sequence of operations for storm-water pollution prevention structures.
- E. Submit shop drawings for Drop Inlet Baskets.

PART 2 PRODUCTS

2.01 CONCRETE

- A. Concrete: Class B in accordance with Section 03315 - Concrete for Utility Construction or as shown on the Drawings.

2.02 AGREGATE MATERIALS

- A. Use poorly graded cobbles with diameter greater than 3 inches and less than 5 inches.
- B. Provide gravel lining in accordance with Section 2320 - Utility Backfill Materials or as shown on the drawings.
- C. Provide clean cobbles and gravel consisting of crushed concrete or stone. Use clean, hard crushed concrete or stone free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic matter.
- D. Sediment Pump Pit Aggregate: Use nominal 2-inch diameter river gravel.

2.03 PIPE

- A. Polyethylene culvert pipe or PVC sewer pipe in accordance with Section 02505- High Density Polyethylene (HDPE) Solid and Profile Wall Pipe and Section 02506 Polyvinyl Chloride Pipe or as shown on the Drawings.
- B. Inlet Pipes: Galvanized steel pipe in accordance with Section 02642 Corrugated Metal Pipe or as shown on the Drawings.
- C. Standpipe for Sediment Pump Pits: Galvanized round culvert pipe or round PVC pipe, minimum of 12-inch and a maximum of 24-inch diameter, perforate at 6 to 12 inch centers around circumference.

2.04 GEOTEXTILE FILTER FABRIC

- A. Woven or nonwoven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material, in continuous rolls of longest practical length.
- B. Grab Strength: 100 psi in any principal direction (ASTM D-4632), Mullen burst strength >200 psi (ASTM D-3786), and equivalent opening size between 50 and 140.
- C. Furnish ultraviolet inhibitors and stabilizers for minimum 6 months of expected usable construction life at temperature range of 0 degrees F to 120 degrees F.

- D. Mirafi, Inc., Synthetic Industries, or equivalent

2.05 BARRIER

- A. Wire Barrier: Woven galvanized steel wire, 14 gauge by 6-inch square mesh spacing, minimum 24 inch roll or sheet width of longest practical length.
- B. Barrier Stakes: Nominal 2 by 2 inch moisture-resistant treated wood or steel posts (min. of 1.25 lbs. per linear foot and Brinell Hardness greater than 140) with safety caps on top length as required for minimum 8 inch bury and full height of filter fabric.

2.06 SANDBAGS

- A. Provide woven material made of polypropylene, polyethylene, or polyamide material.
 - 1. Minimum unit weight of four ounces per square yard.
 - 2. Minimum grab strength of 100 lbs in any principal direction (ASTM D4632)
 - 3. Mullen burst strength exceeding 300 lbs (ASTM D4833).
 - 4. Ultraviolet stability exceeding 70 percent. After 500 hours of exposure (ASTM 4355).
 - 5. Size: Length: 18 to 24 inches. Width: 12 to 18 inches. Thickness: 6 to 8 inches. Weight: Approximately 40 to 50 pounds not to exceed 75 pounds.

2.07 BAGGED GRAVEL BARRIER

- A. Minimum unit weight of four ounces per square yard.
- B. Minimum grab strength of 100 lbs in any principal direction (ASTM D4632)
- C. Mullen burst strength exceeding 300 lbs (ASTM D4833).
- D. Ultraviolet stability exceeding 70 percent. After 500 hours of exposure (ASTM 4355).
- E. Size: Length: 18 to 24 inches. Width: 12 to 18 inches. Thickness: 6 to 8 inches. Weight: Approximately 40 to 50 pounds not to exceed 75 pounds.

2.08 DROP INLET BASKET

- A. Provide steel frame members in accordance with ASTM A36.

- B. Construct top frame of basket with two short sides of 2 inch by 2 inch and single long side of 1 inch by 1 inch, 1/8 inch angle iron. Construct basket hangers of 2 inch by 1/4 inch iron bars. Construct bottom frame of 1 inch by 1/4 inch iron bar or 1/4 inch plate with center 3 inches removed. Use minimum 1/4 inch diameter iron rods or equivalent for sides of inlet basket.
- C. Weld minimum of 14 rods in place between top frame/basket hanger and bottom frame. Exact dimensions for top frame and insert basket will be determined based on dimensions of type of inlet being protected.

2.09 HAY BALE

- A. Hay: Standard-baled agricultural hay bound by wire, nylon, or polypropylene rope. Do not use jute or cotton binding.
- B. Hay Bale Stakes (applicable where bales are on soil): No. 3 (3/8 diameter) reinforcing bars, deformed or smooth at Contractor's option, length as required for minimum 18 inch bury and full height bales.

PART 3 EXECUTION

3.01 PREPARATION, INSTALLATION AND MAINTENANCE

- A. Provide erosion and sediment control structures at locations shown on the Drawings.
- B. Do not clear, grub or rough cut until erosion and sediment control systems are in place unless approved by Project Manager to allow installation of erosion and sediment control systems, soil testing and surveying.
- C. Maintain existing erosion and sediment control systems located within project site until acceptance of Project or until directed by Project Manager to remove and discard existing system.
- D. Regularly inspect and repair or replace damaged components of erosion and sediment control structures. Unless otherwise directed, maintain erosion and sediment control structure until project area stabilization is accepted. Redress and replace granular fill at outlets as needed to replenish depleted granular fill. Remove erosion and sediment control structures promptly when directed by Project Manger. Dispose of materials in accordance with Section 01576 - Waste Material Disposal.
- E. Remove and dispose sediment deposits at the designated spoil site for the Project. If a project spoil site is not designated on Drawings, dispose of sediment off site at approved location in accordance with Section 01576 - Waste Material Disposal.
- F. Unless otherwise shown on the Drawings, compact embankments, excavations, and trenches in accordance with Section 02315 - Roadway Excavation or Section - 02317 Excavation and Backfill for Utilities.

- G. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated right of way and easements for construction. Immediately repair damage caused by construction traffic to erosion and sediment control structures.
- H. Protect existing trees and plants in accordance with Section 01562 - Tree and Plant Protection.

3.02 SEDIMENT TRAPS

- A. Install sediment traps so that surface runoff shall percolate through system in sheet flow fashion and allow retention and accumulation of sediment.
- B. Inspect sediment traps after each rainfall, daily during periods of prolonged rainfall, and at a minimum once each week. Repair or replace damaged sections immediately.
- C. Use fill material for embankment in accordance with Section 02320 - Utility Backfill Materials.
- D. Excavation length and height shall be as specified on Drawings. Use side slopes of 2:1 or flatter.
- E. Stone outlet sediment traps:
 - 1. Maintain minimum of 6 inches between top of core material and top of stone outlet, minimum of 4 inches between bottom of core material and existing ground and minimum of 1 foot between top of stone outlet and top of embankment.
 - 2. Embed cobbles minimum of 4 inches into existing ground for stone outlet. Core shall be minimum of 1 foot in height and in width and wrapped in triple layer of geotextile filter fabric.
- F. Sediment Basin with Pipe Outlet Construction Methods: Install outlet pipe and riser as shown on the Drawings.
- G. Remove sediment deposits when design basin volume is reduced by one- third or sediment level is one foot below principal spillway crest, whichever is less.

3.03 FILTER FABRIC BARRIER CONSTRUCTION METHODS

- A. Fence Type 1: Filter Fabric: Barrier
 - 1. Install stakes 3 feet on center maximum and firmly embed minimum 8 inches in soil. If filter fabric is factory preassembled with support netting, then maximum support spacing is 8 feet. Install wood stakes at a slight angle toward the source of anticipated runoff.

2. Trench in the toe of the fence lines so the downward face of the trenches is flat and perpendicular to direction of flow. V-trench configuration as shown on Drawings may also be used.
 3. Lay fabric along edges of trenches in longest practical continuous runs to minimize joints. Make joints only at a support post. Splice with minimum 6-inch overlap and seal securely.
 4. Staple filter fabric to stakes at maximum 3 inches on center. Extend fabric minimum 18 inches and maximum 36 inches above natural ground.
 5. Backfill and compact trench.
- B. Barrier Type 2: Reinforced Filter Fabric Barrier
1. Layout barrier same as for Type 1.
 2. Install stakes at 6 feet on center maximum and at each joint in wire fence, firmly embedded 1-foot minimum, and inclined it as for Type 1.
 3. Tie wire fence to stakes with wire at 6 inches on center maximum. Overlap joints minimum one bay of mesh.
 4. Install trench same as for Type 1.
 5. Fasten filter fabric wire fence with tie wires at 3 inches on center maximum.
 6. Layout fabric same as for Type 1. Fasten to wire fence with wire ties at 3 inches on center maximum and, if applicable, to stakes above top of wire fence it as for Type 1.
 7. Backfill and compact trench.
 8. Attach filter fabric to wooden fence stakes spaced a maximum of 6 feet apart or steel fence stakes spaced a maximum of 8 feet apart and embedded a minimum of 12 inches. Install stakes at a slight angle toward source of anticipated runoff.
 9. Trench in toe of filter fabric barrier with spade or mechanical trencher so that downward face of trench is flat and perpendicular to direction of flow. A V-trench configuration may also be used. Lay filter fabric along edges of trench. Backfill and compact trench upon completion of Construction.
 10. Filter fabric fence shall have a minimum height of 18 inches and a maximum height of 36 inches above natural ground.
 11. Cut length of fence to minimize use of joints. When joints are necessary, splice fabric together only at support post with minimum 6 inch overlap and seal securely.

12. When used in swales, ditches or diversions, elevation of barrier at top of filter fabric at flow line location in channel shall be lower than bottom elevation of filter fabric at ends of barrier or top of bank, whichever is less, in order to keep storm water discharge in channel from overtopping bank.

C. Triangular Filter Fabric Barrier Construction Methods

1. Attach filter fabric to wire fencing, 18 inches on each side. Provide a fabric cover and skirt with continuous wrapping of fabric. Skirt should form continuous extension of fabric on upstream side of fence.
2. Secure triangular fabric filter barrier in place using one of the following methods:
 - a. Toe-in skirt 6 inches with mechanically compacted material
 - b. Weight down skirt with continuous layer of 3-inch to 5-inch graded rock or
 - c. Trench-in entire structure 4 inches.
3. Anchor triangular fabric filter barrier structure and skirt securely in place using 6-inch wire staples on 2-foot centers on both edges and on skirt, or staked using 18-inch by 3/8-inch diameter re-bar with tee ends.
4. Lap fabric filter material by 6 inches to cover segment joints. Fasten joints with galvanized shoat rings.

3.04 DIKE AND SWALE

- A. Unless otherwise indicated, maintain minimum dike height of 18 inches, measured from cleared ground at up slope toe to top of dike. Maintain side slopes of 2:1 or flatter.
- B. Dike and Swale Stabilization: When shown on the Drawings, place gravel lining 3 inches thick and compacted into the soil or 6 inches thick if truck crossing is expected. Extend gravel lining across bottom and up both sides of swale minimum height of 8 inches vertically, above bottom. Gravel lining on dike side shall extend up the up slope side of dike a minimum height of 8 inches, measured vertically from interface of existing or graded ground and up slope toe of dike, as shown on Drawings.
- C. Divert flow from dikes and swales to sediment basins, stabilized outlets, or sediment trapping devices of types and at locations shown on Drawings. Grade dikes and swales as shown on Drawings, or, if not specified, provide positive drainage with maximum grade of 1 percent to outlet or basin.
- D. Clear in accordance with Section 2233 - Clearing and Grubbing Compact embankments in accordance with Section 2315 - Roadway Excavation.

- E. Carry out excavation for swale construction so that erosion and water pollution is minimal. Minimum depth shall be 1 foot and bottom width shall be 4 feet, with level swale bottom. Excavation slopes shall be 2:1 or flatter. Clear, grub and strip excavation area of vegetation and root material.

3.05 DOWN SPOUT EXTENDER

- A. Down spout extender shall have slope of approximately 1 percent. Use pipe diameter of 4 inches or as shown on the Drawings. Place pipe in accordance with Section 02317 – Excavation and Backfill for Utilities.

3.06 PIPE SLOPE DRAIN

- A. Compact soil around and under drain entrance section to top of embankment in lifts appropriately sized for method of compaction utilized.
- B. Inlet pipe shall have slope of 1 percent or greater. Use pipe diameter as shown on the Drawings.
- C. Top of embankment over inlet pipe and embankments directing water to pipe shall be at least 1 foot higher at all points than top of inlet pipe.
- D. Pipe shall be secured with hold-down grommets spaced 10 feet on centers.
- E. Place riprap apron with a depth equal to pipe diameter with 2:1 side slopes.

3.07 PAVED FLUME

- A. Compact soil around and under the entrance section to top of the embankment in lifts appropriately sized for method of compaction utilized.
- B. Construct subgrade to required elevations. Remove and replace soft sections and unsuitable material. Compact subgrade thoroughly and shape to a smooth, uniform surface.
- C. Construct permanent paved flumes in accordance with Drawings.
- D. Remove sediment from riprap apron when sediment has accumulated to depth of one foot.

3.08 LEVEL SPREADER

- A. Construct level spreader on undisturbed soil and not on fill. Ensure that spreader lip is level for uniform spreading of storm runoff.
- B. Maintain at required depth, grade, and cross section as specified on Drawings. Remove sediment deposits as well as projections or other irregularities which will impede normal flow.

3.09 INLET PROTECTION BARRIER

- A. Place sandbags for Stage I, Bagged gravel for Stage II and filter fabric barriers at locations shown on the SWP3. Maintain to allow minimal inlet in flow restrictions / blockage during storm event.

3.10 DROP INLET BASKET CONSTRUCTION METHODS

- A. Fit inlet insert basket into inlet without gaps around insert at locations shown on the SWP3.
- B. Support for inlet insert basket shall consist of fabricated metal as shown on Drawings.
- C. Push down and form filter fabric to shape of basket. Use sheet of fabric large enough to be supported by basket frame when holding sediment and extend at least 6 inches past frame. Place inlet grates over basket/frame to serve as fabric anchor.
- D. Remove sediment deposit after each storm event and whenever accumulation exceeds 1-inch depth during weekly inspections.

3.11 HAY BALE FENCE CONSTRUCTION METHODS

- A. Place bales in row with ends tightly abutting adjacent bales. Place bales with bindings parallel to ground surface.
- B. Embed bale in soil a minimum of 4 inches.
- C. Securely anchor bales in place with Hay Bale Stakes driven through bales a minimum of 18-inches into ground. Angle first stake in each bale toward previously laid bale to force bales together.
- D. Fill gaps between bales with straw to prevent water from channeling between bales. Wedge carefully in order not to separate bales.
- E. Replace with new hay bale fence every two months or as required by Project Manager.

3.12 BRUSH BERM CONSTRUCTION METHODS

- A. Construct brush berm along contour lines by hand placing method. Do not use machine placement of brush berm.
- B. Use woody brush and branches having diameter less than 2-inches with 6- inches overlap. Avoid incorporation of annual weeds and soil into brush berm.
- C. Use minimum height of 18-inches measured from top of existing ground at upslope toe to top of berm. Top width shall be 24 inches minimum and side slopes shall be 2:1 or flatter.

- D. Embed brush berm into soil a minimum of 4-inches and anchor using wire, nylon or polypropylene rope across berm with a minimum tension of 50 pounds. Tie rope securely to 18-inch x 3/8-inch diameter rebar stakes driven into ground on 4-foot centers on both sides of berm.

3.13 STREET AND SIDEWALK CLEANING

- A. Keep areas clean of construction debris and mud carried by construction vehicles and equipment. If necessary, install stabilized construction exits at construction, staging, storage, and disposal areas, following Section 01575- Stabilized Construction Access.
- B. In lieu of or in addition to stabilized construction exits, shovel or sweep pavements as required to keep areas clean. Do not waterhose or sweep debris and mud off street into adjacent areas, except, hose sidewalks during off-peak hours, after sweeping.

3.14 WASTE COLLECTION AREAS

- A. Prevent water runoff from passing through waste collection areas, and prevent water runoff from waste collection areas migrating outside collection areas.

3.15 EQUIPMENT MAINTENANCE AND REPAIR

- A. Confine maintenance and repair of construction machinery and equipment to areas specifically designated for that purpose, so fuels, lubricants, solvents, and other potential pollutants are not washed directly into receiving streams or storm water conveyance systems. Provide these areas with adequate waste disposal receptacles for liquid and solid waste. Clean and inspect maintenance areas daily.
- B. Where designated equipment maintenance areas are not feasible, take precautions during each individual repair or maintenance operation to prevent potential pollutants from washing into streams or conveyance systems. Provide temporary waste disposal receptacles.

3.16 VEHICLE/ EQUIPMENT WASHING AREAS

- A. Install wash area (stabilized with coarse aggregate) adjacent to stabilized construction access, as required to prevent mud and dirt run-off. Release wash water into drainage swales or inlets protected by erosion and sediment controls. Build wash areas following Section 01575- Stabilized Construction Access. Install gravel or rock base beneath wash areas.
- B. Wash vehicles only at designated wash areas. Do not wash vehicles such as concrete delivery trucks or dump trucks and other construction equipment at locations where runoff flows directly into waterways or storm water conveyance systems.
- C. Locate wash areas to spread out and evaporate or infiltrate wash water directly into ground, or collect runoff in temporary holding or seepage basins.

3.17 WATER RUNOFF AND EROSION CONTROL

- A. Control surface water, runoff, subsurface water, and water from excavations and structures to prevent damage to the Work, the site, or adjoining properties. Follow environment requirements.
- B. Control fill, grading and ditching to direct water away from excavations, pits, tunnels, and other construction areas, and to direct drainage to proper runoff courses to prevent erosion, sedimentation or damage.
- C. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.
- D. Retain existing drainage patterns external to the site by constructing temporary earth berms, sedimentation basins, retaining areas, and temporary ground cover as required to control conditions.
- E. Plan and execute construction and earth work to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
 - 1. Hold area of bare soil exposed at one time to a minimum.
 - 2. Provide temporary controls such as berms, dikes, and drains.
- F. Construct fill and waste areas by selective placement to eliminate surface silts or clays which will erode.
- G. Inspect earthwork periodically to detect start of erosion. Immediately apply corrective measures as required to control erosion.
- H. Dispose of sediments offsite, not in or adjacent to waterways or floodplains, nor allow sediments to flush into streams or drainage ways. Assume responsibility for offsite disposal location.
- I. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in maximum of 8- inch layers. Provide compaction density at minimum 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- J. Prohibit equipment and vehicles from maneuver on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage to erosion and sedimentation control systems caused by construction traffic.
- K. Do not damage existing trees intended to remain.

3.18 REMOVAL OF CONTROLS

- A. Remove erosion and sediment controls when the site is finally stabilized or as directed by Project Manager.

- B. Dispose of sediments and waste products following Section 01504 - Temporary Facilities and Controls.

END OF SECTION

SECTION 01575

STABILIZED CONSTRUCTION ACCESS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Installation and removal of erosion and sediment control for stabilized construction access used during construction and prior to final development of site, as shown in Standard Construction details,

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01570 – Storm Water Pollution Prevention Control

1.03 MEASUREMENT AND PAYMENT

- A. Unit Price Contracts. If Contract is Unit Price Contract, payment for work in this Section will be based on the following:
 - 1. Stabilized construction roads, parking areas, access and wash areas: per square yard of aggregate/recycled concrete without reinforcing placed in 8-inch layers. No separate payment will be made for street cleaning necessary to meet TPDES requirements. Include cost of work for street cleaning under related Specification section.
- B. Stipulated Price (Lump Sum) Contracts. If the Contract is a Stipulated Price Contract, include payment for work under this Section in the total Stipulated Price.
- C. Refer to Section 01270 - Measurement and Payment for unit price procedures.

1.04 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit manufacturers catalog sheets and other Product Data on geotextile fabric.
- C. Submit sieve analysis of aggregates conforming to requirements of this Specification.

1.05 REFERENCES

- A. ASTM D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

PART 2 PRODUCTS**2.01 GEOTEXTILE FABRIC**

- A. Provide woven or non-woven geotextile fabric made of polypropylene, polyethylene, ethylene, or polyamide material.
- B. Geotextile fabric: Minimum grab strength of 200 lbs in any principal direction (ASTM D-4632) and equivalent opening size between 50 and 140.
- C. Geotextile and threads: Resistant to chemical attack, mildew, and rot and contain ultraviolet ray inhibitors and stabilizers to provide minimum of six months of expected usable life at temperature range of 0 to 120 degrees F.
- D. Representative Manufacturers: Mirafi, Inc. or equal.

2.02 COARSE AGGREGATES

- A. Coarse aggregate: Crushed stone, gravel, crushed blast furnace slag, or combination of these materials. Aggregate shall be composed of clean, hard, durable materials free from adherent coatings of, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.
- B. Coarse aggregates to consist of open graded rock 2” to 8” in size.

PART 3 EXECUTION**3.01 PREPARATION AND INSTALLATION**

- A. Provide stabilized construction roads and access at construction, staging, parking, storage, and disposal areas to keep street clean of mud carried by construction vehicles and equipment. Construct erosion and sediment controls in accordance with Drawings and Specification requirements.
- B. Do not clear grub or rough cut until erosion and sediment control systems are in place, unless approved by Project Manager to allow soil testing and surveying.
- C. Maintain existing construction site erosion and sediment control systems until acceptance of the Work or until removal of existing systems is approved by Project Manager.

- D. Regularly inspect, repair or replace components of stabilized construction access. Unless otherwise directed, maintain stabilized construction roads and access until the county accepts the Work. Remove stabilized construction roads and access promptly when directed by Project Manager. Discard removed materials off-site.
- E. Remove and dispose of sediment deposits at designated spoil site for Project. If a spoil site is not designated on Drawings, dispose of sediment off-site at a location not in or adjacent to stream or flood plain. Assume responsibility for off-site disposal.
- F. Spread compacted and stabilized sediment evenly throughout site. Do not allow sediment to flush into streams or drainage ways. Dispose of contaminated sediment in accordance with existing federal, state, and local rules and regulations.
- G. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage to erosion and sediment control systems caused by construction traffic.
- H. Conduct construction operations in conformance with erosion control requirements of Specification 01570 – Storm Water Pollution Prevention Control.

3.02 CONSTRUCTION MAINTENANCE

- A. Provide stabilized access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes where shown on Drawings.
- B. Provide stabilized construction access and vehicle washing areas, when approved by Project Manager, of sizes and at locations shown on Drawings or as specified in this Section.
- C. Clean tires to remove sediment on vehicles leaving construction areas prior to entering public right-of-ways. Construct wash areas needed to remove sediment. Release wash water into drainage swales or inlets protected by erosion and sediment control measures.
- D. Details for stabilized construction access are shown on Drawings. Construct other stabilized areas to same requirements. Maintain minimum roadway widths of 14 feet for one-way traffic and 20 feet for two-way traffic and of sufficient width to allow ingress and egress. Place geotextile fabric as a permeable separator to prevent mixing of coarse aggregate with underlying soil. Limit exposure of geotextile fabric to elements between laydown and cover to a maximum 14 days to minimize potential damage.
- E. Grade roads and parking areas to provide sufficient drainage away from stabilized areas. Use sandbags, gravel, boards, or similar materials to prevent sediment from entering public right-of-ways, waterways or storm water conveyance systems.

- F. Inspect and maintain stabilized areas daily. Provide periodic top dressing with additional coarse aggregates to maintain required depth. Repair and clean out damaged control systems used to trap sediment. Immediately remove spilled, dropped, washed, or tracked sediment from public right-of- ways.
- G. Maintain lengths of stabilized areas as shown on Drawings or a minimum of 50 feet. Maintain a minimum thickness of 8 inches. Maintain minimum widths at all points of ingress or egress.
- H. Stabilize other areas with the same thickness, and width of coarse aggregate required for stabilized construction access, except where shown otherwise on Drawings.
- I. Stabilized areas may be widened or lengthened to accommodate truck washing areas when authorized by Project Manager.
- J. Clean street daily before end of workday. When excess sediments have tracked onto streets, Project Manager may direct Contractor to clean street as often as necessary. Remove and legally dispose of sediments.
- K. Use other erosion and sediment control measures to prevent sediment runoff during rain periods and non-working hours and when storm discharges are expected.

END OF SECTION

SECTION 02082

PRECAST CONCRETE MANHOLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Precast concrete manholes for sanitary sewers, storm sewers, and water lines. Manhole bases may be round or square.
- B. Precast concrete sanitary sewer manholes with PVC liner where corrosion resistant manholes are specifically indicated in Drawings.
- C. Pile-supported concrete foundation used for unstable subgrade treatment for manhole base.

1.02 RELATED SECTIONS

- A. Section 01270 - Measurement and Payment
- B. Section 01330 - Submittal Procedures
- C. Section 01630 - Product Substitution Procedures
- D. Section 02090 - Frames, Grates, Rings, and Covers
- E. Section 02317 - Excavation and Backfill for Utilities
- F. Section 02321 - Cement Stabilized Sand
- G. Section 02533 - Acceptance Testing for Sanitary Sewers
- H. Section 02911 – Topsoil
- I. Section 02921 - Hydro Mulch Seeding
- J. Section 02922 – Sodding
- K. Section 03315 - Concrete for Utility Construction
- L. Section 04061 - Mortar

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices

1. Payment for normal depth manholes, up to 8 feet deep, is on a unit price basis for each manhole installed. Manhole depth is measured from top of cover to sewer invert. Air release manhole depth is measured from top of cover to inside base for air release or vacuum release manholes. Manholes for water lines are measured from top of cover to inside base of manhole.
 2. Payment for shallow depth manholes is on a unit price basis for each manhole installed. Shallow manholes have a depth of 5 feet or less measured from top of cover to sewer invert.
 3. Payment for extra depth manholes is on a unit price basis per vertical foot for each foot of depth greater than 8 feet. Sewer manhole depth is measured from top of cover to sewer invert. Air release manhole depth is measured from top of cover to inside base for air release or vacuum release manholes. Manholes for water lines are measured from top of cover to inside base of manhole.
 4. Payment for normal depth corrosion resistant manholes is on a unit price basis for each manhole installed
 5. Payment for standard manhole drops is on a unit price basis for each drop installed. Standard manhole drops include both internal and external drops.
 6. Payment for watertight manholes, including external vent pipe and/or wraps, are on a unit price basis for each.
 7. Payment for air-release manhole with valves and fittings installed is on a unit price basis for each manhole with air-release valves and fittings installed.
 8. Payment for pile-supported concrete foundation used for unstable subgrade treatment for manhole base is on a unit price basis for each foundation installed.
 9. Pay estimates for partial payments will be made as measured above according to the following schedule for sanitary sewer manholes:
 - a. Estimate for 90 percent payment will be authorized when the manhole is completely installed and surrounding soil backfilled
 - b. Estimate for 100 percent payment will be authorized when manhole has been tested as specified in Section 02533 - Acceptance Testing for Sanitary Sewers
 10. Refer to Section 01270 - Measurement and Payment for unit price procedures
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASME B 16.1 – Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250
- B. ASTM A 307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength
- C. ASTM A 615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- D. ASTM C 443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
- E. ASTM C 478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections
- F. ASTM C 890 - Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
- G. ASTM C 913 – Standard Specification for Precast Concrete Water and Wastewater Structures.
- H. ASTM C 923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
- I. ASTM C 990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
- J. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
- K. ASTM C 1821 - Standard Practice for Installation of Underground Circular Precast Concrete Manhole Structures
- L. ASTM C 1837 - Standard Specification for Production of Dry Cast Concrete Used for Manufacturing Pipe, Box, and Precast Structures
- M. ASTM C 1889 – Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Utility, Water, and Wastewater Structures Using AASHTO LRFD Design
- N. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft³ (600kN-m/m³))
- O. ASTM D 2665 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste and Vent Pipe and Fittings
- P. ASTM D 2996 - Standard Specification for Filament-Wound “Fiberglass” (Glass-Fiber- Reinforced Thermosetting-Resin) Pipe

- Q. ASTM D 2997 - Standard Specification for Centrifugally Cast “Fiberglass” (Glass-Fiber- Reinforced Thermosetting Resin) Pipe
- R. ASTM F 2306 – Standard Specification for 12 to 60 in. [300 to 1500 mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
- S. ASTM F 2510 – Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Corrugated Dual- and Triple-Wall Polyethylene and Polypropylene Pipes.
- T. AWWA C 213 - Fusion Bonded Epoxy Coatings and Linings for Steel Water Pipe and Fittings
- U. American Association of State Highway and Transportation Officials (AASHTO)
- V. Texas Department of Transportation (TxDOT) – Item 465 “Junction Boxes, Manholes, and Inlets”

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit manufacturer's data and details of following items for approval:
 - 1. Shop drawings of manhole sections, base units and construction details, including reinforcement, jointing methods, materials and dimensions.
 - 2. Summary of criteria used in manhole design including, as minimum, material properties, loadings, load combinations, and dimensions assumed. Include certification from manufacturer that precast manhole design is in full accordance with ASTM C 478 and/or ASTM C 890 and design criteria as established in Paragraph 2.01E of this Specification.
 - 3. Frames, grates, rings, and covers
 - 4. Materials to be used in fabricating drop connections
 - 5. Materials to be used for pipe connections at manhole walls
 - 6. Materials to be used for stubs and stub plugs, if required
 - 7. Materials and procedures for corrosion-resistant liner and coatings, if required.
 - 8. Plugs to be used for sanitary sewer hydrostatic testing
 - 9. Manufacturer's data for pre-mix (bag) concrete, if used for channel inverts and benches

- C. Seal submittal drawings by Professional Engineer registered in State of Texas.

PART 2 PRODUCTS

2.01 PRECAST CONCRETE MANHOLES

- A. Provide machine-made manhole sections, base sections, and related components conforming to ASTM C 478 and/or ASTM C 913. Provide base riser section with integral floors, unless shown otherwise. Provide adjustment rings which are standard components of manufacturer of manhole sections. Mark date of manufacture and name or trademark of manufacturer on inside of barrel.
- B. Construct risers and reduced risers for precast manholes from standard reinforced concrete manhole sections of diameter indicated on Drawings. Use various lengths of manhole sections in combination to provide correct height with fewest joints.
- C. Minimum Thickness Requirements for Riser Walls and Bases:
 - 1. Sanitary Sewer and Waterline Manholes
 - a. Design Wall sections for depth and loading conditions in paragraph 2.01.F, with minimum thickness of 5 inches.
 - b. Base sections shall have a minimum thickness of 12 inches under invert.
 - 2. Storm Sewer Manholes
 - a. Design riser sections, base and base slabs for depth and loading conditions in Paragraph 2.01.F, with minimum thicknesses according to precast storm water manhole standard details. Minimum base thickness specified in the precast storm water manhole details excludes benching and invert material thickness.
- D. Provide tops to support cast iron casting meeting AASHTO M-306 Section 5 loading, and receive manhole frame & covers, as indicated on Drawings.
- E. Transition Slabs:
 - 1. Sanitary Sewer & Waterline Manholes:
 - a. Where manholes larger than 48-inch diameter are indicated on Drawings, provide precast base sections with flat slab top precast sections used to transition to 48-inch diameter manhole access riser sections. Transition can be concentric or eccentric unless otherwise shown on Drawings. Locate transition to provide minimum of 7-foot head clearance from base to underside of transition unless otherwise approved by Project Manager.

2. Storm Sewer Manholes:
 - a. Where manholes larger than 48-inch diameter are indicated on Drawings, provide precast base sections with flat slab top precast sections used to transition to 48-inch or 60-inch diameter manhole access riser sections. Transition can be concentric or eccentric unless otherwise shown on Drawings.
- F. Design Loading Criteria: Manhole walls, transition slabs, cone tops, and manhole base slab shall be designed, by manufacturer, to requirements of ASTM C 890, and/or ASTM C 1889 for depth as shown on Drawings and to resist following loads.
 1. AASHTO HL-93 design live loading loads as referred to in AASHTO LRFD Bridge Design Specifications applied to manhole cover and transmitted down to transition and base slabs.
 2. Unit soil weight of 120 pcf located above portions of manhole, including base slab projections.
 3. Lateral soil pressure based on saturated soil conditions producing an at-rest equivalent fluid pressure of 100 pcf.
 4. Internal liquid pressure based on unit weight of 63 pcf.
 5. Dead load of manhole sections fully supported by transition and base slabs.
- G. Design: Manhole walls, transition slabs, cone tops, and manhole base slab shall be designed according to requirements of ASTM C 478, and/or ASTM C 913 and following:
 1. Design additional reinforcing steel to transfer stresses at openings. Area of steel to be no less than shown on Drawings.
 2. Wall loading conditions:
 - a. Saturated soil pressure acting on empty manhole
 - b. Manhole filled with liquid to a halfway depth as measured from invert to cover, with no balancing external soil pressure
 3. Wall Penetrations:
 - a. Sanitary Sewer and Waterline Manholes:
 - (1) Minimum clear distance between two wall penetrations shall be 12 inches or half diameter of smaller penetration, whichever is greater.
 - b. Storm Sewer Manholes:

- (1) Minimum clear distance between two wall penetrations shall be 6 inches or the base units wall thickness, whichever is greater. Clear distance shall be measured along the inside wall arc of manhole.
 - (2) When resilient connectors are specified in the contract documents, minimum clear distance between wall penetrations shall be 12 inches. Minimum clear distance is to be verified with resilient connector manufacturer before fabricator's engineering design of manhole.
 - (3) All bases and risers may have cast or cored round wall penetrations. Wall penetrations shall not extend into the slabs or walls. Wall penetrations shall not to be within a distance less than the wall thickness, or a minimum of 6 inches, from the joint above or below.
 - (4) Only box bases and box risers may have thin wall panels (KO) that are round and do not extend into the slab, into walls, or within 6" of the joint above or below. KO dimensions to conform to requirements on standard details.
 - (5) For box manholes, wall penetrations at corners are prohibited.
 - (6) For rigid pipe, cut hole in thin wall panel (KO) 4" max, 2" min larger than pipe OD.
 - (7) For flexible pipe, consult boot/seal manufacturer's specification for placement tolerance and hole size.
- H. Provide vertical joints between sections with gaskets conforming to ASTM C 443 and/or ASTM C990.
- I. When base is cast monolithic with portion of vertical section, extend reinforcing in vertical section into base.
- J. Precast Concrete Base: Supply suitable cutouts, knockouts or holes to receive pipe and connections. Lowest edge of holes or cutouts: For water line manhole, no less than 6 inches above inside surface of floor of base. For storm sewer manholes, refer to requirements set by standard details.
- K. Lifting Hole, Marking and Storage and Shipment for Storm Water Manholes Only:

1. Lifting Holes: Provide no more than 4 lifting holes in each section for precast units. Lifting holes may be cast, cut into fresh concrete after form removal, or drilled. Provide lifting holes large enough for adequate lifting devices based on the size and weight of the section. The maximum hole diameter is 3 in. at the inside surface of the wall and 4 in. at the outside surface. Cut no more than 5 in. in any direction of reinforcement per layer for lifting holes. Repair spalled areas around lifting holes.
2. Marking. Clearly mark each precast manhole with the following information:
 - a. Name or trademark of fabricator and plant location
 - b. Product designation
 - c. ASTM designation (if applicable)
 - d. Date of manufacturing; and
 - e. Designated fabricator's approval stamp
3. Storage and Shipment: Store Precast units on a level surface. Do not ship precast units until design strength requirements have been met.

2.02 CONCRETE

A. Manholes

1. Sanitary Sewer and Waterline Manholes
 - a. Conform to requirements of Section 03315 - Concrete for Utility Construction or ASTM C 1837.
2. Storm Sewer Manholes
 - a. Conform to concrete material requirements of TxDOT Specification Item 465 "Junction Boxes, Manholes and Inlets".
 - b. Cure precast manholes in accordance with ASTM C 478.

B. Channel Inverts

1. Sanitary Sewer and Waterline Manholes
 - a. Use 5 sack premix (bag) concrete or Class A concrete for inverts not integrally formed with manhole base, with minimum compressive strength of 4,000 psi.
2. Storm Sewer Manholes

- a. Conform to concrete material requirements of TxDOT Specification Item 465 “Junction Boxes, Manholes and Inlets.
- C. Cement Stabilized Sand Foundation: Provide cement stabilized sand foundation under base section in lieu of foundation slab, as shown on Drawings, conforming to requirements of Section 02321 - Cement Stabilized Sand.
 - D. Concrete Foundation: Provide Class A concrete with minimum compressive strength of 4,000 psi for concrete foundation slab under manhole base section where indicated on Drawings.
- 2.03 REINFORCING STEEL
- A. Conform to requirements of Section 03315 - Concrete for Utility Construction.
- 2.04 MORTAR
- A. Conform to requirements of Section 04061 - Mortar.
- 2.05 MISCELLANEOUS METALS
- A. Provide cast-iron frames, rings, and covers conforming to requirements of Section 02090 - Frames, Grates, Rings and Covers.
- 2.06 DROP CONNECTIONS AND STUBS
- A. Provide drop connections and stubs conforming to same pipe material requirements used in main pipe, unless otherwise indicated on Drawings.
- 2.07 PIPE CONNECTIONS TO MANHOLE
- A. Sanitary Sewer Connections
 - 1. Provide resilient connectors conforming to requirements of ASTM C 923. Use the following materials for metallic mechanical devices as defined in ASTM C 923:
 - a. External clamps: Type 304 stainless steel
 - b. Internal, expandable clamps on standard manholes: Type 304 stainless steel, 11 gauge minimum.
 - c. Internal, expandable clamps on corrosion-resistant manholes:
 - (1) Type 316 stainless steel, 11 gauge minimum
 - (2) Type 304 stainless steel, 11 gauge minimum, coated with minimum 16 mil fusion-bonded epoxy conforming to AWWA C 213

2. Where rigid joints between pipe and cast-in-place manhole base are specified or shown on Drawings, provide polyethylene-isoprene water-stop meeting physical property requirements of ASTM C 923, such as Press-Seal WS Series, or approved equal.
- B. Storm Sewer Connections
1. Provide watertight connections in accordance with ASTM C 923 and ASTM F 2510 as applicable for flexible pipe. Rigid (concrete) pipe to manhole connections are to be grouted according to ASTM C 1821.
- C. Water Line Connections
1. Where smooth exterior pipes, i.e., steel, ductile iron, or PVC pipes are connected to manhole base or barrel, seal space between pipe and manhole wall with assembly consisting of rubber gasket or links mechanically compressed to form a watertight barrier. Assemblies: Press-Wedge, Res-Seal, Thunderline Link-Seal, or approved equal. See Drawings for placement of assembly in manhole sections.
 2. When connecting concrete or cement mortar coated steel pipes, or as option for connecting smooth exterior pipes to manhole base or barrel, space between pipe and manhole wall may be sealed with an assembly consisting of a stainless-steel power sleeve, stainless steel take-up clamp and a rubber gasket. Take-up clamp: Minimum of 9/16 inch wide. Provide PSX positive seal gasket system by Press-Seal Gasket Corporation or approved equal.

2.08 SEALANT MATERIALS

- A. Approved products in accordance with Section 01630 - Product Substitution Procedures.
- B. Sealing material between precast concrete adjustment ring and manhole, between each adjustment ring, and between adjustment ring and manhole cover frame shall be a hydrophilic elastic sealant, which adheres to both concrete and metal, or approved equal.
- C. Provide approved external sealing material from Canusa Wrapid Seal manhole encapsulation system, or approved equal.
- D. Provide Butyl Sealant: Provide Press-Seal EZ Stick, or equal, for HDPE rings.

2.09 CORROSION RESISTANT MANHOLE MATERIALS

- A. Submit products to engineer for liner and/or coating materials for corrosion-resistant manholes.

2.10 BACKFILL MATERIALS

- A. Conform to requirements of Section 02317 - Excavation and Backfill for Utilities.

2.11 NON-SHRINK GROUT

- A. Provide prepackaged, inorganic, flowable, non-gas-liberating, non-metallic, cement-based grout requiring only addition of water.
- B. Meet requirements of ASTM C 1107 and have minimum 28-day compressive strength of 7,000 psi.

2.12 VENT PIPES

- A. Provide external vent pipes for manholes where indicated on Drawings.
- B. Buried Vent Pipes: Provide 3-inch or 4-inch PVC DWV pipe conforming to ASTM D2665. Alternatively, provide FRP pipe as specified for vent outlet assembly.
- C. Vent Outlet Assembly: Provide vent outlet assembly as shown on Drawings, constructed of following specified materials:
 - 1. FRP Pipe: Provide filament wound FRP conforming to ASTM D 2996 or centrifugally cast FRP conforming to ASTM D 2997. Seal cut ends in accordance with manufacturer's recommendations.
 - 2. Joints and Fittings: Provide epoxy bodied fittings and join pipe to fittings with epoxy adhesive
 - 3. Flanges: Provide socket-flange fittings for epoxy adhesive bonding to pipe ends where shown on Drawings. Meet bolt pattern and dimensions for ASME B 16.1, 125- pound flanges. Flange bolts shall be Type 304 stainless steel or hot-dip zinc coated, conforming to ASTM A 307, Class A or B.
 - 4. Coating: Provide approved 2-component, aliphatic polyurethane coating using primer or tie coat recommended by manufacturer. Provide two or more coats to yield dry film thickness of at least 3 mils. Color shall be selected by Project Manager from manufacturer's standard colors.

2.13 PROHIBITED MATERIALS

- A. Use of brick masonry is prohibited for construction of manholes, including adjustment of manholes to grade.
- B. For Storm Water manholes, use of mortar is prohibited for pipe to manhole connections.

2.14 MANHOLE LADDER FOR WATERLINE MANHOLES

- A. Manhole Ladder: Fiberglass with 300-lb rating at appropriate length; conform to requirements of Occupational Safety and Health Standards (OSHA), U.S. Department of Labor except where shown on Drawings:
 - 1. Use components, including rungs, made of fiberglass, fabricated with nylon or aluminum rivets and/or epoxy. Apply non-skid coating to ladder rungs. Mount ladder using manufacturer's recommended hardware.
 - 2. Provide ladder as manufactured by Saf-Rail or approved equal. Locate ladder as shown on Drawings.
 - 3. Fiberglass: Premium type polyester resin, reinforced with fiberglass; constructed to provide complete wetting of glass by resin; resistant to rot, fungi, bacterial growth and adverse effects of acids, alkalis and residential and industrial waste; yellow in color.
- B. Provide approved petroleum-based tape encapsulating bolts in access manhole.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that lines and grades are correct.
- B. Determine if subgrade, when scarified and recompacted, can be compacted to 95 percent of maximum Standard Proctor Density, at ± 3 percent optimum moisture content according to ASTM D 698 prior to placement of foundation material and base section. If it does not meet the moisture-density requirement, condition the subgrade until the required moisture-density requirement is met or treat as an unstable subgrade.
- C. Do not build manholes in ditches, swales, or drainage paths unless approved by Project Manager.

3.02 PLACEMENT

- A. Install precast manholes to conform to locations and dimensions shown on Drawings.
- B. Place sanitary manholes at points of change in alignment, grade, size, pipe intersections, and end of sewer unless otherwise shown on Drawings.
- C. Place storm manholes at points of change in alignment, grade, size, pipe intersections, and end of sewer unless otherwise shown on Drawings. Pipe connections into storm sewer precast box manholes that exceed a 7-degree angle of entry shall use a pipe elbow, bend, or curved approach as shown per detail 02082-13 Storm Sewer Precast Box Manhole, Pipe Connection Detail.

3.03 MANHOLE BASE SECTIONS AND FOUNDATIONS

- A. Foundation Material:
1. Sanitary Sewer and Waterlines
 - a. Place precast base on 12-inch thick (minimum) foundation of crushed stone wrapped in filter fabric, cement stabilized sand, or concrete foundation slab. Compact cement-sand in accordance with requirements of Section 02321 - Cement Stabilized Sand.
 2. Storm Sewer
 - a. Foundation material is to be selected based on site soil type and bearing capacity established by the geotechnical investigation report. Place precast base on the foundation material that is selected, by the Engineer of Record and Geotechnical Engineer, from the options below:
 - (1) 12-inch thick (minimum) foundation of crushed stone wrapped in filter fabric, placed in maximum 6-inch compacted lift thickness layers.
 - (2) Cement stabilized sand compacted in accordance with requirements of section 02321 – Cement Stabilized Sand. Cement stabilized sand foundations are prohibited to be placed on fault lines.
 - (3) Concrete foundation slab.
- B. Unstable Subgrade Treatment: When unstable subgrade is encountered, notify Project Manager for examination of subgrade to determine if subgrade has heaved upwards after being excavated. When heaving has not occurred, over-excavate subgrade to allow for 24-inch-thick layer of crushed stone wrapped in filter fabric as foundation material under manhole base. When there is evidence of heaving, provide pile-supported concrete foundation, as detailed on Drawings, under manhole base.
- C. For manholes located over large diameter water lines, place precast base on a foundation of cement stabilized sand extending from bottom of manhole to bottom of trench. Manhole base is to be a minimum of 12-inches above water line.

3.04 PRECAST MANHOLE SECTIONS

- A. Install sections, joints, and gaskets in accordance with ASTM C 1821 and the manufacturer's printed recommendations.
- B. Install precast adjustment rings above tops of cones or flat-top sections as required to adjust finished elevation and to support manhole frame.
- C. Seal any lifting holes with non-shrink grout.

- D. Where PVC liners are required, seal joints between sections in accordance with manufacturer's recommendations.
- E. Place at least two precast concrete grade rings with thickness of 12 inches or less, under casting. Refer to standard details for additional requirements of precast concrete grade rings.

3.05 PIPE CONNECTIONS AT MANHOLES

- A. Install approved resilient connectors at each pipe entering and exiting manholes in accordance with manufacturer's instructions and specifications. Resilient/flexible connectors shall not be grouted unless allowed by the manufacturer.
 - 1. Sanitary Sewer and Waterline Manholes
 - a. Where smooth exterior pipes, i.e. steel, ductile iron or PVC pipes are connected to manhole base or barrel, space between pipe and manhole wall shall be sealed with an assembly consisting of rubber gaskets or links mechanically compressed to form watertight. Assemblies: "Press-Wedge," "Res-Seal," "Thunderline Link-Seals," or approved equal. See Drawings for placement of assembly in manhole sections.
 - b. When connecting concrete or cement mortar coated steel pipes, or as an option for connecting smooth exterior pipes to manhole base or barrel, space between pipe and manhole wall may be sealed with an assembly consisting of stainless-steel power sleeve, stainless steel take-up clamp and rubber gasket. Take-up clamp: Minimum of 9/16 inch wide. Provide PSX positive seal gasket system by Press-Seal Gasket Corporation or approved equal.
 - 2. Storm Sewer Manholes
 - a. Refer to 2.07.B for approved connection materials.
- B. Rigid Pipe Connections
 - 1. Sanitary Sewer and Waterline Manholes
 - a. When making a rigid (concrete) pipe connection to a concrete manhole the pipe is to be set in flexible joint sealant conforming to ASTM C 990. Grout pipe penetration in place on both inside and outside of manhole.
 - 2. Storm Sewer Manholes

- a. When making a rigid (concrete) pipe connection to a concrete manhole the pipe is to be set in flexible joint sealant conforming to ASTM C 990. When pipe to manhole connections are to be grouted, grout connections to conform to requirements in ASTM C 1821. All voids are to be completely filled with grout and grouted on both sides inside and outside of manhole.
- C. Flexible Pipe Connections
1. Sanitary Sewer and Waterline Manholes
 - a. Install approved resilient connectors at each flexible pipe connection as per ASTM C 923 and/or ASTM F 2510 to a concrete manhole.
 2. Storm Sewer Manholes
 - a. Install approved resilient connectors at each flexible pipe connection per 2.07.B.1 to a concrete manhole.
- D. Ensure no concrete, cement stabilized sand, fill, or other rigid material is allowed to enter space between pipe and edge of wall opening at and around resilient connector on either interior or exterior of manhole. If necessary, fill space with compressible material to ensure full flexibility provided by resilient connector.
- E. Where a new manhole is constructed on an existing sewer, rigid joint pipe may be used. Install waterstop gasket around existing pipe at center of cast-in-place wall. Join ends of split waterstop material at pipe springline using an adhesive recommended and supplied by waterstop manufacturer.
- F. Test connection for watertight seal before backfilling.

3.06 INVERTS FOR SANITARY SEWERS

- A. Construct invert channels to provide smooth flow transition waterway with no disruption of flow at pipe-manhole connections. Conform to following criteria:
1. Slope of invert bench: 1 inch per foot minimum; 1-1/2 inches per foot maximum
 2. Depth of bench to invert shall be at least equal to the largest pipe diameter.
 3. Invert slope through manhole: 0.10-foot drop across manhole with smooth transition of invert through manhole, unless otherwise indicated on Drawings.
- B. Form invert channels with concrete if not integral with manhole base section. For direction changes of mains, construct channels tangent to mains with maximum possible radius of curvature. Provide curves for side inlets and smooth invert fillets for flow transition between pipe inverts.

3.07 DROP CONNECTIONS FOR SANITARY SEWERS

- A. Backfill drop assembly with crushed stone wrapped in filter fabric, cement stabilized sand, or Class A concrete to form solid mass. Extend cement stabilized sand or concrete encasement minimum of 4 inches outside bells.
- B. Install drop connection when sewer line enters manhole higher than 24 inches above invert of manhole.

3.08 INVERTS FOR STORM SEWERS

- A. When precast, square or rectangular structures are used for sewer manholes, construct invert channels to provide smooth flow transition waterway with no disruption of flow at pipe- manhole connections. Conform to following criteria:
 - 1. Slope of invert bench: 1 inch per foot minimum; 1-1/2 inches per foot maximum.
 - 2. Depth of bench to invert: one half of largest pipe diameter.
 - 3. Invert slope through manhole: 0.10-foot drop across manhole with smooth transition of invert through manhole, unless otherwise indicated on drawings.
- B. Form invert channels with concrete, after all connections have been made
 - 1. Refer to 2.02.B.2 for material requirements.

3.09 STUBS FOR FUTURE CONNECTIONS

- A. In manholes, where future connections are indicated on Drawings, install resilient connectors and pipe stubs with approved watertight plugs.

3.10 MANHOLE FRAME AND ADJUSTMENT RINGS

- A. Combine precast concrete or HDPE adjustment rings so elevation of installed casting cover matches pavement surface. Seal between concrete adjustment ring and precast top section with non-shrink grout; do not use mortar between adjustment rings. Apply latex-based bonding agent to precast concrete surfaces joined with non-shrink grout. Set cast iron frame on adjustment ring in bed of approved sealant material. Install sealant bed consisting of two beads of sealant, each bead having minimum dimensions of 1/2-inch and 1/2-inch wide.
- B. Wrap manhole frame and adjustment rings with external sealing material, minimum 3 inches beyond joint between ring and frame and adjustment rings and precast section.
- C. Manholes in unpaved areas:
 - 1. Sanitary Sewer and Waterlines

- a. For manholes in unpaved areas, set top of frame minimum of 6 inches above existing ground line unless otherwise indicated on Drawings. In unpaved areas, encase manhole frame in mortar or non-shrink grout placed flush with face of manhole ring and top edge of frame. Provide rounded corner around perimeter.

2. Storm Sewers

- a. For manholes in unpaved areas, set top of frame minimum of 6 inches above existing ground line unless otherwise indicated on Drawings. In unpaved areas, where existing manholes are to be fitted with a grated cover for the purpose of storm water drainage, it is permitted to set the top of the frame at existing/proposed grade. In unpaved areas, encase manhole frame in mortar or non-shrink grout placed flush with face of manhole ring and top edge of frame. Provide rounded corner around perimeter.

3.11 BACKFILL

- A. Place and compact backfill materials in area of excavation surrounding manholes in accordance with requirements of Section 02317 - Excavation and Backfill for Utilities. Provide embedment zone backfill material, as specified for adjacent utilities, from manhole foundation up to an elevation 12 inches over each pipe connected to manhole. Provide trench zone backfill, as specified for adjacent utilities, above embedment zone backfill.
- B. Where rigid joints are used for connecting existing sewers to manhole, backfill under existing sewer up to springline of pipe with Class B concrete or flowable fill.
- C. In unpaved areas, provide positive drainage away from manhole frame to natural grade. Provide minimum of 4 inches of topsoil conforming to requirements of Section 02911 - Topsoil. Seed in accordance with Section 02921 - Hydro Mulch Seeding. When shown on Drawings, sod disturbed areas in accordance with Section 02922 - Sodding.

3.12 FIELD QUALITY CONTROL

- A. Conduct leakage testing of sanitary sewer manholes in accordance with requirements of Section 02533 - Acceptance Testing for Sanitary Sewers.
- B. Before installation of storm water manholes, if the foundation's subgrade soil conditions are inconsistent with the contract documents, notify the Engineer of Record and Geotechnical Engineer. Follow the Engineer of Record's and Geotechnical Engineer's instructions on any additional soil testing, proper selection of foundation materials, and soil remediation.

3.13 PROTECTION

- A. Protect manholes from damage until work has been accepted. Repair damage to manholes at no additional cost to owner.

END OF SECTION

SECTION 02090

FRAMES, GRATES, RINGS, AND COVERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Iron castings for manhole frames and covers, inlet frames and grates, catch basin frames and grates, meter vault frames and covers, adjustment rings, and extensions.
- B. Ring grates.
- C. Trench Drainage
- D. Tree Grates

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No payment will be made for frames, grates, rings, covers, and seals under this Section. Include payment in unit price for related item.
 - 2. Payment to rack over existing manhole is on a unit price basis for each manhole.
 - 3. Refer to Section 01270 - Measurement and Payment for unit price procedures
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. AASHTO Standard Specifications for Highway Bridges.
- B. AASHTO M 306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.
- C. AASHTO M 105 - Standard Specification for Gray Iron Castings.
- D. ASTM A 48 - Standard Specification for Gray Iron Castings.

- E. ASTM A 536 - Standard Specification for Ductile Iron Castings.
- F. ASTM A 615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- G. AWS - D 1.4 - Structural Welding Code – Steel Reinforcing Bars.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit copies of manufacturer's specifications, load tables, dimension diagrams, anchor details, and installation instructions.
- C. Submit shop drawings for fabrication and installation of casting assemblies that are not included in Drawings or standard construction details. Include plans, elevations, sections and connection details. Show anchorage and accessory items. Include setting drawings for location and installation of castings and anchorage devices.

PART 2 PRODUCTS

2.01 CASTINGS

- A. All castings shall be made from gray cast iron conforming to the requirements of AASHTO M 105 class 35b or ductile iron conforming to the requirements ASTM A 536 70-50-05.
- B. Castings intended for traffic service shall be clean castings capable of withstanding an application of 40,000 pound proof load as described in Section 5 of AASHTO M 306 (includes items such as frames, grates, rings, covers, trench drainage, etc.)
- C. Fabricate castings to conform to shapes, dimensions, and with wording or logos shown on Drawings.
- D. All castings shall be manufactured in accordance with the requirement of Section 4 of AASHTO M 306.
- E. Unless otherwise indicated, all gray iron castings shall be provided uncoated.

- F. Each individual casting shall include all markings as shown on the specification drawings and shall be identified by the producing foundry showing the following: Name of producing foundry; country of manufacturer preceded by the words “Made in,” such as “Made in USA”; material designation, heat identification and cast date (MM/DD/YY), casting lettering as required by the purchaser. If a casting is melted and poured at one foundry and labeled with the name of another organization, manufacturer, or foundry the casting shall include the name of the producing foundry and the organization the casting is produced for. The name of the producing foundry and the organization the product is made for shall have lettering of equal size, be in close proximity to each other, and be easily identified from the same side of the casting. The casting shall also include any additional markings as required in Section 9 of AASHTO M 306 and Section 17 of AASHTO M 105.

2.02 TESTING REQUIREMENTS

- A. Testing shall be performed in accordance with the following inspection criteria unless otherwise specified in the contract or purchase order. The manufacturer/supplier shall be responsible for carrying out all of the required tests and inspections. All testing shall be conducted in the United States using purchaser approved reliable facilities. The manufacturer/supplier shall maintain complete records of all such tests and inspections. All testing shall be paid for by the manufacturer/supplier.
- B. The manufacturer shall report and certify material information obtained from separately cast test bars. If there are more than three test bar failures in a calendar year the manufacturer shall report this to the purchaser and shall discontinue supplying product. In order to resume supplying product, documentation that a new Quality System is in place to ensure material compliance must be submitted to and accepted by the purchaser.

2.03 SPECIAL FRAMES AND COVERS

- A. Where indicated on Drawings, provide watertight manhole frames and covers with minimum of four bolts and gasket designed to seal cover to frame. Supply approved watertight manhole covers and frames.
- B. Where shown on Drawing, provide manhole frames and covers with 48-inch diameter clear opening, with inner cover for 22-inch diameter clear opening. Provide approved inner cover with pattern shown on Drawings.
- C. Where indicated on Drawings provide security enabled covers or grates, to be secured with the addition of Cam locks and lock lugs to inhibit opening and removal of cover or grate without proper authorized tool. Supply approved security feature Frames, Cover or Grates.

2.04 FABRICATED RING GRATES

- A. Fabricate ring grates from reinforcing steel conforming to ASTM A 615.
- B. Conform to welds connecting bars to AWS D 1.4.

- C. Fabricate ring grates in accordance with _____ standard detail, “Ring Grate for Open End of 18 Inch to 72 Inch RCP Stubs to Ditch”.

2.05 ADJUSTMENT RINGS FOR ASPHALT OVERLAYS

- A. Use castings conforming Paragraph 2.01.
- B. One piece casting with dimensions to fit frame and cover.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install castings according to approved shop drawings, instructions in related specifications, and applicable directions from manufacturer's printed materials.
- B. Set castings accurately at required locations to proper alignment and elevation. Keep castings plumb, level, true, and free of rack. Measure location accurately from established lines and grades. Brace or anchor frames temporarily in form work until permanently set.
- C. Set in mortar in mouth of pipe bell.
- D. Install adjustment rings in existing frames with clean bearing surfaces that are free from rocking.

END OF SECTION

SECTION 02233

CLEARING AND GRUBBING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removing surface debris and rubbish.
- B. Clearing site of plant life and grass.
- C. Removing trees and shrubs.
- D. Removing root system of trees and shrubs.
- E. Fence removal.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01576 – Waste Material Disposal

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment for clearing and grubbing is on per acre basis.
 - 2. No separate payment will be made for clearing and grubbing of wastewater projects, include payment in unit prices for related items.
 - 3. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for disposal of debris.
- B. Coordinate clearing work with utility companies.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify that existing plant life and features designated to remain are identified and tagged.

3.02 PROTECTION

- A. Protect following from damage or displacement:
 - 1. Living trees located 3 feet or more outside of intersection of side slopes and original ground line.
 - 2. Plants other than trees and landscape features designated to remain.
 - 3. Utilities designated to remain.
 - 4. Bench marks, monuments, and existing structures designated to remain.

3.03 CLEARING

- A. Remove stumps, main root ball, and root system to:
 - 1. Depth of 24 inches below finished subgrade elevation in area bounded by lines two feet behind back of curbs.
 - 2. Depth of 24 inches below finished surface of required cross section for other areas.
- B. Clear undergrowth and deadwood without disturbing subsoil.
- C. Remove vegetation from top soil scheduled for reuse.

3.04 REMOVAL

- A. Remove debris, rubbish, and extracted plant material life from site in accordance with requirements of Section 01576 - Waste Material Disposal.
- B. Remove on site fences. Materials generated from removal of fences become property of Contractor. Properly dispose of in accordance with applicable local, state and federal laws.

END OF SECTION

SECTION 02260

TRENCH SAFETY SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Trench safety system for the construction of trench excavations.
- B. Trench safety system for excavations which fall under provisions of State and Federal trench safety laws.
- C. This Standard Specification Section replaces previously published Section 01561-Trench Safety System.

1.02 RELATED SECTIONS

- A. Document 00410 – Bid Form
- B. Document 00830 – Trench Safety Geotechnical Information
- C. Section 01270 – Measurement and Payment
- D. Section 01330 – Submittal Procedures

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices:
 - 1. Measurement for trench safety systems used on trench excavations is on a linear foot basis measured along the centerline of the trench, including manholes and other line structures.
 - 2. No payment will be made under this section for trench safety systems for structural excavations, tunnel shafts, auger pits, or excavation for trenchless installations, and also for any necessary non trenchless installations included in the aforementioned methods of construction unless included as a bid item in Documents 00410 – Bid Form. Include payment for trench safety systems in applicable structural or utility installation sections.
 - 3. Refer to Section 01270 - Measurement and payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If the Contract is a Stipulated Price Contract, payment for work in this Section is included in the total Stipulated Price.

1.04 DEFINITIONS

- A. A trench shall be defined as a narrow excavation (in relation to its depth) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet.
- B. The trench safety system requirements will apply to larger open excavations if the erection of structures or other installations limits the space between the excavation slope and these installation to dimensions equivalent of a trench as defined.
- C. Trench Safety Systems include but are not limited to sloping, sheeting, trench boxes or trench shields, sheet piling, cribbing, bracing, shoring, dewatering or diversion of water to provide adequate drainage.
- D. Trench Safety Program is the safety procedures governing the presence and activities of individuals working in and around trench excavations.

1.05 SUBMITTALS

- A. Submittals shall conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit a safety program specifically for the construction of trench excavation. Design the trench safety program to be in accordance with OSHA 29CFR standards governing the presence and activities of individuals working in and around trench excavations.
- C. Construction and shop drawings containing deviations from OSHA standards or special designs shall be sealed by a licensed Engineer retained and paid by Contractor.
- D. Review of the safety program by the County Engineer will only be in regard to compliance with this specification and will not constitute approval by the County Engineer nor relieve Contractor of obligations under State and Federal trench safety laws.
- E. Submit certification that trench safety system will not be subjected to loads exceeding those which the system was designed to withstand according to the available construction and geotechnical information.

1.06 REGULATORY REQUIREMENTS

- A. Install and maintain trench safety systems in accordance with the detail specifications set out in the provision of Excavations, Trenching, and Shoring, Federal Occupation Safety and Health Administration (OSHA) Standards, 29CFR, Part 1926, Subpart P, as amended, including Final Rule, published in the Federal Register Vol. 54, No. 209 on Tuesday, October 31, 1989. The sections that are incorporated into these specifications by reference include Sections 1926-650 through 1926-652.

- C. Legislation that has been enacted by the Texas Legislature with regard to Trench Safety Systems, is hereby incorporated, by reference, into these specifications. Refer to Texas Health and Safety Code Ann., §756.021 (Vernon 1991).
- D. Reference materials, if developed for a specific project, will be issued with the Bid Documents, including the following:
 - 1. Document 00830 - Trench Safety Geotechnical Information: Geotechnical information obtained for use in design of the trench safety system.

1.07 INDEMNIFICATION

- A. Contractor shall indemnify and hold harmless the County, its employees and agents, from any and all damages, costs (including, without limitation, legal fees, court costs, and the cost of investigation), judgements or claims by anyone for injury or death of persons resulting from the collapse or failure of trenches constructed under this Contract.
- B. Contractor acknowledges and agrees that this indemnity provision provides indemnity for the County in case the County is negligent either by act or omission in providing for trench safety, including, but not limited to safety program and design reviews, inspections, failures to issue stop work orders, and the hiring of the Contractor.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install and maintain trench safety systems in accordance with provisions of OSHA 29CFR.
- B. Install specially designed trench safety systems in accordance with the Contractor's trench excavation safety program for the locations and conditions identified in the program.
- C. A competent person, as identified in the Contractor's Trench Safety Program, shall verify that trench boxes and other premanufactured systems are certified for the actual installation conditions.

3.02 INSPECTION

- A. Contractor, or Contractor's independently retained consultant, shall make daily inspections of the trench safety systems to ensure that the installed systems and operations meet OSHA 29CFR and other personnel protection regulations requirements.
- B. If evidence of possible cave-ins or slides is apparent, Contractor shall immediately stop work in the trench and move personnel to safe locations until the necessary precautions have been taken by Contractor to safeguard personnel entering the trench.
- C. Maintain a permanent record of daily inspections.

3.03 FIELD QUALITY CONTROL

- A. Contractor shall verify specific applicability of the selected or specially designed trench safety systems to each field condition encountered on the project.

END OF SECTION

SECTION 02316

EXCAVATION AND BACKFILL FOR STRUCTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavation, backfilling, and compaction of backfill for structures.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01454 – Testing Laboratory Services
- D. Section 01555 – Traffic Control and Regulation
- E. Section 01562 – Tree and Plant Protection
- F. Section 01576 – Waste Material Disposal
- G. Section 01578 – Control of Ground and Surface Water
- H. Section 01785 – Project Record Documents
- I. Section 02221 – Removing Existing Pavements, Structures, Wood, and Demolition Debris
- J. Section 02260 – Trench Safety System
- K. Section 02319 – Borrow
- L. Section 02320 – Utility Backfill Materials
- M. Section 02321 – Cement Stabilized Sand
- N. Section 02621 – Geotextile

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No payment will be made for structural excavation and backfill under this Section. Include payment in unit price or lump sum for construction of structures.

2. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 DEFINITIONS

- A. Unsuitable Material: Unsuitable soil materials are the following:
1. Materials that are classified as ML, CL-ML, MH, PT, OH, and OL according to ASTM D 2487.
 2. Materials that cannot be compacted to required density due to gradation, plasticity, or moisture content.
 3. Materials that contain large clods, aggregates, stones greater than 4 inches in any dimension, debris, vegetation, waste or any other deleterious materials.
 4. Materials that are contaminated with hydrocarbons or other chemical contaminants.
- B. Suitable Material: Suitable soil materials are those meeting specification requirements. Unsuitable soils meeting specification requirements for suitable soils after treatment with lime or cement shall be considered suitable, unless otherwise indicated.
- C. Select Material: Material as defined in Section 02320 - Utility Backfill Materials.
- D. Backfill: Material meeting specified quality requirements, placed and compacted under controlled conditions around structures.
- E. Foundation Backfill Materials: Natural soil or manufactured aggregate meeting Class I requirements and geotextile filter fabrics as required, to control drainage and material separation. Foundation backfill material is placed and compacted as backfill where needed to provide stable support for structure foundation base. Foundation backfill materials may include concrete fill and seal slabs.
- F. Foundation Base: For foundation base material, use crushed stone aggregate with filter fabric as required, cement stabilized sand, or concrete seal slab. Foundation base provides smooth, level working surface for construction of concrete foundation.
- G. Foundation Subgrade: Foundation subgrade is surface of natural soil which has been excavated and prepared to support foundation base or foundation backfill, where needed.

- H. Ground Water Control Systems: Installations external to excavation such as well points, eductors, or deep wells. Ground water control includes dewatering to lower ground water, intercepting seepage which would otherwise emerge from side or bottom of excavation, and depressurization to prevent failure or heaving of excavation bottom. Refer to Section 01578 - Control of Ground and Surface Water.
- I. Surface Water Control: Diversion and drainage of surface water runoff and rain water away from excavation. Remove rain water and surface water which accidentally enters excavation as part of excavation drainage.
- J. Excavation Drainage: Removal of surface and seepage water in excavation by sump pumping and using French drains surrounding foundation to intercept water.
- K. Over-Excavation and Backfill: Excavation of subgrade soils with unsatisfactory bearing capacity or composed of otherwise unsuitable materials below foundation as shown on Drawings, and backfilled with foundation backfill material.
- L. Shoring System: Structure that supports sides of an excavation to maintain stable soil conditions and prevent cave-ins.

1.05 REFERENCES

- A. ASTM D 698 - Standard Test Methods for Laboratory Compaction of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³)).
- B. ASTM D 1556 - Standard Test Method for Density and Unit weight of Soil in Place by Sand-Cone Method.
- C. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- D. ASTM D 4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- E. ASTM D 6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- F. TxDOT Tex-101-E - Preparing Soil and Flexible Base Materials for Testing.
- G. TxDOT Tex-110-E - Particle Size Analysis of Soils.
- H. Federal Regulations, 29 CFR, Part 1926, Standards - Excavation, Occupational Safety and Health Administration (OSHA).

1.06 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.

- B. Submit work plan for excavation and backfill for each structure with complete written description which identifies details of proposed method of construction and sequence of operations for construction relative to excavation and backfill activities. Use descriptions, with supporting illustrations, sufficiently detailed to demonstrate to Project Manager that procedures meet requirements of Specifications and Drawings.
- C. Submit excavation safety system plan.
 - 1. Submit excavation safety system plan in accordance with applicable OSHA requirements for excavations.
 - 2. Submit excavation safety system plan in accordance with requirements of Section 02260 - Trench Safety System, for excavations that fall under State and Federal trench safety laws.
- D. Submit ground and surface water control plan in accordance with requirements in this Section and Section 01578 - Control of Ground and Surface Water.
- E. Submit backfill material sources and product quality information in accordance with requirements of Section 02320 - Utility Backfill Materials.
- F. Submit project record documents under provisions of Section 01785 - Project Record Documents. Record location of utilities, as installed, referenced to survey benchmarks. Include location of utilities encountered or rerouted. Give horizontal dimensions, elevations, inverts and gradients.

1.07 TESTS

- A. Testing and analysis of backfill materials for soil classification and compaction during construction will be performed by an independent laboratory provided by Contractor in accordance with requirements of Section 01454 - Testing Laboratory Services and as specified in this Section.
- B. Perform embedment and backfill material source qualification testing in accordance with requirements of Section 02320 - Utility Backfill Materials.

PART 2 PRODUCTS

2.01 EQUIPMENT

- A. Perform excavation with equipment suitable for achieving requirements of this Specification.
- B. Use equipment which will produce degree of compaction specified. Compact backfill within 3 feet of walls with hand operated equipment. Do not use equipment weighing more than 10,000 pounds closer to walls than a horizontal distance equal to depth of fill at that time. Use hand operated power compaction equipment where use of heavier equipment is impractical or restricted due to weight limitations.

2.02 MATERIAL CLASSIFICATIONS

- A. Use backfill materials conforming to classifications and product descriptions of Section 02320 - Utility Backfill Materials. Use classification or product description for backfill applications as shown on Drawings and as specified.

PART 3 EXECUTION

3.01 PREPARATION

- A. Conduct an inspection to determine condition of existing structures and other permanent installations.
- B. Set up necessary street detours and barricades in preparation for excavation if construction will affect traffic. Conform to requirements of Section 01555 - Traffic Control and Regulation. Maintain barricades and warning devices at all times for streets and intersections where work is in progress, or where construction work is considered hazardous to traffic movements.
- C. Perform work in accordance with OSHA standards. Employ an excavation safety system as specified in Section 02260 - Trench Safety Systems.
- D. Remove existing pavements and structures, including sidewalks and driveways, in accordance with requirements of Section 02221 - Removing Existing Pavements, Structures, Wood, and Demolition Debris.
- E. Install and operate necessary dewatering and surface water control measures in accordance with requirements of Section 01578 - Control of Ground and Surface Water.

3.02 PROTECTION

- A. Protect trees, shrubs, lawns, existing structures, and other permanent objects outside of grading limits and within grading limits as designated on Drawings, and in accordance with requirements of Section 01562 - Tree and Plant Protection.
- B. Protect and support above-grade and below-grade utilities which are to remain.
- C. Restore damaged permanent facilities to pre-construction conditions unless replacement or abandonment of facilities is indicated on Drawings.
- D. Prevent erosion of excavations and backfill. Do not allow water to pond in excavations.
- E. Maintain excavation and backfill areas until start of subsequent work. Repair and recompact slides, washouts, settlements, or areas with loss of density at no additional cost to Owner.

3.03 EXCAVATION

- A. Perform excavation work so that underground structure can be installed to depths and alignments shown on Drawings. Use caution during excavation work to avoid disturbing surrounding ground and existing facilities and improvements. Keep excavation to absolute minimum necessary. No additional payment will be made for excess excavation not authorized by Project Manager.
- B. Upon discovery of unknown utilities, badly deteriorated utilities not designated for removal, or concealed conditions, discontinue work at that location. Notify Project Manager and obtain instructions before proceeding in such areas.
- C. Immediately notify agency or company owning any line which is damaged, broken or disturbed. Obtain approval from Project Manager and agency for any repairs or relocations, either temporary or permanent.
- D. Avoid settlement of surrounding soil due to equipment operations, excavation procedures, vibration, dewatering, or other construction methods.
- E. Provide surface drainage during construction to protect work and to avoid nuisance to adjoining property. Where required, provide proper dewatering and piezometric pressure control during construction.
- F. Conduct hauling operations so that trucks and other vehicles do not create dirt nuisance in streets. Verify that truck beds are sufficiently tight and loaded in such a manner such that objectionable materials will not spill onto streets. Promptly clear away any dirt, mud, or other materials that spill onto streets or are deposited onto streets by vehicle tires.
- G. Maintain permanent benchmarks, monumentation, and other reference points. Unless otherwise directed, replace those which are damaged or destroyed by Work.
- H. Provide sheeting, shoring, and bracing where required to safely complete Work, to prevent excavation from extending beyond limits indicated on Drawings, and to protect Work and adjacent structures or improvements. Use sheeting, shoring, and bracing to protect workmen and public conforming to requirements of Section 02260 - Trench Safety Systems.
- I. Prevent voids from forming outside of sheeting. Immediately fill voids with grout, cement stabilized sand, or other material approved by Project Manager and compact to 95 percent standard density.
- J. After completion of structure, remove sheeting, shoring, and bracing unless shown on Drawings to remain in place or directed by Project Manager in writing that such temporary structures may remain. Remove sheeting, shoring and bracing in such a manner as to maintain safety during backfilling operations and to prevent damage to Work and adjacent structures or improvements.

- K. Immediately fill and compact voids left or caused by removal of sheeting with cement stabilized sand or other material approved by Project Manager and compact to 95 percent standard density.

3.04 HANDLING EXCAVATED MATERIALS

- A. Classify excavated materials. Place material which is suitable for use as backfill in orderly piles at sufficient distance from excavation to prevent slides or cave-ins.
- B. Provide additional backfill material in accordance with requirements of Section 02319 - Borrow, if adequate quantities of suitable material are not available from excavation and trenching operations at site.

3.05 DEWATERING

- A. Provide ground water control per Section 01578 - Control of Ground and Surface Water.
- B. Keep ground water surface elevation minimum of 2 feet below bottom of foundation base.
- C. Maintain ground water control as directed by Section 01578 - Control of Ground and Surface Water and until structure is sufficiently complete to provide required weight to resist hydrostatic uplift with minimum safety factor of 1.2.

3.06 FOUNDATION EXCAVATION

- A. Notify Project Manager at least 48 hours prior to planned completion of foundation excavations. Do not place foundation base until excavation is accepted by Project Manager.
- B. Excavate to elevations shown on Drawings, as needed to provide space for foundation base, forming level undisturbed surface, free of mud or soft material. Remove pockets of soft or otherwise unstable soils and replace with foundation backfill material or material as directed by Project Manager. Prior to placing material over it, recompact subgrade where indicated on Drawings, scarifying as needed, to 95 percent of maximum Standard Dry Density according to ASTM D 698. If specified level of compaction cannot be achieved, moisture condition subgrade and recompact until 95 percent is achieved, over-excavate to provide minimum layer of 24 inches of foundation backfill material, or other means acceptable to Project Manager.
- C. Fill unauthorized excessive excavation with foundation backfill material or other material as directed by Project Manager.
- D. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition. Keep excavations free of standing water and completely free of water during concrete placement.

- E. Remove soils which become unsuitable due to inadequate dewatering or other causes, after initial excavation to required subgrade, and replace with foundation backfill material, as directed by Project Manager, at no additional cost to Owner.
- F. Place foundation base, or foundation backfill material where needed, over subgrade on same day that excavation is completed to final grade. Where base of excavations are left open for longer periods, protect them with seal slab or cement-stabilized sand.
- G. Use filter fabric as specified in Section 02621 - Geotextile to separate crushed aggregate, and other free draining Class I materials from native soils or select material backfill. Overlap fabric minimum of 12 inches beyond where another material stops contact with soil.
- H. Place crushed aggregate, and other Class I materials, in uniform layers of 8-inch maximum thickness. Perform compaction by means of at least two passes of vibratory compactor.

3.07 FOUNDATION BASE.

- A. Place foundation base after subgrade is properly prepared, including placement of foundation backfill where needed. Use foundation base consisting of 12-inch layer of crushed stone aggregate or cement stabilized sand. Alternately, seal slab with minimum thickness of 4 inches may be placed. Extend foundation base minimum of 12 inches beyond edge of structure foundation, unless shown otherwise on Drawings.
- B. Where foundation base and foundation backfill are of same material, both can be placed in one operation.

3.08 BACKFILL

- A. Complete backfill to surface of natural ground or to lines and grades shown on Drawings. Remove forms, lumber, trash and debris from structures. Deposit backfill in uniform layers and compact each layer as specified.
 - 1. Unless otherwise shown on Drawings, for structures under pavement or within one foot back of curb, use cement stabilized sand up to the top of the proposed structure. Use suitable on-site material (random backfill) up to 12 inches below pavement base or subgrade. Place minimum of 12 inches of select backfill below pavement base or subgrade.
 - 2. Unless otherwise shown on Drawings, for structures not under pavement, use random backfill of suitable material up to the surface.
- B. Do not place backfill against concrete walls or similar structures until laboratory test breaks indicate that concrete has reached minimum of 85 percent of specified compressive strength. Where walls are supported by slabs or intermediate walls, do not begin backfill operations until slab or intermediate walls have been placed and concrete has attained sufficient strength.

- C. Remove concrete forms before starting backfill and remove shoring and bracing as work progresses.
- D. Maintain backfill material at no less than 2 percent below nor more than 2 percent above optimum moisture content, unless otherwise approved by Project Manager. Place fill material in uniform 8-inch maximum loose layers. Compact fill to at least 95 percent of maximum Standard Proctor Density according to ASTM D 698 below paved areas. Compact fill to at least 90 percent around structures below unpaved areas.
- E. Where backfill is placed against sloped excavation surface, run compaction equipment across boundary of cut slope and backfill to form compacted slope surface for placement of next layer of backfill.
- F. Place backfill using cement stabilized sand in accordance with Section 02321 - Cement Stabilized Sand.

3.09 FIELD QUALITY CONTROL

- A. Testing will be performed under provisions of Section 01454 - Testing Laboratory Services.
- B. Tests will be performed initially on minimum of one different sample of each material type for plasticity characteristics, in accordance with ASTM D 4318, and for gradation characteristics, in accordance with Tex-101-E and Tex-110-E. Additional classification tests will be performed whenever there is noticeable change in material gradation or plasticity.
- C. In-place density tests of compacted subgrade and backfill will be performed according to ASTM D 1556, or ASTM D 6938, and at following frequencies and conditions:
 - 1. Minimum of one test for every 50 to 100 cubic yards of compacted backfill material as directed by Project Manager.
 - 2. A minimum of three density tests for each full work shift.
 - 3. Density tests will be performed in all placement areas.
 - 4. Number of tests will be increased when inspection determines that soil types or moisture contents are not uniform or when compacting effort is variable and not considered sufficient to attain uniform density.
 - 5. Identify elevation of test with respect to natural ground.
 - 6. Record approximate depth of lift tested.

- D. At least one test for moisture-density relationships will be initially performed for each type of backfill material in accordance with ASTM D 698. Perform additional moisture-density relationship test once a month or whenever there is noticeable change in material gradation or plasticity.
- E. When tests indicate work does not meet specified compaction requirements, recondition, recompact, and retest at Contractor's expense.

3.10 DISPOSAL OF EXCESS MATERIAL

- A. Dispose of excess materials in accordance with requirements of Section 01576 - Waste Material Disposal.

END OF SECTION

SECTION 02317

EXCAVATION AND BACKFILL FOR UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavation, trenching, foundation, embedment, and backfill for installation of utilities, including manholes and other pipeline structures.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01454 – Testing Laboratory Services
- D. Section 01504 – Temporary Facilities and Controls
- E. Section 01555 – Traffic Control and Regulation
- F. Section 01562 – Tree and Plant Protection
- G. Section 01576 – Waste Material Disposal
- H. Section 01578 – Control of Ground and Surface Water
- I. Section 01725 – Field Surveying
- J. Section 02221 – Removing Existing Pavements, Structures, Wood, and Demolition Debris
- K. Section 02260 – Trench Safety System
- L. Section 02320 – Utility Backfill Materials
- M. Section 02321 – Cement Stabilized Sand
- N. Section 02322 – Flowable Fill
- O. Section 02621 – Geotextile
- P. Section 03315 – Concrete for Utility Construction

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices

1. No additional payment will be made for trench excavation, embedment and backfill under this Section. Include cost in unit price for installed underground piping, sewer, conduit, or duct work.
 2. When Project Manager directs Contractor to over excavate trench bottom, Contractor will be paid by unit price bid per linear foot under bid item - 6-inches Over Excavation of Trench Bottom.
 - a. No payment will be paid if Project Manager does not direct Contractor to over excavate trench bottom.
 - b. No over excavation will be measured or paid when unsuitable conditions result from dewatering system not in conformance with Section 01578 - Control of Ground and Surface Water.
 3. No additional payment will be made for performing Critical Location exploratory excavation. Include cost in unit price for installed underground piping, sewer, conduit, or duct work.
 4. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price

1.04 DEFINITIONS

- A. Pipe Foundation: Suitable and stable native soils that are exposed at trench subgrade after excavation to depth of bottom of bedding as shown on Drawings, or foundation backfill material placed and compacted in over-excavations.
- B. Pipe Bedding: Portion of trench backfill that extends vertically from top of foundation up to level line at bottom of pipe, and horizontally from one trench sidewall to opposite sidewall.
- C. Haunching: Material placed on either side of pipe from top of bedding up to springline of pipe and horizontally from one trench sidewall to opposite sidewall.
- D. Initial Backfill: Portion of trench backfill that extends vertically from springline of pipe (top of haunching) up to level line 12-inches above top of pipe, and horizontally from one trench sidewall to opposite sidewall.
- E. Pipe Embedment: Portion of trench backfill that consists of bedding, haunching and initial backfill.
- F. Trench Zone: Portion of trench backfill that extends vertically from top of pipe embedment up to pavement subgrade or up to final grade when not beneath pavement.
- G. Unsuitable Material: Unsuitable soil materials are the following:

1. Materials that are classified as ML, CL-ML, MH, PT, OH, and OL according to ASTM D 2487.
 2. Materials that cannot be compacted to required density due to gradation, plasticity, or moisture content.
 3. Materials that contain large clods, aggregates, stones greater than 4-inches in any dimension, debris, vegetation, waste or any other deleterious materials.
 4. Materials that are contaminated with hydrocarbons or other chemical contaminants.
- H. Suitable Material: Suitable soil materials are those meeting specification requirements. Materials mixed with lime, fly ash, or cement that can be compacted to required density and meeting requirements for suitable materials may be considered suitable materials, unless otherwise indicated.
- I. Backfill: Suitable material meeting specified quality requirements placed and compacted under controlled conditions.
- J. Ground Water Control Systems: Installations external to trench, such as well points, eductors, or deep wells. Ground water control includes dewatering to lower ground water, intercepting seepage which would otherwise emerge from side or bottom of trench excavation, and depressurization to prevent failure or heaving of excavation bottom. Refer to Section 01578 - Control of Ground Water and Surface Water.
- K. Surface Water Control: Diversion and drainage of surface water runoff and rain water away from trench excavation. Rain water and surface water accidentally entering trench shall be controlled and removed as part of excavation drainage.
- L. Excavation Drainage: Removal of surface and seepage water in trench by sump pumping and using drainage layer, as defined in ASTM D 2321, placed on foundation beneath pipe bedding or thickened bedding layer of Class I material.
- M. Trench Conditions are defined with regard to stability of trench bottom and trench walls of pipe embedment zone. Maintain trench conditions that provide for effective placement and compaction of embedment material directly on or against undisturbed soils or foundation backfill, except where structural trench support is necessary.
1. Dry Stable Trench: Stable and substantially dry trench conditions exist in pipe embedment zone as result of typically dry soils or achieved by ground water control (dewatering or depressurization) for trenches extending below ground water level.
 2. Stable Trench with Seepage: Stable trench in which ground water seepage is controlled by excavation drainage.

- a. Stable Trench with Seepage in Clayey Soils: Excavation drainage is provided in lieu of or to supplement ground water control systems to control seepage and provide stable trench subgrade in predominately clayey soils prior to bedding placement.
 - b. Stable Wet Trench in Sandy Soils: Excavation drainage is provided in embedment zone in combination with ground water control in predominately sandy or silty soils.
3. Unstable Trench: Unstable trench conditions exist in pipe embedment zone if ground water inflow or high water content causes soil disturbances, such as sloughing, sliding, boiling, heaving or loss of density.
- N. Sub-trench: Sub-trench is special case of benched excavation. Sub-trench excavation below trench shields or shoring installations may be used to allow placement and compaction of foundation or embedment materials directly against undisturbed soils. Depth of sub-trench depends upon trench stability and safety as determined by Contractor.
- O. Trench Dam: Placement of low permeability material in pipe embedment zone or foundation to prohibit ground water flow along trench.
- P. Over-excavation and Backfill: Excavation of subgrade soils with unsatisfactory bearing capacity or composed of otherwise unsuitable materials below top of foundation as shown on Drawings, and backfilled with foundation bedding.
- Q. Foundation Bedding: Natural soil or manufactured aggregate of controlled gradation, and geotextile filter fabrics as required, to control drainage and material separation. Foundation bedding is placed and compacted as backfill to provide stable support for bedding. Foundation bedding materials may include concrete seal slabs.
- R. Trench Safety Systems include both protective systems and shoring systems as defined in Section 02260 - Trench Safety Systems.
- S. Trench Shield (Trench Box): Portable worker safety structure moved along trench as work proceeds, used as protective system and designed to withstand forces imposed on it by cave in, thereby protecting persons within trench. Trench shields may be stacked if so designed or placed in series depending on depth and length of excavation to be protected.
- T. Shoring System: Structure that supports sides of an excavation to maintain stable soil conditions and prevent cave-ins, or to prevent movement of ground affecting adjacent installations or improvements.
- U. Special Shoring: Shoring system meeting special shoring as specified in Paragraph 1.08, Special Shoring Design Requirements, for locations identified on Drawings.

- V. Vacuum Excavation: An excavation technique performed by an experienced subcontractor in which water or air jetting is used to slough off and vacuum away soil.
- W. Large Diameter Water Line (LDWL): Water line that is 24-inches in diameter or larger.
- X. Emergency Action Plan (EAP): The EAP document should include a discussion of procedures for timely and reliable detection, classification (level of emergency) and response procedure to a potential emergency condition associated with a large diameter water line.
- X. Subsurface Utility Exploration (SUE): Non-destructive excavation, unless otherwise approved by project manager.

1.05 REFERENCES

- A. ASTM A 798 – Standard Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications.
- B. ASTM C 12 - Standard Practice for Installing Vitrified Clay Pipe Lines.
- C. ASTM C 891 - Standard Practice for Installation of Underground Precast Concrete Utility Structures
- D. ASTM C 1479 - Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations
- E. ASTM C 1675 - Standard Practice for Installation of Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
- F. ASTM C 1821 - Standard Practice for Installation of Underground Circular Precast Concrete Manhole Structures
- G. ASTM D 558 - Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures.
- H. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft³ (600 kN-m/m<sup>3- I. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method.
- J. ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications.
- K. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classifications System).
- L. ASTM D 4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.</sup>

- M. ASTM D 6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- N. TxDOT Tex-101-E - Preparing Soil and Flexible Base Materials for Testing.
- O. TxDOT Tex-110-E - Particle Size Analysis of Soils.
- P. Federal Regulations, 29 CFR Part 1926, Standards-Excavation, Occupational Safety and Health Administration (OSHA).

1.06 SCHEDULING

- A. Schedule work so that pipe embedment can be completed on same day that acceptable foundation has been achieved for each section of pipe installation, manhole, or other structures.
- B. For proposed utility adjacent to or across existing LDWL:
 - 1. Conduct a meeting between contractor, Drinking Water Operations and Utility Maintenance Branch prior to beginning excavation to coordinate the EAP in the event a water line shut down becomes necessary.
 - 2. Notify Drinking Water Operations a minimum of 1 week prior to beginning construction activities.
 - 3. Notify Drinking Water Operations a minimum of 48 hours prior to beginning SUE work near LDWL.
 - 4. Unless otherwise approved by Owner, perform construction activities between 7 AM and 7 PM, Monday through Friday.
 - 5. A representative for the Owner must be present during SUE or construction activities occurring within four feet or one diameter of the LDWL, whichever is greater, from a LDWL or appurtenance.

1.07 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit planned typical method of excavation, backfill placement and compaction including:
 - 1. Trench widths.
 - 2. Procedures for foundation and pipe zone bedding placement, and trench backfill compaction.
 - 3. Procedures for assuring compaction against undisturbed soil when pre-manufactured trench safety systems are proposed.

- C. Submit backfill material sources and product quality information in accordance with requirements of Section 02320 - Utility Backfill Materials.
- D. Submit trench excavation safety program in accordance with requirements of Section 02260 - Trench Safety System. Include designs for special shoring meeting requirements defined in Paragraph 1.08, Special Shoring Design Requirements contained herein.
- E. Submit record of location of utilities as installed, referenced to survey control points. Include locations of utilities encountered or rerouted. Give stations, horizontal dimensions, elevations, inverts, and gradients.
- F. Submit 11-inch by 17-inch or 12-inch by 18-inch copy of Drawing with plotted utility or obstruction location titled "Critical Location Report" to Project Manager.
- G. For installation of proposed utility adjacent to or across existing LDWL, prepare and submit the following to Drinking Water Operations prior to beginning construction activities. Obtain approval from Drinking Water Operations prior to commencing prelocate or utility work near LDWL.
 - 1. Trench details, shoring system designs, installation sequences, and flowable fill mix designs.
 - 2. Emergency Action Plan (EAP) to address contingency plans in the event of damage to or failure of LDWL. Include the following:
 - a. Contact personnel and agencies including primary and secondary telephone numbers.
 - b. Contractor's hierarchy of responsible personnel.
 - c. Traffic control measures.
 - d. Identification of resources to be available on or near project site in event of damage to or failure of LDWL.

1.08 TESTS

- A. Testing and analysis of backfill materials for soil classification and compaction during construction will be performed by an independent laboratory provided by Contractor in accordance with requirements of Section 01454 - Testing Laboratory Services and as specified in this Section.
- B. Perform backfill material source qualification testing in accordance with requirements of Section 02320 - Utility Backfill Materials.

1.09 SPECIAL SHORING DESIGN REQUIREMENTS

- A. Have special shoring designed or selected by Contractor's Professional Engineer to provide support for sides of excavations, including soils and hydrostatic ground water pressures as applicable, and to prevent ground movements affecting adjacent installations or improvements such as structures, pavements and utilities. Special shoring may be a premanufactured system selected by Contractor's Professional Engineer to meet project site requirements based on manufacturer's standard design.

PART 2 PRODUCTS

2.01 EQUIPMENT

- A. Perform excavation with hydraulic excavator or other equipment suitable for achieving requirements of this Section.
- B. Use only hand-operated tamping equipment until minimum cover of 12-inches is obtained over pipes, conduits, and ducts. Do not use heavy compacting equipment until adequate cover is attained to prevent damage to pipes, conduits, or ducts.
- C. Use trench shields or other protective systems or shoring systems which are designed and operated to achieve placement and compaction of backfill directly against undisturbed native soil.
- D. Use special shoring systems where required which may consist of braced sheeting, braced soldier piles and lagging, slide rail systems, or other systems meeting requirements as specified in Paragraph 1.08, Special Shoring Design Requirements.

2.02 MATERIAL CLASSIFICATIONS

- A. Embedment and Trench Zone Backfill Materials: Conform to classifications and product descriptions of Section 02320 - Utility Backfill Materials and Section 02321 – Cement Stabilized Sand.
- B. Concrete Backfill: Conform to requirements for Class B concrete as specified in Section 03315 - Concrete for Utility Construction.
- C. Geotextile (Filter Fabric): Conform to requirements of Section 02621 - Geotextile.
- D. Concrete for Trench Dams: Concrete backfill or 3 sack premixed (bag) concrete.

PART 3 EXECUTION

3.01 STANDARD PRACTICE

- A. Install flexible pipe, including "semi-rigid" pipe, to conform to standard practice described in ASTM D 2321, and as described in this Section. Where an apparent conflict occurs between standard practice and requirements of this Section, this Section governs.

- B. Install rigid pipe to conform to standard practice described in ASTM C 12, C 1479, or C 1675 as applicable, and as described in this Section. Where an apparent conflict occurs between standard practice and requirements of this Section, this Section governs.

3.02 PREPARATION

- A. Establish traffic control to conform to requirements of Section 01555 - Traffic Control and Regulation. Maintain barricades and warning lights for streets and intersections affected by Work, and are considered hazardous to traffic movements.
- B. Perform work to conform to applicable safety standards and regulations. Employ trench safety system as specified in Section 02260 - Trench Safety Systems.
- C. Immediately notify agency or company owning any existing utility line which is damaged, broken, or disturbed. Obtain approval from Project Manager and agency for any repairs or relocations, either temporary or permanent.
- D. Remove existing pavements and structures, including sidewalks and driveways, to conform to requirements of Section 02221 - Removing Existing Pavements, Structures, Wood and Demolition Debris, as applicable.
- E. Install and operate necessary dewatering and surface-water control measures to conform to Section 01578 - Control of Ground and Surface Water. Provide stable trench to allow installation in accordance with Specifications.
- F. Maintain permanent benchmarks, monumentation, and other reference points. Unless otherwise directed in writing, replace those which are damaged or destroyed in accordance with Section 01725 - Field Surveying.

3.03 CRITICAL LOCATION INVESTIGATION

- A. Horizontal and vertical location of various underground lines shown on Drawings, including but not limited to water lines, gas lines, storm sewers, sanitary sewers, telecommunication lines, electric lines or power ducts, pipelines, concrete and debris, are based on best information available but are only approximate locations. Unless otherwise approved by Project Manager, at Critical Locations shown on Drawings, perform vacuum excavation to field verify horizontal and vertical locations of such lines within a zone 2 feet vertically and 4 feet horizontally of proposed work exclude water jetting at PCCP water line.
 - 1. Verify location of existing utilities minimum of 7 working days in advance of pipe laying activities based on daily pipe laying rate or prior to beginning installation of auger pit or tunnel shaft. Use extreme caution and care when uncovering utilities designated by Critical Locate.

2. Notify Project Manager in writing immediately upon identification of obstruction. In event of failure to identify obstruction in minimum of 7 days, Contractor will not be entitled to extra cost for downtime including, but not limited to, payroll, equipment, overhead, demobilization and remobilization, until 7 days has passed from time Project Manager is notified of obstruction.
- B. Notify involved utility companies of date and time that investigation excavation will occur and request that their respective utility lines be marked in field. Comply with utility or pipeline company requirements that their representative be present during excavation. Provide Project Manager with 48 hours notice prior to field excavation or related work.
- C. Survey vertical and horizontal locations of obstructions relative to project baseline and datum and plot on 12-inch by 18-inch copy of Drawings. For large diameter water lines, submit to Project Manager for approval, horizontal and vertical alignment dimensions for connections to existing lines, tied into project baseline, signed and sealed by R.P.L.S.
- D. LDWL Prelocate Requirements:
1. Field-locate LDWL, appurtenances and laterals connected directly to LDWL through use of non-probing method such as a vacuum truck (non-water jetting method) at no greater than 50-foot intervals. Locate upstream and downstream of proposed work or utility installation.
 2. Record crown and side of LDWL adjacent to proposed work or utility installation. Record LDWL locations horizontally and vertically using same coordinate system employed on proposed utility drawings.
 3. Tie horizontal and vertical coordinates into project baseline. Submit recordings performed by R.P.L.S to Engineer a minimum of 14 days prior to mobilizing to site.

3.04 PROTECTION

- A. Protect trees, shrubs, lawns, existing structures, and other permanent objects outside of grading limits and within grading limits as designated on Drawings, and in accordance with requirements of Section 01562 - Tree and Plant Protection.
- B. Protect and support above-grade and below-grade utilities which are to remain.
- C. Restore damaged permanent facilities to pre-construction conditions unless replacement or abandonment of facilities is indicated on Drawings.
- D. Take measures to minimize erosion of trenches. Do not allow water to pond in trenches. Where slides, washouts, settlements, or areas with loss of density or pavement failures or potholes occur, repair, re-compact, and pave those areas at no additional cost to Owner.

- E. Contingency plans for proposed work or utility installation adjacent to or across a LDWL:
 - 1. Conduct on-site emergency drill prior to commencing proposed utility installation, and at three month intervals to assure EAP is current.
 - 2. In the event a LDWL shut down becomes necessary, secure site and contact Owner immediately.

3.05 EXCAVATION

- A. Except as otherwise specified or shown on Drawings, install underground utilities in open cut trenches with vertical sides.
- B. Perform excavation work so that pipe, conduit, and ducts can be installed to depths and alignments shown on Drawings. Avoid disturbing surrounding ground and existing facilities and improvements.
- C. Determine trench excavation widths using following schedule as related to pipe outside diameter (O.D.). Excavate trench so that pipe is centered in trench.

Nominal Pipe Size, Inches	Minimum Trench Width, Inches
Less than 18	O.D. + 18
18 to 30	O.D. + 24
36 to 42	O.D. + 36
Greater than 42	O.D. + 48

- D. Do not obstruct sight distance for vehicles utilizing roadway or detours with stockpiled materials.
- E. Use sufficient trench width or benches above embedment zone for installation of well point headers or manifolds and pumps where depth of trench makes it uneconomical or impractical to pump from surface elevation. Provide sufficient space between shoring cross braces to permit equipment operations and handling of forms, pipe, embedment and backfill, and other materials.
- F. Upon discovery of unknown utilities, badly deteriorated utilities not designated for removal, or concealed conditions, discontinue work at that location. Notify Project Manager and obtain instructions before proceeding.
- G. Shoring of Trench Walls.
 - 1. Install Special Shoring in advance of trench excavation or simultaneously with trench excavation, so that soils within full height of trench excavation walls will remain laterally supported at all times.

2. For all types of shoring, support trench walls in pipe embedment zone throughout installation. Provide trench wall supports sufficiently tight to prevent washing trench wall soil out from behind trench wall support.
 3. Leave sheeting driven into or below pipe embedment zone in place to preclude loss of support of foundation and embedment materials, unless otherwise directed by Project Manager. Leave rangers, walers, and braces in place as long as required to support sheeting, which has been cut off, and trench wall in vicinity of pipe zone.
 4. Employ special methods for maintaining integrity of embedment or foundation material. Before moving supports, place and compact embedment to sufficient depths to provide protection of pipe and stability of trench walls. As supports are moved, finish placing and compacting embedment.
 5. If sheeting or other shoring is used below top of pipe embedment zone, do not disturb pipe foundation and embedment materials by subsequent removal. Maximum thickness of removable sheeting extending into embedment zone shall be equivalent of 1-inch-thick steel plate. As sheeting is removed, fill in voids left with grouting material.
- H. Use of Trench Shields. When trench shield (trench box) is used as worker safety device, the following requirements apply:
1. Make trench excavations of sufficient width to allow shield to be lifted or pulled freely, without damage to trench sidewalls.
 2. Move trench shields so that pipe, and backfill materials, after placement and compaction, are not damaged nor disturbed, nor degree of compaction reduced. Re-compact after shield is moved if soil is disturbed.
 3. When required, place, spread, and compact pipe foundation and bedding materials beneath shield. For backfill above bedding, lift shield as each layer of backfill is placed and spread. Place and compact backfill materials against undisturbed trench walls and foundation.
 4. Maintain trench shield in position to allow sampling and testing to be performed in safe manner.
 5. Conform to applicable Government regulations.
- I. Voids under paving area outside shield caused by Contractor's work will require removal of pavement, consolidation and replacement of pavement in accordance with Contract Documents. Repair damage resulting from failure to provide adequate supports.
- J. Place sand or soil behind shoring or trench shield to prevent soil outside shoring from collapsing and causing voids under pavement. Immediately pack suitable material in outside voids following excavation to avoid caving of trench walls.

- K. Coordinate excavation within 15 feet of pipeline with company's representative. Support pipeline with methods agreed to by pipeline company's representative. Use small, rubber-tired excavator, such as backhoe, to do exploratory excavation. Bucket that is used to dig in close proximity to pipelines shall not have teeth or shall have guard installed over teeth to approximate bucket without teeth. Excavate by hand within 1 foot of Pipeline Company's line. Do not use larger excavation equipment than normally used to dig trench in vicinity of pipeline until pipelines have been uncovered and fully exposed. Do not place large excavation and hauling equipment directly over pipelines unless approved by Pipeline Company's representative.
- L. When, during excavation to uncover pipeline company's pipelines, screwed collar or an oxy-acetylene weld is exposed, immediately notify Project Manager. Provide supports for collar or welds. Discuss with Pipeline Company's representative and determine methods of supporting collar or weld during excavation and later backfilling operations. When collar is exposed, request Pipeline Company to provide welder in a timely manner to weld ends of collar prior to backfilling of excavation.
- M. Excavation and shoring requirements for proposed work or utility installation adjacent to or across a LDWL:
1. Identify LDWL area in field and barricade off from construction activities. Allow no construction related activities including, but not limited to, loading of dump trucks and material staging or storage, on top of LDWL.
 2. Employ a groundwater control system when performing excavation activities within ten feet of LDWL to:
 - a. Effectively reduce hydrostatic pressure affecting excavations,
 - b. Develop substantially dry and stable subgrade for subsequent construction operations,
 - c. Prevent loss of fines, seepage, boils, quick condition or softening of foundation strata, and
 - d. Maintain stability of sides and bottom of excavations.
 3. When edge of proposed trench or shoring is within a distance equal to one diameter of LDWL from outside of wall of LDWL, valve or appurtenance:
 - a. Maintain minimum of four (4) feet horizontal clearance and minimum of two (2) feet vertical clearance between proposed utility and LDWL.
 - b. Auger Construction
 - (1) Maintain minimum of four (4) feet horizontal clearance between proposed utility and LDWL.

- (2) Dry auger method required when auger hole is 12-inches and larger in diameter.
- c. Open Cut Construction and Auger pits
 - (1) Perform hand excavation when within four (4) feet of LDWL.
 - (2) Employ hydraulic or pneumatic shoring system. Do not use vibratory or impact driven shoring or piling.
 - (3) Expose no more than 30-feet of trench prior to backfilling.
 - (4) A maximum of one (1) foot of vertical trench shall be unbraced at a time to maintain constant pressure on face of excavated soil.
 - (5) Upon removal of shoring system, inject flowable fill into void space left behind by shoring system. Comply with Standard Specification 02322 - Flowable Fill.
- d. When edge of utility excavation is greater than one diameter of LDWL from outside wall of LDWL, use a shielding system as required by Project Manager and proposed utility standards and practices.

3.06 HANDLING EXCAVATED MATERIALS

- A. Use only excavated materials, which are suitable as defined in this Section and conforming to Section 02320 - Utility Backfill Materials. Place material suitable for backfilling in stockpiles at distance from trench to prevent slides or cave-ins.
- B. When required, provide additional backfill material conforming to requirements of Section 02320 - Utility Backfill Materials.
- C. Do not place stockpiles of excess excavated materials on streets and adjacent properties. Protect backfill material to be used on site. Maintain site conditions in accordance with Section 01504 - Temporary Facilities and Controls. Excavate trench so that pipe is centered in trench. Do not obstruct sight distance for vehicles utilizing roadway or detours with stockpiled materials.

3.07 TRENCH FOUNDATION

- A. Excavate bottom of trench to uniform grade to achieve stable trench conditions and satisfactory compaction of foundation or bedding materials.
- B. When wet soil is encountered on trench bottom and dewatering system is not required, over excavate an additional 6-inches with approval by Project Manager. Place non-woven geotextile fabric and then compact 12-inches of crushed stone in one lift on top of fabric. Compact crushed stone with four passes of vibratory-type compaction equipment.

- C. Perform over excavation, when directed by Project Manager, in accordance with Paragraph 3.07.B above. Removal of unstable or unsuitable material may be required if approved by Project Manager;
 - 1. Even though Contractor has not determined material to be unsuitable, or
 - 2. If unstable trench bottom is encountered and an adequate ground water control system is installed and operating according to Section 01578 - Control of Ground and Surface Water.
- D. Place trench dams in Class I foundations in line segments longer than 100 feet between manholes and not less than one in every 500 feet of pipe placed. Install additional dams as needed to achieve workable construction conditions. Do not place trench dams closer than 5 feet from manholes.

3.08 PIPE EMBEDMENT, PLACEMENT, AND COMPACTION

- A. Remove loose, sloughing, caving, or otherwise unsuitable soil from bottoms and sidewalls of trenches immediately prior to placement of embedment materials.
- B. Place embedment including bedding, haunching, and initial backfill as shown on Drawings.
- C. For pipe installation, manually spread embedment materials around pipe to provide uniform bearing and side support when compacted. Protect flexible pipe from damage during placing of pipe zone bedding material. Perform placement and compaction directly against undisturbed soils in trench sidewalls, or against sheeting which is to remain in place.
- D. Do not place trench shields or shoring within height of embedment zone unless means to maintain density of compacted embedment material are used. If moveable supports are used in embedment zone, lift supports incrementally to allow placement and compaction of material against undisturbed soil.
- E. Place geotextile to prevent particle migration from in-situ soil into open-graded (Class I) embedment materials or drainage layers.
- F. Do not damage coatings or wrappings of pipes during backfilling and compacting operations. When embedding coated or wrapped pipes, do not use crushed stone or other sharp, angular aggregates.
- G. Place haunching material manually around pipe and compact it to provide uniform bearing and side support. If necessary, hold small-diameter or lightweight pipe in place during compaction of haunch areas and placement beside pipe with sand bags or other suitable means.
- H. Place electrical conduit, if used, directly on foundation without bedding.

- I. Shovel in-place and compact embedment material using pneumatic tampers in restricted areas, and vibratory-plate compactors or engine-powered jumping jacks in unrestricted areas. Compact each lift before proceeding with placement of next lift. Water tamping is not allowed.
- J. For water lines construction embedment, use bank run sand, concrete sand, gem sand, pea gravel, or crushed limestone as specified in Section 02320 - Utility Backfill Material. Adhere to the following subparagraph numbers 1 and 2.
 1. Class I, II and III Embedment Materials:
 - a. Maximum 6-inches compacted lift thickness.
 - b. Compact to achieve minimum of 95 percent of maximum dry density as determined according to ASTM D 698.
 - c. Moisture content to be within -3 percent to +5 percent of optimum as determined according to ASTM D 698, unless otherwise approved by Project Manager.
 2. Cement Stabilized Sand (where required for special installations):
 - a. Maximum 6-inches compacted thickness.
 - b. Compact to achieve minimum of 95 percent of maximum dry density as determined according to ASTM D 698.
 - c. Moisture content to be on dry side of optimum as determined according to ASTM D 698 but sufficient for effective hydration.
- K. For Sanitary Sewers adhere to subparagraph number 1 and 2. For Storm Sewers provide cement stabilized sand per paragraph 2. This provision does not apply to Storm Sewers constructed of HDPE pipe installed under pavement.
 1. Class I Embedment Materials.
 - a. Maximum 6-inches compacted lift thickness.
 - b. Systematic compaction by at least two passes of vibrating equipment. Increase compaction effort as necessary to effectively embed pipe to meet deflection test criteria.
 - c. Moisture content as determined by Contractor for effective compaction without softening soil of trench bottom, foundation or trench walls.
 2. Class II Embedment and Cement Stabilized Sand.
 - a. Maximum 6-inches compacted thickness.

- b. Compaction by methods determined by Contractor to achieve minimum of 95 percent of maximum dry density as determined according to ASTM D 698 for Class II materials and according to ASTM D 558 for cement stabilized materials.
 - c. Moisture content of Class II materials within 3 percent of optimum as determined according to ASTM D 698. Moisture content of cement stabilized sands on dry side of optimum as determined according to ASTM D 558 but sufficient for effective hydration.
- L. For Storm Sewers constructed of any flexible pipe product and installed under pavement provide flowable fill pipe embedment as specified in Section 02322 - Flowable Fill.
- M. Place trench dams in Class I embedment in line segments longer than 100 feet between manholes, and not less than one in every 500 feet of pipe placed. Install additional dams as needed to achieve workable construction conditions. Do not place trench dams closer than 5 feet from manholes.

3.09 TRENCH ZONE BACKFILL PLACEMENT AND COMPACTION

- A. Place backfill for pipe or conduits and restore surface as soon as practicable. Leave only minimum length of trench open as necessary for construction.
- B. For water lines, under pavement and to within one foot back of curb, use backfill materials described below:
- 1. For water lines 20-inches in diameter and smaller, use bank run sand or select backfill materials up to pavement base or subgrade.
 - 2. For water lines 24-inches in diameter and larger, backfill with suitable on-site material (random backfill) up to 12-inches below pavement base or subgrade. Place minimum of 12-inches of select backfill below pavement base or subgrade.
- C. For sewer pipes (Storm and Sanitary), use backfill materials described by trench limits. For "trench zone backfill" under pavement and to within one foot back of curb, use cement stabilized sand for pipes of nominal sizes 36-inches in diameter and smaller to level 12 inches below the pavement. For sewer pipes 42-inches in diameter and larger, under pavement or natural ground, backfill from 12-inches above top of pipe to 120 inches below pavement with suitable on-site material or select backfill. Use select backfill for rigid pavements or flexible base material for asphalt pavements for 12-inch backfill directly under pavement. For backfill materials reference Section 02320 - Utility Backfill Materials. This provision does not apply where a Storm Sewer is constructed of any flexible pipe product.

- D. For Storm Sewers constructed of any flexible pipe product and installed under pavement provide flowable fill as specified in Section 02322 - Flowable Fill. For Storm Sewers constructed of any flexible pipe product and not installed under pavement provide cement stabilized sand.
- E. Where damage to completed pipe installation work is likely to result from withdrawal of sheeting, leave sheeting in place. Cut off sheeting 1.5-feet or more above crown of pipe. Remove trench supports within 5-feet from ground surface.
- F. Unless otherwise shown on Drawings. Use one of the following trench zone backfills under pavement and to within one foot of edge of pavement. Place trench zone backfill in lifts and compact. Fully compact each lift before placement of next lift.
 - 1. Class I, II, or III or combination thereof:
 - a. Place in maximum 12-inch thick loose layers.
 - b. Compact by vibratory equipment to minimum of 95 percent of maximum dry density determined according to ASTM D 698.
 - c. Moisture content within zero percent to 5 percent above optimum determined according to ASTM D 698, unless otherwise approved by Project Manager.
 - 2. Cement-Stabilized Sand:
 - a. Maximum lift thickness determined by Contractor to achieve uniform placement and required compaction, but do not exceed 12-inches.
 - b. Compact by vibratory equipment to minimum of 95 percent of maximum dry density determined according to ASTM D 558.
 - c. Moisture content on dry side of optimum determined according to ASTM D 558 but sufficient for cement hydration.
 - 3. Class IVA and IVB (Clay Soils):
 - a. Place in maximum 8-inch thick loose lifts.
 - b. Compaction by vibratory Sheepfoot roller to minimum of 95 percent of maximum dry density determined according to ASTM D 698.
 - c. Moisture content within zero percent to 5 percent above optimum determined according to ASTM D 698, unless approved by Project Manager.
- G. Unless otherwise shown on Drawings, for trench excavations not under pavement, random backfill of suitable material may be used in trench zone. This provision does not apply to flexible pipe used for storm sewers.

1. Fat clays (CH) may be used as trench zone backfill outside paved areas at Contractor's option. When required density is not achieved, at any additional cost to Owner, rework, dry out, use lime stabilization or other approved methods to achieve compaction requirements, or use different suitable material.
 2. Maximum 9-inch compacted lift thickness for clayey soils and maximum 12-inch lift thickness for granular soils.
 3. Compact to minimum of 90 percent of maximum dry density determined according to ASTM D 698.
 4. Moisture content as necessary to achieve density.
- H. For electric conduits, remove form work used for construction of conduits before placing trench zone backfill.

3.10 MANHOLES, JUNCTION BOXES AND OTHER PIPELINE STRUCTURES

- A. Below paved areas or where shown on Drawings, encapsulate manhole with cement stabilized sand; minimum of 2 foot below base, minimum 2 foot around walls, up to pavement subgrade or natural ground. Compact in accordance with Paragraph 3.09.F.2 of this Section
- B. In unpaved areas, use select fill for backfill. Existing material that qualifies as select material may be used, unless indicated otherwise on Drawings. Deposit backfill in uniform layers and compact each layer as specified. Maintain backfill material at no less than 2 percent below nor more than 5 percent above optimum moisture content, unless otherwise approved by Project Manager. Place fill material in uniform 8-inch maximum loose layers. Compact fill to at least 95 percent of maximum Standard Proctor Density according to ASTM D 698.
- C. For LDWL projects, encapsulate manhole with cement stabilized sand; minimum of 1 foot below base, minimum of 2 feet around walls, up to within 12-inches of pavement subgrade or natural ground. For manholes over water line, extend encapsulation to bottom of trench. Compact in accordance with Paragraph 3.09 F.2 of this Section.

3.11 FIELD QUALITY CONTROL

- A. Test for material source qualifications as defined in Section 02320 - Utility Backfill Materials.
- B. Provide excavation and trench safety systems at locations and to depths required for testing and retesting during construction at no additional cost to Owner.
- C. Tests will be performed on minimum of three different samples of each material type for plasticity characteristics, in accordance with ASTM D 4318, and for gradation characteristics, in accordance with Tex-101-E and Tex-110-E. Additional classification tests will be performed whenever there is noticeable change in material gradation or plasticity, or when requested by Project Manager.

- D. At least three tests for moisture-density relationships will be performed initially for backfill materials in accordance with ASTM D 698, and for cement- stabilized sand in accordance with ASTM D 558. Perform additional moisture-density relationship tests once a month or whenever there is noticeable change in material gradation or plasticity.
- E. In-place density tests of compacted pipe foundation, embedment and trench zone backfill soil materials will be performed according to ASTM D 1556 or ASTM D 6938, and at following frequencies and conditions.
 - 1. For open cut construction projects and auger pits: Unless otherwise approved by Project Manager, successful compaction to be measured by one test per 40 linear feet measured along pipe for compacted embedment and two tests per 40 linear feet measured along pipe for compacted trench zone backfill material. Length of auger pits to be measured to arrive at 40 linear feet.
 - 2. A minimum of three density tests for each full shift of Work.
 - 3. Density tests will be distributed among placement areas. Placement areas are: foundation, outer bedding, haunching, initial backfill and trench zone.
 - 4. The number of tests will be increased if inspection determines that soil type or moisture content are not uniform or if compacting effort is variable and not considered sufficient to attain uniform density, as specified.
 - 5. Density tests may be performed at various depths below fill surface by pit excavation. Material in previously placed lifts may therefore be subject to acceptance/rejection.
 - 6. Two verification tests will be performed adjacent to in-place tests showing density less than acceptance criteria. Placement will be rejected unless both verification tests show acceptable results.
 - 7. Recompact placement will be retested at same frequency as first test series, including verification tests.
 - 8. Identify elevation of test with respect to natural ground or pavement.
- F. Recondition, re-compact, and retest at Contractor's expense if tests indicate Work does not meet specified compaction requirements. For hardened soil cement with nonconforming density, core and test for compressive strength at Contractor's expense.
- G. Acceptability of crushed rock compaction will be determined by inspection.

3.12 DISPOSAL OF EXCESS MATERIAL

- A. Dispose of excess materials in accordance with requirements of Section 01576 – Waste Material Disposal.

END OF SECTION

SECTION 02319

BORROW

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Soil materials for embankment or backfill.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01454 – Testing Laboratory Services
- D. Section 01555 – Traffic Control and Regulation
- E. Section 02330 – Embankment

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment for borrow is on cubic yard basis calculated by theoretical quantities using average end area method based on Drawings.
 - 2. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM D 2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
- B. ASTM D 4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit location and description of proposed borrow area for approval.
- C. Submit material samples for testing.

PART 2 PRODUCTS

2.01 SOIL MATERIAL

- A. Grade borrow material used for embankment or backfill free of lumps greater than 6 inches, rocks larger than 3 inches, organic material, chemical waste or other contamination, and debris. Take borrow material from sources approved by Project Manager.
- B. Use material with plasticity index not less than 12, nor more than 20 when tested in accordance with ASTM D 4318. Maximum liquid limit shall be 45, unless approved by Project Manager. Do not use blend of cohesive and granular soils to achieve required plasticity index.

PART 3 EXECUTION

3.01 PREPARATION

- A. Notify Project Manager and testing laboratory 5 days in advance of opening borrow source to permit obtaining samples for qualification testing. When material does not meet specification requirements, locate another source of borrow.
- B. Clear approved source area of trees, stumps, brush, roots, vegetation, organic matter, and other unacceptable material before excavation.

3.02 TESTS

- A. Test and analyze soil materials in accordance with ASTM D 4318 and ASTM D 2216 under provisions of Section 01454 - Testing Laboratory Services.

3.03 EXCAVATION

- A. Provide adequate drainage of surface water so that surface water run off does not enter borrow pit excavation.

3.04 HAULING

- A. Use covered trucks. Conform to requirements of Section 01555 - Traffic Control and Regulation.

3.05 EMBANKMENT

- A. Conform to requirements of Section 02330 - Embankment.

END OF SECTION

SECTION 02320

UTILITY BACKFILL MATERIALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Material Classifications.
- B. Utility Backfill Materials:
 - 1. Concrete sand
 - 2. Gem sand
 - 3. Pea gravel
 - 4. Crushed stone
 - 5. Crushed concrete
 - 6. Bank run sand
 - 7. Select backfill
 - 8. Random backfill
 - 9. Cement stabilized sand
- C. Material Handling and Quality Control Requirements.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01454 – Testing Laboratory Services
- D. Section 02316 – Excavation and Backfill for Structures
- E. Section 02317 – Excavation and Backfill for Utilities
- F. Section 02318 – Extra Unit Price Work Price Work for Excavation and Backfill
- G. Section 02321 – Cement Stabilized Sand
- H. Section 02711 – Hot Mix Asphalt Base Course

- I. Section 02712 – Cement Stabilized Base Course
- J. Section 02713 – Recycled Crushed Concrete Base Course
- K. Section 02951 – Pavement Repair and Restoration
- L. Section 03315 – Concrete for Utility Construction

1.03 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. No payment will be made for backfill material. Include payment in unit price for applicable utility installation.
2. Payment for backfill material, when included as separate pay item or when directed by Project Manager, is on cubic yard basis for material placed and compacted within theoretical trench width limits and thickness of material according to Drawings, or as directed by Project Manager.
3. Payment for backfill of authorized over-excavation is in accordance with Section 02318 - Extra Unit Price Work for Excavation and Backfill.
4. Refer to Section 01270 - Measurement and Payment for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 DEFINITIONS

A. Unsuitable Material:

1. Materials classified as ML, CL-ML, MH, PT, OH, and OL according to ASTM D 2487.
2. Materials that cannot be compacted to required density due to gradation, plasticity, or moisture content.
3. Materials containing large clods, aggregates, or stones greater than 4 inches in any dimension; debris, vegetation, or waste; or any other deleterious materials.
4. Materials contaminated with hydrocarbons or other chemical contaminants.

B. Suitable Material:

1. Materials meeting specification requirements.
2. Unsuitable materials meeting specification requirements for suitable soils after treatment with lime or cement.

- C. Foundation Backfill Materials: Natural soil or manufactured aggregate meeting Class I requirements and geotextile filter fabrics as required, to control drainage and material separation. Foundation backfill material is placed and compacted as backfill where needed to provide stable support for structure foundation base. Foundation backfill materials may include concrete fill and seal slabs.
- D. Foundation Base: Crushed stone aggregate with filter fabric as required, cement stabilized sand, or concrete seal slab. Foundation base provides smooth, level working surface for construction of concrete foundation.
- E. Backfill Material: Classified soil material meeting specified quality requirements for designated application as embedment or trench zone backfill.
- F. Embedment Material: Soil material placed under controlled conditions within embedment zone extending vertically upward from top of foundation to an elevation 12 inches above top of pipe, and including pipe bedding, haunching and initial backfill.
- G. Trench Zone Backfill: Classified soil material meeting specified quality requirements and placed under controlled conditions in trench zone from top of embedment zone to base course in paved areas or to surface grading material in unpaved areas.
- H. Foundation: Either suitable soil of trench bottom or material placed as backfill of over- excavation for removal and replacement of unsuitable or otherwise unstable soils.
- I. Source: Source selected by Contractor for supply of embedment or trench zone backfill material. Selected source may be project excavation, off-site borrow pits, commercial borrow pits, or sand and aggregate production or manufacturing plants.
- J. Refer to Section 02317 - Excavation and Backfill for Utilities for other definitions regarding utility installation by trench construction.

1.05 REFERENCES

- A. ASTM C 33 - Standard Specification for Concrete Aggregates.
- B. ASTM C 40 - Standard Test Method for Organic Impurities in Fine Aggregates for Concrete.
- C. ASTM C 123 - Standard Test Method for Lightweight Particles in Aggregate.
- D. ASTM C 131 - Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in Los Angeles Machine.
- E. ASTM C 136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

- F. ASTM C 142 - Standard Test Method for Clay Lumps and Friable Particles in Aggregates.
- G. ASTM D 1140 - Standard Test Methods for Determining the Amount of Material Finer Than 75- μ m (No. 200) Sieve in soils by Washing.
- H. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- I. ASTM D 4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- J. ASTM D 4643 - Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating.
- K. TxDOT Tex-110-E - Particle Size Analysis of Soils.
- L. TxDOT Tex-460-A - Determining Crushed Face Particle count

1.06 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit description of source, material classification and product description, production method, and application of backfill materials.
- C. Submit test results for samples of off-site backfill materials. Comply with Paragraph 2.03, Material Testing.
- D. Before stockpiling materials, submit copy of approval from landowner for stockpiling backfill material on private property.
- E. Provide delivery ticket which includes source location for each delivery of material that is obtained from off-site sources or is being paid as specific bid item.

1.07 TESTS

- A. Perform tests of sources for backfill material in accordance with Paragraph 2.03B.
- B. Verification tests of backfill materials may be performed by County in accordance with Section 01454 - Testing Laboratory Services and in accordance with Paragraph 3.03.

PART 2 PRODUCTS

2.01 MATERIAL CLASSIFICATIONS

- A. Classify materials for backfill for purpose of quality control in accordance with Unified Soil Classification Symbols as defined in ASTM D 2487. Material use and application is defined in utility installation specifications and Drawings either by class, as described in Paragraph 2.01B, or by product descriptions, as given in Paragraph 2.02.
- B. Class Designations Based on Laboratory Testing:
1. Class I: Well-graded gravels and sands, gravel-sand mixtures, crushed well-graded rock, little or no fines (GW, SW):
 - a. Plasticity index: non-plastic.
 - b. Gradation: D60/D10 - greater than 4 percent; amount passing No. 200 sieve - less than or equal to 5 percent.
 2. Class II: Poorly graded gravels and sands, silty gravels and sands, little to moderate fines (GM, GP, SP, SM):
 - a. Plasticity index: non-plastic to 4.
 - b. Gradations:
 - (1) Gradation (GP, SP): amount passing No. 200 sieve - less than 5 percent.
 - (2) Gradation (GM, SM): amount passing No. 200 sieve - between 12 percent and 50 percent.
 - (3) Borderline gradations with dual classifications (e.g., SP-SM): amount passing No. 200 sieve - between 5 percent and 12 percent.
 3. Class III: Clayey gravels and sands, poorly graded mixtures of gravel, sand, silt, and clay (GC, SC, and dual classifications, e.g., SP-SC):
 - a. Plasticity index: greater than 7.
 - b. Gradation: amount passing No. 200 sieve - between 12 percent and 50 percent.
 4. Class IVA: Lean clays (CL).
 - a. Plasticity Indexes:
 - (1) Plasticity index: greater than 7, and above A line.
 - (2) Borderline plasticity with dual classifications (CL-ML): PI between 4 and 7.

- b. Liquid limit: less than 50.
 - c. Gradation: amount passing No. 200 sieve - greater than 50 percent.
 - d. Inorganic.
5. Class IVB: Fat clays (CH)
- a. Plasticity index: above A line.
 - b. Liquid limit: 50 or greater.
 - c. Gradation: amount passing No. 200 sieve - greater than 50 percent.
 - d. Inorganic.
6. Use soils with dual class designation according to ASTM D 2487, and which are not defined above, according to more restrictive class.

2.02 PRODUCT DESCRIPTIONS

- A. Soils classified as silt (ML) silty clay (CL-ML with PI of 4 to 7), elastic silt (MH), organic clay and organic silt (OL, OH), and organic matter (PT) are not acceptable as backfill materials. These soils may be used for site grading and restoration in unimproved areas as approved by Project Manager. Soils in Class IVB, fat clay (CH) may be used as backfill materials where allowed by applicable backfill installation specification. Refer to Section 02316 - Excavation and Backfill for Structures and Section 02317 - Excavation and Backfill for Utilities.
- B. Provide backfill material that is free of stones greater than 6 inches, free of roots, waste, debris, trash, organic material, unstable material, non-soil matter, hydrocarbon or other contamination, conforming to following limits for deleterious materials:
1. Clay lumps: Less than 0.5 percent for Class I, and less than 2.0 percent for Class II, when tested in accordance with ASTM C 142.
 2. Lightweight pieces: Less than 5 percent when tested in accordance with ASTM C 123.
 3. Organic impurities: No color darker than standard color when tested in accordance with ASTM C 40.
- C. Manufactured materials, such as crushed concrete, may be substituted for natural soil or rock products where indicated in product specification, and approved by Project Manager, provided that physical property criteria are determined to be satisfactory by testing.
- D. Bank Run Sand: Durable bank run sand classified as SP, SW, or SM by Unified Soil Classification System (ASTM D 2487) meeting following requirements:

1. Less than 15 percent passing number 200 sieve when tested in accordance with ASTM D 1140. Amount of clay lumps or balls may not exceed 2 percent.
 2. Material passing number 40 sieve shall meet the following requirements when tested in accordance with ASTM D 4318: Plasticity index: not exceeding 7.
- E. Concrete Sand: Natural sand, manufactured sand, or combination of natural and manufactured sand conforming to requirements of ASTM C 33 and graded within following limits when tested in accordance with ASTM C 136:

Sieve	Percent Passing
3/8"	100
No. 4	95 to 100
No. 8	80 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	10 to 30
No. 100	2 to 10

- F. Gem Sand: Sand conforming to requirements of ASTM C 33 for course aggregates specified for number 8 size and graded within the following limits when tested in accordance with ASTM C 136:

Sieve	Percent Passing
3/8"	95 to 100
No. 4	60 to 80
No. 8	15 to 40

- G. Pea Gravel: Durable particles composed of small, smooth, rounded stones or pebbles and graded within the following limits when tested in accordance with ASTM C 136:

Sieve	Percent Passing
1/2"	100
3/8"	85 to 100
No. 4	10 to 30
No. 8	0 to 10
No. 16	0 to 5

- H. Crushed Aggregates: Crushed aggregates consist of durable particles obtained from an approved source and meeting the following requirements:

1. Materials of one product delivered for same construction activity from single source, unless otherwise approved by Project Manager.
2. Non-plastic fines.
3. Los Angeles abrasion test wear not exceeding 45 percent when tested in accordance with ASTM C 131.
4. Crushed aggregate shall have minimum of 90 percent of particles retained on No. 4 sieve with 2 or more crushed faces as determined by Tex-460-A, Part I.
5. Crushed stone: Produced from oversize plant processed stone or gravel, sized by crushing to predominantly angular particles from naturally occurring single source. Uncrushed gravel is not acceptable materials for embedment where crushed stone is shown on applicable utility embedment drawing details.
6. Crushed Concrete: Crushed concrete is an acceptable substitute for crushed stone as utility backfill. Gradation and quality control test requirements are same as crushed stone. Provide crushed concrete produced from normal weight concrete of uniform quality; containing particles of aggregate and cement material, free from other substances such as asphalt, reinforcing steel fragments, soil, waste gypsum (calcium sulfate), or debris.
7. Gradations, as determined in accordance with Tex-110-E.

Sieve	Percent Passing by Weight for Pipe Embedment by Ranges of Nominal Pipes Sizes		
	>15"	15" - 8"	<8"
1"	95 - 100	100	-
3/4"	60 - 90	90 - 100	100
1/2"	25 - 60	-	90 - 100
3/8"	-	20 - 55	40 - 70
No. 4	0 - 5	0 - 10	0 - 15
No. 8	-	0 - 5	0 - 5

- I. Select Backfill: Class III clayey gravel or sand or Class IV lean clay with plasticity index between 7 and 20 or clayey soils treated with lime in accordance with Section 02951 - Pavement Repair and Restoration to meet plasticity criteria.
- J. Random Backfill: Any suitable soil or mixture of soils within Classes I, II, III and IV; or fat clay (CH) where allowed by applicable backfill installation specification. Refer to Section 02316 - Excavation and Backfill for Structures and Section 02317 - Excavation and Backfill for Utilities.

- K. Cement Stabilized Sand: Conform to requirements of Section 02321 - Cement Stabilized Sand.
- L. Concrete Backfill: Conform to Class B concrete as specified in Section 03315 - Concrete for Utility Construction.
- M. Flexible Base Course Material: Conform to requirements of applicable portions of Section 02711 - Hot Mix Asphaltic Base Course, Section 02712 - Cement Stabilized Base Course, and Section 02713 - Recycled Crushed Concrete Base Course.

2.03 MATERIAL TESTING

- A. Source Qualification. Perform testing to obtain tests by suppliers for selection of material sources and products not from the project site. Test samples of processed materials from current production representing material to be delivered. Use tests to verify that materials meet specification requirements. Repeat qualification test procedures each time source characteristics change or there is planned change in source location or supplier. Include the following qualification tests, as applicable:
 - 1. Gradation. Report complete sieve analyses regardless of specified control sieves from largest particle through No. 200 sieve.
 - 2. Plasticity of material passing No. 40 sieve
 - 3. Los Angeles abrasion wear of material retained on No. 4 sieve
 - 4. Clay lumps
 - 5. Lightweight pieces
 - 6. Organic impurities
- B. Production Testing. Provide reports to Project Manager from an independent testing laboratory that backfill materials to be placed in Work meet applicable specification requirements.
- C. Assist Project Manager in obtaining material samples for verification testing at source or at production plant.

PART 3 EXECUTION

3.01 SOURCES

- A. Use of existing material in trench excavations is acceptable, provided applicable specification requirements are satisfied.
- B. Identify off-site sources for backfill materials at least 14 days ahead of intended use so that Project Manager may obtain samples for verification testing.

- C. Materials may be subjected to inspection or additional verification testing after delivery. Materials which do not meet requirements of specifications will be rejected. Do not use material which, after approval, has become unsuitable for use due to segregation, mixing with other materials, or by contamination. Once material is approved by Project Manager, expense for sampling and testing required to change to different material will be credited to Owner through change order.
- D. Bank run sand, select backfill, and random backfill, if available in project excavation, may be obtained by selective excavation and acceptance testing. Obtain additional quantities of these materials and other materials required to complete work from off-site sources.
- E. Owner does not represent or guarantee that any soil found in excavation work will be suitable and acceptable as backfill material.

3.02 MATERIAL HANDLING

- A. When backfill material is obtained from either commercial or non-commercial borrow pit, open pit to expose vertical faces of various strata for identification and selection of approved material to be used. Excavate selected material by vertical cuts extending through exposed strata to achieve uniformity in product.
- B. Establish temporary stockpile locations for practical material handling, control, and verification testing by Project Manager in advance of final placement. Obtain approval from landowner for storage of backfill material on adjacent private property.
- C. When stockpiling backfill material near project site, use appropriate covers to eliminate blowing of materials into adjacent areas and prevent runoff containing sediments from entering drainage system.
- D. Place stockpiles in layers to avoid segregation of processed materials. Load material by making successive vertical cuts through entire depth of stockpile.

3.03 FIELD QUALITY CONTROL

- A. Quality Control
 - 1. The Project Manager may sample and test backfill at:
 - a. Sources including borrow pits, production plants and Contractor's designated off-site stockpiles.
 - b. On-site stockpiles.
 - c. Materials placed in Work.
 - 2. The Project Manager may re-sample material at any stage of work or location if changes in characteristics are apparent.

- B. Production Verification Testing: Contractor's testing laboratory will provide verification testing on backfill materials, as directed by Project Manager. Samples may be taken at source or at production plant, as applicable.

END OF SECTION

SECTION 02321

CEMENT STABILIZED SAND

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cement stabilized sand.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 - Submittal Procedures
- C. Section 01454 – Testing Laboratory Services
- D. Section 02320 – Utility Backfill Materials

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.

1. No separate payment will be made for work performed under this Section. Include cost of such work in Contract unit prices for items listed in bid form requiring cement stabilized sand.
2. Refer to Paragraph 3.04 for material credit.
3. Refer to Section 01270 - Measurement and Payment for unit price procedures.

- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM C 33 - Standard Specification for Concrete Aggregates.
- B. ASTM C 40 - Standard Test Method for Organic Impurities in Fine Aggregates for Concrete.
- C. ASTM C 42 - Standard Test Methods for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- D. ASTM C 94 - Standard Specification for Ready-Mixed Concrete.
- E. ASTM C 123 - Standard Test Method for Lightweight Particles in Aggregate.

- F. ASTM C 142 - Standard Test Method for Clay Lumps and Friable Particles in Aggregates.
- G. ASTM C 150 - Standard Specification for Portland Cement.
- H. ASTM D 558 - Standard Test Method for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures.
- I. ASTM D 1632 - Standard Practice for Making and Curing Soil-Cement Compression and Flexure Test Specimens in the Laboratory
- J. ASTM D 1633 - Standard Test Method for Compressive Strength of Molded Soil-Cement Cylinders.
- K. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- L. ASTM D 3665 - Standard Practice for Random Sampling of Construction Materials.
- M. ASTM D 4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- N. ASTM D 6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit proposed target cement content and production data for sand-cement mixture in accordance with requirements of Paragraph 2.03, Materials Qualifications.

1.06 DESIGN REQUIREMENTS

- A. Use sand-cement mixture producing minimum unconfined compressive strength of 100 pounds per square inch (psi) in 48 hours.
 - 1. Design will be based on strength specimens molded in accordance with ASTM D 558 at moisture content within 3 percent of optimum and within 4 hours of batching.
 - 2. Determine minimum cement content from production data and statistical history. Provide no less than 1.1 sacks of cement per ton of dry sand.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cement: Type I Portland cement conforming to ASTM C 150.

- B. Sand: Clean, durable sand meeting grading requirements for fine aggregates of ASTM C 33, or requirements for bank run sand of Section 02320 - Utility Backfill Materials, and the following requirements:
1. Classified as SW, SP, SW-SM, SP-SM, or SM by Unified Soil Classification System of ASTM D 2487.
 2. Deleterious materials:
 - a. Clay lumps, ASTM C 142 - less than 0.5 percent.
 - b. Lightweight pieces, ASTM C 123; less than 5.0 percent.
 - c. Organic impurities, ASTM C 40, color no darker than standard color.
 3. Plasticity index of 4 or less when tested in accordance with ASTM D 4318.
- C. Water: Potable water, free of oils, acids, alkalies, organic matter or other deleterious substances, meeting requirements of ASTM C 94.

2.02 MIXING MATERIALS

- A. Add required amount of water and mix thoroughly in pugmill-type mixer.
- B. Stamp batch ticket at plant with time of loading. Reject material not placed and compacted within 4 hours after mixing.

2.03 MATERIAL QUALIFICATION

- A. Determine target cement content of material as follows:
1. Obtain samples of sand-cement mixtures at production facility representing range of cement content consisting of at least three points.
 2. Complete molding of samples within 4 hours after addition of water.
 3. Perform strength tests (average of two specimens) at 48 hours and 7 days.
 4. Perform cement content tests on each sample.
 5. Perform moisture content tests on each sample.
 6. Plot average 48-hour strength vs. cement content.
 7. Record scale calibration date, sample date, sample time, molding time, cement feed dial settings, and silo pressure (if applicable).
- B. Test raw sand for following properties at point of entry into pug-mill:
1. Gradation

2. Plasticity index
 3. Organic impurities
 4. Clay lumps and friable particles
 5. Lightweight pieces
 6. Moisture content
 7. Classification
- C. Present data obtained in format similar to that provided in sample data form attached to this Section.
- D. The target content may be adjusted when statistical history so indicates. For determination of minimum product performance use formula:

$$f_c \% \frac{1}{2} \text{ standard deviation}$$

PART 3 EXECUTION

3.01 PLACING

- A. Place sand-cement mixture in maximum 12-inch-thick loose lifts and compact to 95 percent of maximum density as determined in accordance with ASTM D 558, unless otherwise specified. Refer to related specifications for thickness of lifts in other applications. Target moisture content during compaction is +3 percent of optimum. Perform and complete compaction of sand-cement mixture within 4 hours after addition of water to mix at plant.
- B. Do not place or compact sand-cement mixture in standing or free water.
- C. Where potable water lines cross wastewater line, embed wastewater line with cement stabilized sand in accordance with Texas Administrative Code §290.44(e)(4)(B):
1. Provide minimum of 10% cement per cubic yard of cement stabilized sand mixture, based on loose dry weight volume. Use at least 2.5 bags of cement per cubic yard of mixture (2 sacks per ton of dry sand).
 2. Unless otherwise shown on Drawings, embed wastewater main or lateral minimum of six inches above and below.
 3. Use brown coloring in cement stabilized sand for wastewater main or lateral bedding for identification of pressure rated wastewater mains during future construction.

3.02 FIELD QUALITY CONTROL

- A. Testing will be performed under provisions of Section 01454 - Testing Laboratory Services.
- B. One sample of cement stabilized sand shall be obtained for each 150 tons of material placed per day with no less than one sample per day of production. Random samples of delivered cement stabilized sand shall be taken in the field at point of delivery in accordance with ASTM 3665. Obtain three individual samples of approximately 12 to 15 lb each from the first, middle, and last third of the truck and composite them into one sample for test purpose.
- C. Prepare and mold four specimens (for each sample obtained) in accordance with ASTM D 558, Method A, without adjusting moisture content. Samples will be molded at approximately same time material is being used, but no later than 4 hours after water is added to mix.
- D. After molding, specimens will be removed from molds and cured in accordance with ASTM D 1632.
- E. Specimens will be tested for compressive strength in accordance with ASTM D 1633, Method A. Two specimens will be tested at 48 hours plus or minus 2 hours and two specimens will be tested at 7 days plus or minus 4 hours.
- F. A strength test will be average of strengths of two specimens molded from same sample of material and tested at same age. Average daily strength will be average of strengths of all specimens molded during one day's production and tested at same age.
- G. Precision and Bias: Test results shall meet recommended guideline for precision in ASTM D 1633 Section 9.
- H. Reporting: Test reports shall contain, as a minimum, the following information:
 - 1. Supplier and plant number
 - 2. Time material was batched
 - 3. Time material was sampled
 - 4. Test age (exact hours)
 - 5. Average 48-hour strength
 - 6. Average 7-day strength
 - 7. Specification section number
 - 8. Indication of compliance / non-compliance
 - 9. Mixture identification
 - 10. Truck and ticket numbers

11. The time of molding
12. Moisture content at time of molding
13. Required strength
14. Test method designations
15. Compressive strength data as required by ASTM D 1633
16. Supplier mixture identification
17. Specimen diameter and height, in.
18. Specimen cross-sectional area, sq. in.

3.03 ACCEPTANCE

- A. Strength level of material will be considered satisfactory if:
 1. The average 48-hour strength is greater than 100 psi with no individual strength test below 70 psi.
 2. All 7-day individual strength tests (average of two specimens) are greater than or equal to 100 psi.
- B. Material will be considered deficient when 7-day individual strength test (average of two specimens) is less than 100 psi but greater than 70 psi. See Paragraph 3.04 Adjustment for Deficient Strength.
- C. The material will be considered unacceptable and subject to removal and replacement at Contractor's expense when individual strength test (average of two specimens) has 7-day strength less than 70 psi.
- D. When moving average of three daily 48-hour averages falls below 100 psi, discontinue shipment to project until plant is capable of producing material, which exceeds 100 psi at 48 hours. Five 48-hour strength tests shall be made in this determination with no individual strength tests less than 100 psi.
- E. Testing laboratory shall notify Contractor, Project Manager, and material supplier by facsimile of tests indicating results falling below specified strength requirements within 24 hours.
- F. If any strength test of laboratory cured specimens falls below the specified strength, Contractor may, at Contractor's own expense, request test of cores drilled from the area in question in accordance with ASTM C42. In such cases, three (3) cores shall be taken for each strength test that falls below the values given in 3.03.A.

- G. Cement stabilized sand in an area represented by core tests shall be considered satisfactory if the average of three (3) cores is equal to at least 100 psi and if no single core is less than 70 psi. Additional testing of cores extracted from locations represented by erratic core strength results will be permitted.

3.04 ADJUSTMENT FOR DEFICIENT STRENGTH

- A. When mixture produces 7-day compressive strength greater than or equal to 100 psi, then material will be considered satisfactory and bid price will be paid in full.
- B. When mixture produces 7-day compressive strength less than 100 psi and greater than or equal to 70 psi, material shall be accepted contingent on credit in payment. Compute credit by the following formula:

$$\text{Credit per Cubic Yard} = \frac{\$30.00 \times 2 (100 \text{ psi} - \text{Actual psi})}{100}$$

- C. When mixture produces 7-day compressive strength less than 70 pounds per square inch, then remove and replace cement-sand mixture and paving and other necessary work at no cost to Owner.

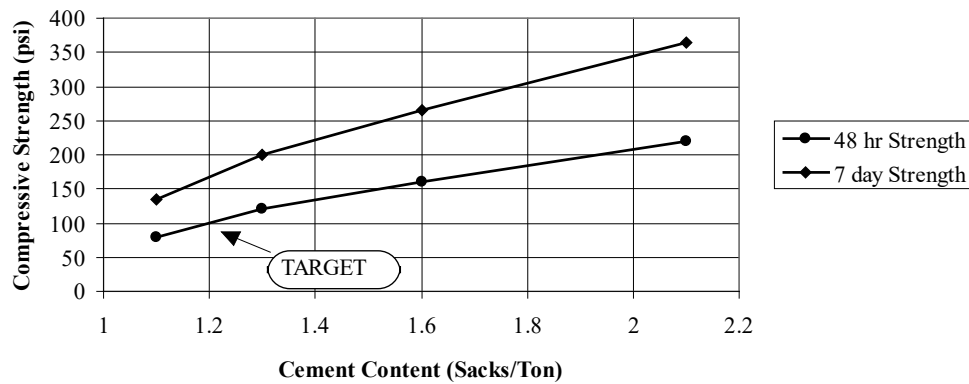
Supplier: Stabilized Sand	Plant No: 1 - Main Street	Date of Tests: January 1, 1997
------------------------------	---------------------------	--------------------------------

Item	Raw Sand	1.1 Sack	100 psi	1.5 Sack	2.0 Sack
Moisture Content	10.9	15.7	14.0	13.8	13.7
Cement Feed Dial Setting	--	2.25	2.5	2.75	3.75
Silo Pressure (psi)	--	4	4	4	4
Batch Time	10:00	10:10	10:15	10:20	10:25
Sample Time	--	10:10	10:15	10:20	10:25
Molding Time	--	12:30	12:45	1:00	1:15
Cement Content (sacks/ton)	--	1.1	1.3	1.6	2.1
Compressive Strength at 48 hrs. (avg of 2)	--	80	120	160	220
Compressive Strength at 7 days (avg of 2)	--	135	200	265	365

Sieve size	Percent Passing	COH Spec. Section 02320
3/8 Inch	100	--
No. 16	100	--
No. 40	100	--
No. 50	99	--
No. 100	41	--
No. 200	11	0 to 15

Raw Sand Tests	Result	Acceptance Criteria
Plasticity Index	Non-Plastic	4 Maximum
Organic Impurities	Passing	No Darker Than
Clay Lumps & Friable Parts (%)	0.0	0.5 % Maximum
Lightweight Pieces (%)	0.0	5.0 % Maximum
Classification	SP-SM	SW, SP, SW-SM, SP-SM, SM

Compressive Strength vs Cement Content



END OF SECTION

SECTION 02330

EMBANKMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Construction of embankments with excess excavated material and borrow.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01454 – Testing Laboratory Services
- C. Section 01576 – Waste Material Disposal
- D. Section 02315 – Roadway Excavation
- E. Section 02316 – Excavation and Backfill for Structures
- F. Section 02317 – Excavation and Backfill for Utilities
- G. Section 02319 – Borrow
- H. Section 02320 – Utility Backfill Materials
- I. Section 02511 – Water Lines
- J. Section 02531 – Gravity Sanitary Sewers
- K. Section 02532 – Sanitary Sewer Force Mains

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No separate payment will be made for embankment under this section. Include payment in unit price for excavation or borrow.
 - 2. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soils Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).

- B. ASTM D 6938 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

PART 2 PRODUCTS

2.01 MATERIALS

- A. Refer to Section 02315 - Roadway Excavation for acceptable excess materials from roadway excavation.
- B. Refer to Section 02317 - Excavation and Backfill for Utilities for acceptable excess materials from utility excavation and trenching.
- C. Refer to Section 02319 - Borrow for acceptable borrow materials.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify borrow and excess excavated materials to be reused are approved.
- B. Verify removals and clearing and grubbing operations have been completed.

3.02 PREPARATION

- A. Backfill test pits, stump holes, small swales and other surface irregularities. Backfill and compact in designated lift depths to requirements for embankment compaction.
- B. Record location and plug and fill inactive water and oil wells. Conform to Texas State Health Department, Texas Commission on Environmental Quality and Texas Railroad Commission requirements. Notify Owner prior to plugging wells.
- C. Excavate and dispose of unsuitable soil and other unsuitable materials which will not consolidate. Backfill and compact to requirements for embankment. Unsuitable soil is defined in Section 02316 - Excavation and Backfill for Structures and Section 02320 - Utility Backfill Materials.
- D. Backfill new utilities below future grade. Conform to requirements of Sections 02317 - Excavation and Backfill For Utilities, 02511 - Water Lines, 02531 - Gravity Sanitary Sewers, and 02532 - Sanitary Sewer Force Mains.

3.03 PROTECTION

- A. Protect trees, shrubs, lawns, existing structures, and other features outside of embankment limits.
- B. Protect utilities above and below grade, which are to remain.

- C. Conform to protection requirements of Section 02315 - Roadway Excavation.

3.04 PLACING EMBANKMENT

- A. Do not conduct placement operations during inclement weather or when existing ground or fill materials exceed 3 percent of optimum moisture content. Contractor may manipulate wet material to facilitate drying, by disking or windrowing.
- B. Do not place embankment fill until density and moisture content of previously placed material comply with specified requirements.
- C. Scarify areas to be filled to minimum depth of 4 inches to bond existing and new materials. Mix with first fill layer.
- D. Spread fill material evenly, from dumped piles or windrows, into horizontal layers approximately parallel to finished grade. Place to meet specified compacted thickness. Break clods and lumps and mix materials by blading, harrowing, disking or other approved method. Extend each layer across full width of fill.
- E. Each layer shall be homogeneous and contain uniform moisture content before compaction. Mix dissimilar abutting materials to prevent abrupt changes in composition of fill.
- F. Layers shall not exceed the following compacted thickness:
 - 1. Areas indicated to be under future paving or shoulders, to be constructed within 6 months: 6 inches when compacted with pneumatic rollers, or 8 inches when compacted with other rollers.
 - 2. Other areas: 12 inches
- G. For steep slopes, cut benches into slope and scarify before placing fill. Place increasingly wider horizontal layers of specified depth to level of each bench.
- H. Build embankment layers on back slopes, adjacent to existing roadbeds, to level of old roadbed. Scarify top of old roadbed to minimum depth of 4 inches and recompact with next fill layer.
- I. Construct to lines and grades shown on Drawings.
- J. Remove unsuitable material and excess soil not being used for embankment from site in accordance with requirements of Section 01576 - Waste Material Disposal.
- K. Maintain moisture content of embankment materials to attain required density.
- L. Compact to following minimum densities at moisture content of optimum to 3 percent above optimum as determined by ASTM D 698, unless otherwise indicated on Drawings:

1. Areas under future paving and shoulders: Minimum density of 95 percent of maximum dry density.
2. Other areas: Minimum density of 90 percent of maximum dry density.

3.05 TOLERANCES

- A. Top of compacted surface: Plus or minus 1/2 inch in cross section or 16 foot length.

3.06 FIELD QUALITY CONTROL

- A. Compaction Testing will be performed in accordance with ASTM D 698 or ASTM D 6938 under provisions of Section 01454 - Testing Laboratory Services.
- B. A minimum of three tests will be taken for each 1000 linear feet per lane of roadway or 500 square yards of embankment per lift.
- C. If tests indicate work does not meet specified compaction requirements, recondition, recompact, and retest at no cost to Owner.

END OF SECTION

SECTION 02505

HIGH DENSITY POLYETHYLENE (HDPE) SOLID AND PROFILE WALL PIPE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. High density polyethylene (HDPE) pipe for gravity sanitary sewers and drains, including fittings.
- B. High density polyethylene (HDPE) pipe for sanitary sewer force mains, including fittings.
- C. High density polyethylene (HDPE) pipe for gravity storm sewers and drains, including fittings.
- D. High density polyethylene (HDPE) pipe for storm sewers culverts.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 02317 – Excavation and Backfill for Utilities
- D. Section 02531 – Gravity Sanitary Sewers
- E. Section 02532 – Sanitary Sewer Force Mains
- F. Section 02533 – Acceptance Testing for Sanitary Sewers
- G. Section 02550 – Sliplining Sanitary Sewers
- H. Section 02571 – Pipe Bursting/Crushing Sanitary Sewers
- I. Section 02631 – Storm Sewers

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No separate payment will be made for HDPE pipe under this Section. Include cost in unit prices for work, as specified in following sections:
 - a. Section 02531 - Gravity Sanitary Sewers.
 - b. Section 02532 - Sanitary Sewer Force Mains.

- c. Section 02550 - Sliplining Sanitary Sewers.
 - d. Section 02571 - Pipe Bursting/Crushing Sanitary Sewers.
 - e. Section 02631 - Storm Sewers.
2. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM D 618 - Standard Practice for Conditioning Plastics for Testing.
- B. ASTM D 1248 - Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
- C. ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- D. ASTM D 2657 - Standard Practice for Heat Fusion Joining Polyolefin Pipe and Fittings.
- E. ASTM D 2774 - Standard Practice for Underground Installation of Thermoplastic Pressure Piping.
- F. ASTM D 2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.
- G. ASTM D 3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
- H. ASTM D 3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- I. ASTM D 3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
- J. ASTM F 477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- K. ASTM F 714 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter.
- L. ASTM F 894 - Standard Specification for Polyethylene (PE) Large-Diameter Profile Wall Sewer and Drain Pipe.

- M. ASTM F 2306 - Standard Specification for 12 to 60 in. [300 to 1500 mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
- N. ASTM F 2487 - Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Corrugated High Density Polyethylene and Polypropylene Pipelines.
- O. ASTM F 2510 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures and Corrugated Dual- and Triple-Wall Polyethylene and Polypropylene Pipes.
- P. AWWA C 906 - Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 65 In. (100 mm Through 1,650 mm), for Waterworks.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit shop drawings showing design of pipe and fittings indicating alignment and grade, pipe length, laying dimensions, fabrication, fittings, flanges, gasket material, and special details.
- C. Submit detailed calculations for pipe design per AASHTO LRFD Bridge Design Specifications.
- D. Submit details of Pipe Joints and jointing procedure for HDPE pipe.

1.06 QUALITY CONTROL

- A. Provide manufacturer's certificate of conformance to Specifications.
- B. Furnish pipe and fittings that are homogeneous throughout and free from visible cracks, holes, foreign inclusions, or other injurious defects. Provide pipe as uniform as commercially practical in color, opacity, density, and other physical properties.
- C. Project Manager reserves right to inspect pipes or witness pipe manufacturing. Inspection shall in no way relieve manufacturer of responsibilities to provide products that comply with applicable standards and these Specifications.
 - 1. Manufacturer's Notification: Should Project Manager wish to witness manufacture of specific pipes, manufacturer shall provide Project Manager with minimum three weeks notice of when and where production of those specific pipes will take place.
 - 2. Failure to Inspect. Approval of products or tests is not implied by Project Manager's decision not to inspect manufacturing, testing, or finished pipes.

- D. Pipe manufacturer to provide services of experienced, competent, and authorized representative to visit site to advise and consult Contractor during jointing and installation of pipe.

1.07 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with documented experience of minimum 5 years of pipe installations that have been in successful, continuous service for same type of service as proposed Work.

PART 2 PRODUCTS

2.01 GENERAL

- A. Provide products manufactured by companies listed on the Montgomery County Standard Product List.
- B. Furnish solid wall pipe with plain end construction for heat joining (butt fusion) conforming to ASTM D 2657. Utilize controlled temperatures and pressures for joining to produce fused leak-free joint.
- C. Furnish profile-wall gravity sanitary sewer pipe with bell-and-spigot end construction conforming to ASTM D 3212. Joining will be accomplished with elastomeric gasket in accordance with manufacturer's recommendations. Use integral bell-and-spigot gasketed joint designed so that when assembled, elastomeric gasket, contained in machined groove on pipe spigot, is compressed radially in pipe bell to form positive seal. Design joint to avoid displacement of gasket when installed in accordance with manufacturer's recommendations.
- D. Furnish solid wall pipe for sanitary sewer force mains with minimum working pressure rating of 150 psi, and with inside diameter equal to or greater than nominal pipe size indicated on Drawings.
- E. Furnish corrugated profile-wall polyethylene (CPP) pipe for gravity storm sewer and storm sewer culvert pipe. Joints shall be installed such that connection of pipe sections will form continuous line free from irregularities in flow line. Suitable joints are:
 - 1. Integral Bell and Spigot. Bell shall overlap minimum of two corrugations of spigot end when fully engaged.
 - 2. Exterior Bell and Spigot. Bell shall be fully welded to exterior of pipe and overlap spigot end so that flow lines and ends match when fully engaged.
- F. Jointing:
 - 1. Gaskets:

- a. Meet requirements of ASTM F 477. Use gasket molded into circular form or extruded to proper section and then spliced into circular form. When no contaminant is identified, use gaskets of properly cured, high-grade elastomeric compound. Basic polymer shall be natural rubber, synthetic elastomer, or blend of both.
- b. HDPE Pipes are Not allowed to be installed in potentially contaminated areas, unless approved by County Engineer.

CONTAMINANT	GASKET MATERIAL REQUIRED
Petroleum (diesel, gasoline)	Nitrile Rubber
Other Contaminants	As recommended by pipe manufacturer

- 2. Lubricant. Use lubricant for assembly of gasketed joints which has no detrimental effect on gasket or on pipe, in accordance with manufacturer's recommendations.

2.02 MATERIALS FOR SANITARY SEWER

- A. Pipe and Fittings: High density, high molecular weight polyethylene pipe material meeting requirements of Type III, Class C, Category 5, Grade P34, as defined in ASTM D 1248. Material meeting requirements of cell classification 345434D or E, in accordance with ASTM D 3350, are also suitable for making pipe products under these specifications. Inner wall of pipe shall be of light color for television inspection purposes.
- B. Other Pipe Materials: Materials other than those specified in Paragraph 2.02A, Pipe and Fittings, may be used as part of profile construction, e.g., as core tube to support shape of profile during processing, provided that these materials are compatible with base polyethylene material and are completely encapsulated in finished product and in no way compromise performance of pipe products in intended use. Examples of suitable material include polyethylene and polypropylene.

2.03 MATERIALS FOR GRAVITY STORM SEWERS AND STORM SEWER CULVERTS

- A. Pipe and Fittings: High density, high molecular weight polyethylene HDPE virgin compound material meeting requirements of cell class outlined in ASTM D 3350.
- B. Manufacturing shall meet requirements of ASTM F 2306.

2.04 TEST METHODS FOR SANITARY SEWER

- A. Conditioning. Conditioning of samples prior to and during tests is subject to approval by Project Manager. When referee tests are required, condition specimens in accordance with Procedure A in ASTM D 618 at 73.4 degrees F plus or minus 3.6 degrees F and 50 percent relative humidity plus or minus 5 percent relative humidity for not less than 40 hours prior to test. Conduct tests under same conditions of temperature and humidity unless otherwise specified.
- B. Flattening. Flatten three specimens of pipe, prepared in accordance with Paragraph 2.05A, in suitable press until internal diameter has been reduced to 40 percent of original inside diameter of pipe. Rate of loading shall be uniform and at 2 inches per minute. Test specimens, when examined under normal light and with unaided eye, shall show no evidence of splitting, cracking, breaking, or separation of pipe walls or bracing profiles.
- C. Joint Tightness. Test for joint tightness in accordance with ASTM D 3212, except replace shear load transfer bars and supports with 6-inch-wide support blocks that can be either flat or contoured to conform to pipe's outer contour.
- D. Purpose of Tests. Flattening and joint tightness tests are not intended to be routine quality control tests, but rather to qualify pipe to a specified level of performance.

2.05 TEST METHODS FOR GRAVITY STORM SEWERS AND STORM SEWER CULVERTS

- A. All testing and material requirements shall be in accordance with ASTM F 2306.
- B. MANDREL TESTING: use a mandrel to test flexible pipe for deflection. Refer to Section 02533 – Acceptance Testing for Sanitary Sewers for a mandrel and test requirements.

2.06 MARKING

- A. Mark each standard and random length of pipe in compliance with these Specifications with following information:
 - 1. Pipe size.
 - 2. Pipe class.
 - 3. Production code.
 - 4. Material designation.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Conform to requirements of following Sections:

1. Section 02550 - Sliplining Sanitary Sewers.
 2. Section 02531 - Gravity Sanitary Sewers.
 3. Section 02532 - Sanitary Sewer Force Mains.
 4. Section 02533 - Acceptance Testing for Sanitary Sewers.
 5. Section 02571 - Pipe Bursting/Crushing Sanitary Sewers.
 6. Section 02631 - Storm Sewers
- B. Install pipe in accordance with the manufacturers recommended installation procedures and ASTM D 2774 for pressure pipe and ASTM D 2321 for gravity flow pipe.
- C. HDPE pipe is not approved in applications requiring augering of pipe.
- D. Bedding and backfill: Conform to requirements of Section 02317 - Excavation and Backfill for Utilities.
- E. Use only workmen trained in the installation of HDPE Pipe.
- F. Do not store pipe uncovered direct in direct sunlight. Allow pipe temperature to approach ground temperature before each individual pipe section is terminally connected.
- G. Joints: Join sections of HDPE pipe into continuous lengths above ground by thermal butt fusion method in accordance with AWWA C 906 and pipe manufacturer's recommendations for specified service. Fusion joints: meeting minimum requirements of manufacturer for cool down time and other fusing requirements. Socket fusion and extrusion welding or hot gas welding will not be accepted.
- H. Cutting pipe: Comply with pipe manufacturer's recommendations. After cutting, leave end pipe in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 02506

POLYVINYL CHLORIDE PIPE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Polyvinyl chloride (PVC) pressure pipe for water distribution, in nominal diameters 4 inches through 20 inches.
- B. Polyvinyl chloride sewer pipe for gravity sewers in nominal diameters 4 inches through 60 inches.
- C. Polyvinyl chloride pressure pipe for gravity sewers and force mains in nominal diameters 4 inches through 20 inches.
- D. Fusible PVC®, or FPVC®, pipe for pressure pipe in horizontal directional drilling applications up to 20-inches in diameter.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 02317 – Excavation and Backfill for Utilities
- D. Section 02501 – Ductile Iron Pipe and Fittings
- E. Section 02511 – Water Lines
- F. Section 02528 – Polyethylene Encasement/Wrap
- G. Section 02531 – Gravity Sanitary Sewers
- H. Section 02532 – Sanitary Sewer Force Mains
- I. Section 02534 – Sanitary Sewer Service Stubs or Reconnections
- J. Section 02631 – Storm Sewers
- K. Section 16124 – Conductive Trace Wire for Non-Metallic Water Line Pipes

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.

1. No separate payment will be made for PVC pipe under this Section. Include cost in unit price for work included as specified in the following sections:
 - a. Section 02511 - Water Lines
 - b. Section 02531 - Gravity Sanitary Sewers
 - c. Section 02532 - Sanitary Sewer Force Mains
 - d. Section 02631 - Storm Sewers
 2. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ANSI A 21.16 (AWWA C 116) - Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron.
- B. ASTM A 240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
- C. ASTM C 923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
- D. ASTM D 618 - Standard Practice for Conditioning Plastics for Testing.
- E. ASTM D 1248 - Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
- F. ASTM D 1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- G. ASTM D 2122 – Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.
- H. ASTM D 2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
- I. ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- J. ASTM D 2412 – Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel Plate Loading.
- K. ASTM D 2444 - Standard Practice for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight).

- L. ASTM D 2680 - Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Poly (Vinyl Chloride) (PVC) Composite Sewer Piping.
 - M. ASTM D 3034 - Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - N. ASTM D 3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 - O. ASTM D 3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
 - P. ASTM F 477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
 - Q. ASTM F 679 - Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
 - R. ASTM F 794 - Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
 - S. ASTM F 949 - Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with Smooth Interior and Fittings.
 - T. AWWA C 110 (ANSI A 21.10) - American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch Through 48-inch, for Water and Other Liquids.
 - U. AWWA C 111 (ANSI A 21.11) - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 - V. AWWA C 153 (ANSI A 21.53) - Ductile-Iron Compact Fittings for Water Service.
 - W. AWWA C900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 MM Through 1,500 MM).
 - X. AWWA C909 - Standard for Molecularly-Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 In. (100mm) and Larger.
 - Y. AWWA M23 – PVC Pipe – Design and Installation.
 - Z. PPI TR-3 - Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.
 - AA. UNI-B-13 - Recommended Standard Performance Specification for Joint Restraint Devices for Use with Polyvinyl Chloride Pipe.
- 1.05 SUBMITTALS
- A. Conform to requirements of Section 01330 - Submittal Procedures.

- B. Submit shop drawings showing design of new pipe and fittings indicating alignment and grade, laying dimensions, fabrication, fittings, flanges, and special details.
- C. Contractor to review and submit PVC pipe manufacturers recommended installation procedures.
- D. Calculations and limits of thrust restraint shall be based on AWWA M23, latest edition.
- E. For Fusible PVC® Pipe, submit qualifications of Fusion Technician to be used on the project.
- F. Provide manufacturer's product data for bell insertion protection system.

1.06 QUALITY CONTROL

- A. Submit manufacturer's certifications that PVC pipe and fittings meet requirements of this Section and AWWA C900, and AWWA C909 for pressure pipe applications, or appropriate ASTM standard specified for gravity sewer pipe.
- B. Submit manufacturer's certification that PVC pressure pipe for water lines and force mains has been hydrostatically tested at factory in accordance with AWWA C900 and AWWA C909, and this Section.
- C. When foreign manufactured material is proposed for use, have material tested for conformance to applicable ASTM requirements by certified independent testing laboratory located in United States. Certification from other source is not acceptable. Furnish copies of test reports to Project Manager for review. Cost of testing paid by Contractor.
- D. Fusible PVC®
 - 1. Fusion Technician shall be fully qualified by the pipe supplier to install type(s) and sizes(s) being used. Qualification shall be current as of the actual date of fusion performance on the project.
 - 2. Refer to approved product list for approved manufacturer.

PART 2 PRODUCTS

2.01 MATERIAL

- A. Use PVC compounds in manufacture of pipe that contain no ingredient in amount that has been demonstrated to migrate into water in quantities considered to be toxic.

- B. Furnish PVC pressure pipe manufactured from Class 12454 virgin PVC compounds as defined in ASTM D 1784. Use compounds qualifying for rating of 4000 psi for water at 73.4 F per requirements of PPI TR-3. Provide pipe which is homogeneous throughout, free of voids, cracks, inclusions, and other defects, uniform as commercially practical in color, density, and other physical properties. Deliver pipe with surfaces free from nicks and scratches with joining surfaces of spigots and joints free from gouges and imperfections which could cause leakage.
- C. For FPVC®, pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.
- D. PVC Restrained Pipe:
1. Pipe Material:
 - a. Pressure Class 235 psi (DR 18): For restrained joints where shown on Drawings.
 - b. Pressure Class 305 psi (DR 14): For alternate to offset pipe sections shown on Drawings. Do not use PVC for offset sections with depth of cover greater than 20 feet or less than 4 feet. Do not use PVC in potentially petroleum contaminated areas.
- E. Water Service.
1. Provide self-extinguishing PVC pipe that bears Underwriters' Laboratories' mark of approval and is acceptable without penalty to Texas State Fire Insurance Committee for use in fire protection lines.
 2. Bear National Sanitation Foundation Seal of Approval (NSF-PW).
- F. Gaskets:
1. Gasket materials shall meet requirements of ASTM F 477. Use elastomeric factory-installed gaskets to make joints flexible and watertight.
 2. Flat Face Mating Flange: Full faces 1/8-inch-thick ethylene propylene (EPR) rubber.
 3. Raised Face Mating Flange: Flat ring 1/8-inch ethylene propylene (EPR) rubber, with filler gasket between OD of raised face and flange OD to protect flange from bolting moment.
- G. Lubricant for rubber-gasketed joints: Water soluble, non-toxic, non-objectionable in taste and odor imparted to fluid, non-supporting of bacteria growth, having no deteriorating effect on PVC or rubber gaskets.
- H. Bell Insertion Protection System:

- I. Do not use PVC in potentially or known contaminated areas.
- J. Do not use PVC in areas exposed to direct sunlight.

2.02 WATER SERVICE PIPE

- A. Pipe 4 inch through 20-inch: AWWA C900, Pressure Class 235 psi (DR 18); AWWA C900, Pressure Class 305 psi (DR 14) as alternate to offset pipe sections; nominal 20-foot lengths; cast-iron equivalent outside diameters.
- B. Provide Polyvinyl Chloride Pipe from manufacturers listed on Montgomery County's Approved Products List.
- C. Install trace wire with PVC pipe. Refer to Section 16124 – Conductive Trace Wire for Non-Metallic Water Line Pipes.
- D. Make curves and bends by offsetting (i.e., deflecting joints). Do not exceed maximum offset recommended by pipe manufacturer
- E. Hydrostatic Test: AWWA C900, ANSI A 21.10 (AWWA C 110); at point of manufacture; submit manufacturer's written certification.

2.03 GRAVITY SEWER PIPE

- A. PVC gravity sanitary sewer pipe shall be in accordance with provisions in following table:

WALL CONSTRUCTION	ASTM DESIGNATION	SDR (MAX.)/ STIFFNESS (MIN.)	DIAMETER SIZE RANGE
Solid	D3034	SDR 26 / PS 115	6" to 10"
	D3034	SDR 35 / PS 46	12" & 15"
	F679	SDR 35 / PS 46	18" to 60"
	AWWA C900	DR 18 / N/A	4" to 20"
	AWWA C909	DR 18 / N/A	4" to 12"

Note: Refer to Montgomery County's approved list of manufacturers.

- B. PVC storm sewer pipe shall be in accordance with provisions in following table:

WALL CONSTRUCTION	MANUFACTURER	ASTM DESIGNATION	SDR (MAX.)/ STIFFNESS (MIN.)	DIAMETER SIZE RANGE
Solid	J-M Pipe CertainTeed Diamond Uponor ETI North American	D3034	SDR 26 / PS 115	6" to 10"
		D3034	SDR 35 / PS 46	12" & 15"
		F679	SDR 35 / PS 46	18" to 27"
		AWWA C900	DR 18 / N/A	4" to 16"
		AWWA C909	DR 18 / N/A	4" to 12"
Truss (Gasketed)	Contech	D2680	N/A /200 psi	8" to 15"
Profile	Contech A-2000 Contech A-2026 ETI, Ultra-Rib ETI, Ultra-Corr	F949	N/A / 46 psi	12" to 36"
		F949	N/A / 115 psi	8" to 10"
		F794	N/A / 46 psi	8" to 30"
		F794	N/A / 46 psi	24" to 36"

- C. When solid wall PVC pipe 18 inches to 27 inches in diameter is required in SDR 26, provide pipe conforming to ASTM F 679, except provide wall thickness as required for SDR 26 and pipe stiffness of 115 psi.
- D. For sewers up to 12-inch diameter crossing over water lines or crossing under water lines with less than 2-foot separation, provide minimum 150 psi pressure-rated pipe conforming to ASTM D 2241 with suitable PVC adapter couplings.
- E. Joints: Spigot and integral wall section bell with solid cross section elastomeric or rubber ring gasket conforming to requirements of ASTM D 3212 and ASTM F 477, or ASTM D 3139 and ASTM F 477. Gaskets shall be factory-assembled and securely bonded or otherwise held in place to prevent displacement. Manufacturer shall test sample from each batch conforming to requirements ASTM D 2444.
- F. Fittings: Provide PVC gravity sewer sanitary bends, tee, or wye fittings for new sanitary sewer construction. PVC pipe fittings shall be full-bodied, either injection molded or factory fabricated. Saddle-type tee or wye fittings are not acceptable.
1. Fittings for straight through and transition connections conform to requirements of Section 02534- Sanitary Sewer Service Stubs or Reconnections.

- G. Conditioning. Conditioning of samples prior to and during tests is subject to approval by Project Manager. When referee tests are required, condition specimens in accordance with Procedure A in ASTM D 618 at 73.4 degrees F plus or minus 3.6 degrees F and 50 percent relative humidity plus or minus 5 percent relative humidity for not less than 40 hours prior to test. Conduct tests under same conditions of temperature and humidity unless otherwise specified. This is a brief summary of the test method, and the full current edition of the standard must be followed.
- H. Pipe Stiffness. Determine pipe stiffness at 5 percent deflection in accordance with Test Method D 2412. Minimum pipe stiffness shall be 46 psi. For diameters 4 inches through 18 inches, test three specimens, each a minimum of 6 inches (152 mm) in length. For diameters 21 inch through 36-inch, test three specimens, each a minimum of 12 inch (305 mm) in length. This is a brief summary of the test method, and the full current edition of the standard must be followed.
- I. Flattening. Flatten three specimens of pipe, prepared in accordance with Paragraph 2.03F, in suitable press until internal diameter has been reduced to 60 percent of original inside diameter of pipe. Rate of loading shall be uniform. Test specimens, when examined under normal light and with unaided eye, shall show no evidence of splitting, cracking, breaking, or separation of pipe walls or bracing profiles. Perform the flattening test in conjunction with pipe stiffness test. This is a brief summary of the test method, and the full current edition of the standard must be followed.
- J. Joint Tightness. Test for joint tightness in accordance with ASTM D 3212, except that joint shall remain watertight at minimum deflection of 5 percent. Manufacturer will be required to provide independent third party certification for joint testing each diameter of storm sewer pipe. This is a brief summary of the test method, and the full current edition of the standard must be followed
- K. Purpose of Tests. Flattening and pipe stiffness tests are intended to be routine quality control tests. Joint tightness test is intended to qualify pipe to specified level of performance.
- L. Saddle for pipe with 0.5-inch width and greater: Connect side sewer by drilling proper size round hole in wall of the main sewer pipe, inserting an approved pipe compression saddle. The Saddle shall meet requirements of ASTM C 923. Saddles will accept 4", 6", and 8" pipe. The lateral pipe shall be held in place by one stainless steel compression band with stainless steel nut and bolt (any AISI Series 300) type tightening device and meeting requirements of ASTM A 240. A stainless steel shear band shall wrap around the pipe a minimum of 380 degrees. Saddle may not protrude into mainline pipe.

2.04 SANITARY SEWER FORCE MAIN PIPE

- A. Provide approved PVC pressure pipe conforming to requirements for water service pipe and conforming to minimum working pressure rating specified in Section 02532 - Sanitary Sewer Force Mains.

- B. Acceptable pipe joints are integral bell-and-spigot, containing a bonded-in elastomeric sealing ring meeting requirements of ASTM F 477. In designated areas requiring restrained joint pipe and fittings, use approved joint restraint device conforming to UNI-B-13, for PVC pipe 12-inch diameter and less.
- C. Fittings: Provide approved ductile iron fittings as per Section 02501 - Ductile Iron Pipe and Fittings, Paragraph 2.04, except furnish fittings with one of following approved internal linings:
 - 1. Nominal 40 mils (35 mils minimum) virgin polyethylene complying with ASTM D 1248, heat fused to interior surface of fitting
 - 2. Nominal 40 mils (35 mils minimum) polyurethane
 - 3. Nominal 40 mils (35 mils minimum) ceramic epoxy
 - 4. Nominal 40 mils (35 mils minimum) fusion bonded epoxy
- D. Exterior Protection: Provide polyethylene wrapping of ductile-iron fittings as required by Section 02528 - Polyethylene Encasement/Wrap.
- E. Hydrostatic Tests: Hydrostatically test pressure rated pipe in accordance with Paragraph 2.02E.

2.05 BENDS AND FITTINGS FOR PVC PRESSURE PIPE

- A. Bends and Fittings: ANSI A 21.10 or ANSI A 21.53, ductile iron; ANSI A 21.11 single rubber gasket push-on type joint; minimum 150 psi pressure rating. Approved restrained joints, 250 200 psi, may be provided for up to 12 inches in diameter (water or sanitary).
- B. Provide approved restrained joint fittings: Integral restrained joint fittings and pipe do not require secondary restraint.

PART 3 EXECUTION

3.01 PROTECTION

- A. Store pipe under cover out of direct sunlight and protect from excessive heat or harmful chemicals in accordance with manufacturer's recommendations.

3.02 INSTALLATION

- A. Conform to requirements of Section 02511 - Water Lines, Section 02531 - Gravity Sanitary Sewers, and Section 02532 - Sanitary Sewer Force Mains, as applicable.
- B. Install PVC pipe in accordance with Section 02317 - Excavation and Backfill for Utilities, ASTM D 2321 for Sewer Pipe, and manufacturer's recommendations.

- C. Install PVC water service pipe to clear utility lines with minimum 6-inch separation, unless otherwise shown on Drawings:
- D. Avoid imposing strains that will overstress or buckle pipe when lowering pipe into trench.
- E. Hand shovel pipe bedding under pipe haunches and along sides of pipe barrel and compact to eliminate voids and ensure side support. Ensure barrel is fully supported along entire length of pipe, prior to backfilling.
- F. For PVC pipe installed by trenchless methods, provide integral restrained joints and pull pipe through hole or casing. For PVC pipe pushed through hole or casing, provide approved bell insertion protection system.
- G. Store PVC pipe under cover out of direct sunlight. Protect pipe from excessive heat or harmful chemicals. Prevent damage by crushing or piercing.
- H. Allow PVC pipe to cool to ground temperature before backfilling when assembled out of trench to prevent pullout due to thermal contraction.
- I. Pipe Assembly Procedures
 - 1. Do not remove gasket from pipe.
 - 2. Lay pipe by inserting spigot end into bell flush with the insertion line or as recommended by pipe manufacturer.
 - 3. Do not assemble joint by swinging or stabbing.
 - 4. Do not assemble joint using machinery or equipment such as backhoe bucket.
 - 5. At no time shall spigot go past insertion line or homing mark. Continuously observe and check each homing mark for proper length and install pipe with home mark visible.

3.03 INSTALLATION FOR FUSIBLE PVC® PIPE

A. General

- 1. Fusible PVC® pipe will be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and pipe supplier's guidelines.
- 2. Fusible PVC® pipe will be fused by qualified fusion technicians, as documented by the pipe supplier.
- 3. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine.

4. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process. Fusion machines must incorporate the following elements:
 - a. HEAT PLATE – Heat plates shall be in good condition with no deep gouges or scratches. Plates shall be clean and free of any debris or contamination. Heater controls shall function properly; cord and plug shall be in good condition. The appropriately sized heat plate shall be capable of maintaining a uniform and consistent heat profile and temperature for the size of pipe being fused, per the pipe supplier’s guidelines.
 - b. CARRIAGE – Carriage shall travel smoothly with no binding at less than 50 psi. Jaws shall be in good condition with proper inserts for the pipe size being fused. Inset pins shall be installed with no interference to carriage travel.
 - c. GENERAL MACHINE – Overview of machine body shall yield no obvious defects, missing parts, or potential safety issues during fusion.
 - d. DATA LOGGING DEVICE – An approved datalogging device with the current version of the pipe supplier’s recommended and compatible software shall be used. Datalogging device operations and maintenance manual shall be with the unit at all times. If fusing for extended periods of time, an independent 110V power source shall be available to extend battery life.
- B. Pipe rollers shall be used for support of pipe to either side of the machine:
 1. A weather protection canopy that allows for full machine motion of the heat plate, fusion assembly and carriage shall be provided for fusion in 1506-14 RSM – 50 Rev 3.5 2/12/13 inclement, extreme temperatures, and / or windy weather, per the pipe supplier’s recommendations.
 2. An infrared (IR) pyrometer for checking pipe and heat plate temperatures.
 3. Fusion machine operations and maintenance manual shall be kept with the fusion machine at all times.
 4. Facing blades specifically designed for cutting Fusible PVC® pipe shall be used.
- C. Joint Recording

1. Each fusion joint shall be recorded and logged by an electronic monitoring device (data logger) connected to the fusion machine. The fusion data logging and join report shall be generated by software developed specifically for the butt-fusion of Fusible PVC® pipe. The software shall register and/or record the parameters required by the pipe supplier and these specifications. Data not logged by the data logger shall be logged manually and be included in the Fusion Technician's joint report.

D. Installation

1. Installation guidelines from the pipe supplier shall be followed for all installations.
2. The fusible PVC® pipe will be installed in a manner so as not to exceed the recommended bending radius.
3. Where fusible PVC® pipe is installed by pulling in tension, the recommended Safe Pulling Force established by the pipe supplier shall not be exceeded.

3.04 PVC RESTRAINED MECHANISM

A. For low-profile coupling with spline-type joints:

1. Do not apply lubricant to spline or pipe or coupling spline grooves.
2. Do not use excessive force while inserting the spline through coupling.
3. Insert spline until it is fully seated around circumference of pipe.

B. Field Cutting of Pipe Ends:

1. Perform by workers certified by manufacturer.
2. Use a PVC pipe cutter and provide square ends.
3. Follow manufacturer's recommendation to disassemble restrained joint after it has been locked in place.
4. For low-profile coupling with spline-type joints, use manufacturer approved power routing and grooving tool to field fabricate required pipe groove.

END OF SECTION

SECTION 02511

WATER LINES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Installation of water lines.
- B. Specifications identify requirements for both small diameter water lines and large diameter water lines. When specifications for large diameter water lines differ from those for small diameter water lines, large diameter specifications will govern for large diameter pipe.

1.02 RELATED SECTIONS

- A. Section 01110 – Summary of Work
- B. Section 01270 – Measurement and Payment
- C. Section 01321 - Construction Photographs
- D. Section 01330 – Submittal Procedures
- E. Section 01740 – Site Restoration
- F. Section 02105 – Chemical Sampling and Analysis
- G. Section 02221 – Removing Existing Pavements, Structures, Wood, and Demolition Debris
- H. Section 02317 – Excavation and Backfill for Utilities
- I. Section 02501 – Ductile Iron Pipe and Fittings
- J. Section 02502 – Steel Pipe and Fittings
- K. Section 02506 – Polyvinyl Chloride Pipe
- L. Section 02507 – Prestressed Concrete Cylinder Pipe
- M. Section 02509 – Fiberglass Reinforced Pipe for Pressure Mains
- N. Section 02514 – Disinfection of Water Lines
- O. Section 02515 – Hydrostatic Testing of Pipelines
- P. Section 02518 – Steel Pipe and Fittings for Large Diameter Water Lines

- Q. Section 02528 – Polyethylene Encasement/Wrap
- R. Section 02613 – Bar Wrapped Steel Cylinder Pipe
- S. Section 03315 – Concrete for Utility Construction
- T. Section 15640 – Joint Bonding and Electrical Isolation

1.03 MEASUREMENT AND PAYMENT

A. Unit Prices:

1. Payment for water lines will be on a linear foot basis for each size of pipe installed. Separate pay items will be included for water lines installed by open-cut, by trenchless construction or by aerial crossing. No separate payment will be made for restrained joints, welded joints, thrust blocks, casing, bends, fittings, manways, pipe within limits of offset section, pipe within limits of Potentially Petroleum Contaminated Area (PPCA) or within limits of Fault Hazard Zone (FHZ).
 - a. Mains: Measure along axis of pipe and include fittings and valves.
 - b. Branch Pipe: Measure from axis of water line to end of branch.
 - c. Small diameter water line (20-inch diameter and smaller): No separate payment for valves. Include in unit price work for water lines.
 - d. For PVC pipe, install tracer wire. Include in unit price work for water lines.
2. Payment for interconnection is on lump sum basis for each interconnection identified on Drawings. Payment will include tapping sleeve and valves piping, connections and other related work necessary for construction as shown on Drawings or specified herein.
3. Payment for removal of existing internal elliptical or dished head plug is on unit price basis for each internal elliptical or dished head plug removed. Payment will include deletion of plug, drainage or dewatering of water lines, repair of damaged linings, rechlorination and items incidental to operation.
4. Payment for plug and clamp is on a unit price basis for each size of pipe.
5. Payment for drainline connection with service manhole is on unit price basis for each drainline shown on drawings. Payment includes valve, access manhole and connection.
6. Payment for cylindrical corrosion barriers is on a unit price basis for each pipe fitting installed with one or more barriers.

7. When directed by Project Manager to install extra fittings as required to avoid unforeseen obstacles, payment will be based on the following:
 - a. Each extra fitting requested by Project Manager and delivered to jobsite will be paid according to unit price for "Extra Fittings in Place."
 - b. Payment will include and be full compensation for items necessary for installation and operation of water line.
 8. No separate payment will be made for installation of water line marker. Include cost in unit price for water lines.
 9. No separate payment will be made for bell protection system for PVC pipe. Include cost in related unit price work.
 10. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum): If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM A 36 - Standard Specification for Carbon Structural Steel.
- B. ASTM A 193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications.
- C. ASTM A 536 - Standard Specification for Ductile Iron Castings.
- D. ASTM A 126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
- E. ASTM B 21 - Standard Specification for Naval Brass Rod, Bar, and Shapes.
- F. ASTM B 98 - Standard Specification for Copper-Silicon Alloy Rod, Bar, and Shapes.
- G. ASTM B 301 - Standard Specification for Free-Cutting Copper Rod, Bar, Wire, and Shapes.
- H. ASTM B 584 - Standard Specification for Copper Alloy Sand Casting for General Application.
- I. ASTM E 165 - Standard Practice for Liquid Penetrant Testing for General Industry.
- J. ASTM E 709 - Standard Guide for Magnetic Particle Testing.
- K. ASTM F 1674 - Standard Test Method for Joint Restraint Products for Use with PVC Pipe.

- L. AWWA C 111/ANSI A 21.11 - Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
- M. AWWA C 206 - Standard for Field Welding of Steel Water Pipe.
- N. AWWA C 207 - Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 Inches through 144 Inches.
- O. AWWA C 210 - Liquid Epoxy Coatings and Linings for Steel Water Pipe and Fittings.
- P. AWWA C 222 - Polyurethane Coatings and Linings for Steel Water Pipe and Fittings.
- Q. NSF/ANSI 61 - Drinking Water System Components - Health Components.
- R. OSHA 29 CFR 1926.1101 - Asbestos.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Conform to submittal requirements of applicable Section for type of pipe used.
- C. Photographs: Submit photographs conforming to requirements of Section 01321 - Construction Photographs prior to commencement of construction.
- D. Submit videotapes conforming to requirements of Section 01323 - Construction Videotapes, if applicable.
- E. Submit Lone Star notification transmittal number prior to beginning excavation.
- F. Submit, a minimum of 15 days before beginning pipe laying operations, layout drawing identifying proposed sections for disinfecting, hydrostatic testing and site restoration for entire project for review and approval. Layout drawing to identify sequence of sections for:
 - 1. Disinfection; not to exceed 4,000 linear feet per section.
 - 2. Hydrostatic testing and transfer of services; to immediately follow sequence of disinfected section.
 - 3. Site restoration; not to exceed limits specified; sequence in order of disturbance.
- G. For water lines to be field welded, submit proof of certification of field welders per AWWA C206. Indicate certified procedures and position each welder is qualified to perform. Provide documentation of the most recent weld qualification test date and continuity of use in each process for which the welder or welding operator is required.

PART 2 PRODUCTS

2.01 PIPE MATERIALS

- A. Install pipe materials which conform to following:
 - 1. Section 02501 - Ductile Iron Pipe and Fittings.
 - 2. Section 02502 - Steel Pipe and Fittings. Water line piping within plant site and aerial crossings to be welded joint steel pipe with flange or approved restraint joint connections, unless otherwise shown on Drawings.
 - 3. Section 02506 - Polyvinyl Chloride Pipe.
 - 4. Section 02507 - Prestressed Concrete Cylinder Pipe.
 - 5. Section 02509 – Fiberglass Reinforced Pipe for Pressure Mains
 - 6. Section 02518 - Steel Pipe and Fittings for Large Diameter Water Lines.
 - 7. Section 02613 - Bar Wrapped Steel Cylinder Pipe.
- B. Conform to American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61 and have certified by an organization accredited by ANSI.
- C. Type of pipe materials used is Contractor's option unless specifically identified on Drawings.
- D. Provide minimum of 3/8 inch inside joint recess between ends of pipe in straight pipe sections.

2.02 WELDED JOINT PROTECTION FITTING FOR SMALL DIAMETER STEEL PIPE

- A. Cylindrical Corrosion Barrier: Provide approved cylindrical corrosion barrier.
- B. O-rings: Conform to National Sanitary Foundation requirements.

2.03 RESTRAINED JOINTS

- A. Ductile-Iron Pipe: See Section 02501 - Ductile Iron Pipe and Fittings.
- B. PVC Pipe: See Section 02506 - Polyvinyl Chloride Pipe. Perform hydrostatic testing in accordance with ASTM F 1674.
- C. Prestressed Concrete Cylinder Pipe, Bar-Wrapped Pipe and Steel Pipe: Welded joints (see Paragraph 3.06.C).

- D. Except for trenchless installation, restrained Joints where required on DIP and PVC pipe are allowed with the following requirements as an alternative to the pipe with an integral restrained joint system:
 - 1. Restraint Devices: Manufacture of high-strength ductile iron, ASTM A 536. Working pressure rating twice that of design test pressure.
 - 2. Bolts and Connecting Hardware: High-strength low-alloy material in accordance with ANSI A21.11/AWWA C111.
- E. For ductile iron or PVC pipes in augered holes, provide restrained joints that are integral to both the bell and spigot ends, and do not extend beyond or increase the outside diameter of the bell.
- F. For small diameter water lines crossing under sanitary sewer lines or laterals, provide ductile iron pipe with locking or bolted type restrained joints.

2.04 COUPLINGS AND APPURTENANCES FOR LARGE DIAMETER WATERLINE

- A. Flexible (Dresser-type) Couplings:
 - 1. Install where shown on Drawings or where allowed by Project Manager for Contractor's convenience. Use galvanized flexible couplings when installed on galvanized pipe which is cement lined, or when underground. Provide gaskets manufactured from neoprene or Buna-N.
 - 2. For steel pipe, provide approved sleeve-type flexible couplings. Thickness of middle ring equal to or greater than thickness of pipe wall.
 - 3. Provide approved flanged adapter couplings for steel pipe.
 - 4. Use ASTM A193 Grade B7 high strength steel bolts and ASTM A194 heavy hex nuts where flexible couplings are installed underground. Mark bolts and nuts according to ASTM. Provide cadmium plated hardware. Coat entire coupling with Denso or approved equal petrolatum-based tape.
- B. Flap Valves: Provide approved flap valves on discharge of manhole drainline as shown on Drawings.
 - 1. Body and Flap: ASTM A 126-B cast iron.
 - 2. Seats: ASTM B 21-CA482 or ASTM B 301-CA145 bronze.
 - 3. Resilient Seat:
 - 4. Hinge Arms: ASTM B 584-CA865 high tensile bronze.
 - 5. Hinge Pins: ASTM B 98-CA655 silicon bronze.

2.05 COUPLINGS AND APPURTENANCES FOR LARGE DIAMETER WATERLINE

- A. Install Flexible Expansion Joints at locations indicated on drawings, within limits of Fault Hazard Zone (FHZ), in accordance with the manufacturer's recommendation.

2.06 CASING FOR OPEN CUT

- A. For water line by open cut in casing, casing used shall conform to Section 02502 – Steel Pipe and Fittings.

PART 3 EXECUTION

3.01 PREPARATION

- A. Conform to applicable installation specifications for types of pipe used.
- B. Employ workmen who are skilled and experienced in laying pipe of type and joint configuration being furnished. Provide watertight pipe and pipe joints.
- C. Lay pipe to lines and grades shown on Drawings.
- D. Confirm 9 feet minimum separation from gravity sanitary sewers and manholes or separation of 4 feet minimum from force mains as specified in this Section in all directions unless special design is provided on Drawings.
- E. Where above clearances cannot be attained, and special design has not been provided on Drawings, obtain direction from Project Manager before proceeding with construction.
- F. Inform Project Manager if unmetered sprinkler or fire line connections exist which are not shown on Drawings. Make transfer only after approval by Project Manager.
- G. For projects involving multiple subdivisions or locations, limit water line installation to maximum of two project site locations. Maximizing two pipe installation crews shall be permitted, unless otherwise approved by Project Manager.
- H. The Contractor is responsible, at no cost to Owner, for operations involving opening and closing valves for wet connections and for chlorination. Contractor is responsible for handling necessary installations and removal of blow-offs, chlorination and testing taps, and risers.
- I. If asbestos-cement (A.C.) pipe is encountered, follow safety practices outlined in OSHA 29 CFR 1926.1101 – Asbestos. Refer to Section 02221 - Removing Existing Pavements, Structures, Wood, and Demolition Debris for removing and disposing of A.C. Pipe.

- J. For pipe diameters 36 inches and greater, clearly mark each section of pipe and fitting with unique designation on inside of pipe along with pressure class. Locate unique identifying mark minimum of 5 feet away from either end of each section of pipe. Provide one unique identifying mark in middle of each fitting. Place markings at consistent locations. Use permanent black paint and minimum letter height of 4 inches to mark designations.
- K. Contractor is responsible for assuring chosen manufacturer fulfills requirements for extra fittings and, therefore, is responsible for costs due to downtime if requirements are not met.
- L. Do not remove plugs or clamps during months of peak water demands; June, July and August, unless otherwise approved by Project Manager.

3.02 HANDLING, CLEANING AND INSPECTION

A. Handling:

1. Place pipe along project site where storm water or other water will not enter or pass through pipe.
2. Load, transport, unload, and otherwise handle pipe and fittings to prevent damage of any kind. Handle and transport pipe with equipment designed, constructed and arranged to prevent damage to pipe, lining and coating. Do not permit bare chains, hooks, metal bars, or narrow skids or cradles to come in contact with coatings. Where required, provide pipe fittings with sufficient interior strutting or cross bracing to prevent deflection under their own weight.
3. Hoist pipe from trench side into trench by means of sling of smooth steel cable, canvas, leather, nylon or similar material.
4. For large diameter water lines, handle pipe only by means of sling of canvas, leather, nylon, or similar material. Slings shall be wide enough so as to. not tear or wrinkle tape layers.
5. Use precautions to prevent injury to pipe, protective linings and coatings.
 - a. Package stacked pipe on timbers. Place protective pads under banding straps at time of packaging.
 - b. Pad fork trucks with carpet or other suitable material. Use nylon straps around pipe for lift when relocating pipe with crane or backhoe.
 - c. Do not lift pipe using hooks at each end of pipe.
 - d. Do not place debris, tools, clothing, or other materials on pipe.
 - e. Place pipe on timbers, tires or soil berms at the jobsite. Do not place pipe directly on ground.

6. Repair damage to pipe or protective lining and coating before final acceptance.
 7. For cement mortar lined and coated steel pipe and PCCP, permit no visible cracks wider than 1/16"
 - a. In surface laitance of centrifugally cast mortar.
 - b. In sections of pipe with steel reinforcing collars or wrappers.
 - c. Within 12 inches of pipe ends.
 8. Repair pipe with visible cracks that exceed project specifications. If cracks cannot be repaired to specification remove from project site.
- B. Cleaning: Thoroughly clean and dry interior of pipe and fittings of foreign matter before installation, and keep interior clean until Work has been accepted. Keep joint contact surfaces clean until jointing is completed. Do not place debris, tools, clothing or other materials in pipe. After pipe laying and joining operations are completed, clean inside of pipe and remove debris.
- C. Inspection: Before installation, inspect each pipe and fitting for defects. Reject defective, damaged or unsound pipe and fittings and remove them from site.

3.03 EARTHWORK

- A. Conform to applicable provisions of Section 02317 - Excavation and Backfill for Utilities.

3.04 PIPE CUTTING

- A. Cut pipe 12 inches and smaller with standard wheel pipe cutters. Cut pipe larger than 12 inches in manner approved by Project Manager. Make cuts smooth and at right angles to axis of pipe. Bevel plain end with heavy file or grinder to remove sharp edges.

3.05 PIPING INSTALLATION

- A. General Requirements:
 1. When trench width below top of pipe becomes 4 feet wider than specified, install higher class of pipe or improved bedding, as determined by Project Manager. No additional payment will be made for higher class of pipe or improved bedding.
 2. Lay pipe in subgrade free of water.
 3. Properly form bedding to fully support bell without wedging or blocking up bell.

4. Open Cut Construction: Cover or backfill laid pipe if pipe laying operations are interrupted and during non-working hours. Place backfill carefully and simultaneously on each side of pipe to avoid lateral displacement of pipe and damage to joints. If adjustment of pipe is required after it has been laid, remove and re-lay as new pipe. Lay not more than 50 feet of pipe in trench ahead of backfilling operations.
 5. Prevent damage to coating when placing backfill. Use backfill material free of large rocks or stones, or other material which could damage coatings.
- B. Install pipe continuously and uninterrupted. Obtain approval of Project Manager prior to skipping any portion of Work.
1. Before assembling couplings, lightly coat pipe ends and outside of gaskets with pipe lubricant, cup grease or liquid vegetable soap to facilitate installation.
 2. Prior to proceeding with critical tie-ins, submit sequence of work based on findings from "critical location" effort.
 3. Use adequate surveying methods and equipment; employ personnel competent in use of this equipment. Horizontal and vertical deviations from alignment as indicated on Drawings shall not exceed 0.10 feet. Measure and record "as-built" horizontal alignment and vertical grade at maximum of every 100 feet on record drawings.
 4. For large diameter water lines, survey line and grade at each pipe joint at the joint invert by competent personnel. Use adequate surveying methods and equipment to record x, y, z coordinates for each joint on the As-Built drawings and provide a list of pipe mark numbers with surveyed coordinates in tabular format along with As-Built drawings. Line and grade shall not deviate by more than 0.10 feet from alignment on record drawings.
- C. Protection of Pipeline: Securely place stoppers or bulkheads in openings and in end of line when construction is stopped temporarily and at end of each day's work.
- D. Perform Critical Location as shown on Drawings. Refer to Section 02317 - Excavation and Backfill for Utilities for additional requirements at critical locations.
- E. Assessment of deflection may be measured by Project Manager at location along pipe. Arithmetical averages of deflection or similar average measurements will not be deemed as meeting intent of standard. Refer to pipe material specifications for maximum allowable pipe deflection.
- F. Perform following additional procedures when working on plant sites.

1. At least 72 hours prior to each plant shutdown or connection, schedule coordination meeting with Project Manager and Water Production personnel. At this meeting, present proposed sequencing of Work and verification of readiness to complete Work as required and within time permitted. Do not proceed with Work until Project Manager agrees key personnel, equipment and materials are on hand to complete Work.
2. Prior to fully excavating around existing piping, excavate as minimal as possible to confirm type and condition of existing joints. Verify size, type, and condition of pipe prior to ordering materials or fully mobilizing for Work.
3. Do not proceed with connections to existing piping and identified critical stages of work unless approved by Project Manager and Owner's Operator is present to observe.
4. Coordinate with Owner's Operator to obtain reduction in operating pressures prior to performing connections to existing piping.
5. Make connections to existing piping only when two valves are closed off between connection and source of water pressure. Do not make connection relying solely on one valve, unless otherwise approved by Project Manager.
6. Perform critical stages of Work identified on Drawings at night or during low water demand months as specified in Section 01110 - Summary of Work.
7. Excavation equipment used on plant sites to have smooth bucket; no teeth or side cutters.
8. Submit to Project Manager Lone Star Notification transmittal number prior to beginning excavation.
9. Before each "dig" with mechanical excavator, probe ground to determine potential obstructions. Repeat procedure until existing pipe is located or excavation reaches desired elevation. Perform excavations within one foot to existing piping by hand methods.
10. Provide adequate notice to Project Manager and pipe manufacturer's representative when connecting or modifying existing prestressed or pretension concrete cylinder pipe.
11. Provide field surveyed (horizontal and vertical elevations) "as-builts" of new construction and existing underground utilities encountered. Submit in accordance with Section 01330 - Submittal Procedures.
12. Prior to performing plant work to be done on weekend, provide list of sites and contact person with phone numbers to Project Manager by noon on Thursday of week. Contact person must be accessible during weekend, have Houston Metro Area phone number, and be authorized to make emergency decisions.

13. No night work or plant shutdown will be scheduled to begin two working days before or after designated Holidays.
- G. Maintain water services at all times to all customers, fire hydrants and interconnections. Provide temporary connections and temporary bypass as necessary for construction. No additional payment will be made for temporary connections unless specified on the drawings.
- H. For tie-ins to existing water lines, provide necessary material on hand to facilitate connection prior to shutting down existing water line. Prior to requesting shut down of existing water line connection, provide minimum two-week notice to Owner Operator.
- I. For exposed portions of piping within manholes or vaults, including outlets, flanges, blind flanges, nuts, bolts, valves, actuators, and piping, apply finish coat after installation is complete. Provide cycloaliphatic amine epoxy in light blue color. Follow manufacturer's procedures for preparing surface and applying coating. Submit coating manufacturer's product data sheet and color sample to Project Manager for review.

3.06 JOINTS AND JOINTING

- A. Rubber Gasketed Bell-and-Spigot Joints for Concrete Cylinder Pipe, Bar Wrapped Pipe PVC, Steel, and DIP:
 1. After rubber gasket is placed in spigot groove of pipe, equalize rubber gasket cross section by inserting tool or bar recommended by manufacturer under rubber gasket and moving it around periphery of pipe spigot.
 2. Lubricate gaskets with nontoxic water-soluble lubricant before pipe units are joined.
 3. Fit pipe units together in manner to avoid twisting or otherwise displacing or damaging rubber gasket.
 4. After pipe sections are joined, check each gasket to ensure that no displacement of gasket has occurred. If displacement has occurred, remove pipe section and remake joint as for new pipe. Remove old gasket, and replace before remaking joint.
 5. Provide means to prevent full engagement of spigot into bell in accordance with Paragraph 2.01 D. For PVC pipe, means may consist of an approved bell insertion protection system.
- B. Flanged Joints where required on Concrete Cylinder Pipe, Bar Wrapped Pipe, Ductile Iron Pipe, or Steel Pipe:

1. AWWA C 207. Prior to installation of bolts, accurately center and align flanged joints to prevent over stressing of flanges, pipe and equipment. Align bolt holes to straddle vertical, horizontal or north-south center line. Do not exceed 3/64 inch per foot inclination of flange face from true alignment.
 2. Use ring type or full-face gaskets for flanged joints. Provide gasket material in accordance with AWWA C207 . Cut gaskets at factory to proper dimensions. In PPCA areas, provide gasket material in accordance with Section 02105 – Chemical Sampling and Analysis.
 3. Provide ASTM A193 Grade B7 high strength steel stud bolts with ASTM A194 heavy hex nuts. Use cadmium-plated steel hardware underground. Mark nuts and bolts according to ASTM. Tighten bolts progressively to prevent unbalanced stress. Maintain at all times approximately same distance between two flanges at points around flanges. Tighten bolts alternately (180° apart) until all are evenly tight. Draw bolts tight to ensure proper seating of gaskets. Provide Denso petrolatum-based tape or approved equal for all exposed portions of nuts, bolts and pipe hardware.
 4. Isolation Joints:
 - a. Provide full-face Type “E” gasket. For 30-inch diameter and greater, provide Pyrox G-10 material and EPDM sealing element. For 24-inch diameter and smaller, provide Phenolic material and EPDM sealing element. Provide full-length bolt isolating sleeves and washers. Provide matching steel washers on both sides of each insulating washer on every bolt. Furnish kits in accordance with Section 15640 - Joint Bonding and Electrical Isolation.
- C. Welded Joints (Concrete Cylinder Pipe, Bar Wrapped Pipe, Steel Pipe):
1. Prior to starting work, provide certification of qualification for welders employed on project for type of work procedures and positions involved.
 2. Steel Pipe Joints: AWWA C 206. See Section 02502 - Steel Pipe and Fittings or Section 02518 - Steel Pipe and Fittings for Large Diameter Water Lines. Refer to Contract Drawings for joint details. For interior welded joints, complete backfilling before welding. For exterior field-welded joints, provide adequate working room under and beside pipe. Use exterior welds for 30-inch and smaller.

3. Concrete Pipe Joints: See Section 02507 – Prestressed Concrete Cylinder Pipe or Section 02613 - Bar Wrapped Steel Cylinder Pipe. Refer to Contract Drawings for joint details. Align piping and equipment so that no part is offset more than 1/8 inch. Set fittings and joints square and true, and preserve alignment during welding operation. For butt-welded joints, align abutting ends to minimize offset between surfaces. For pipe of same nominal wall thickness, do not exceed 1/16 inch offset. Use line-up clamps for this purpose; however, take care to avoid damage to linings and coatings.
4. Welding Rods: Compatible with metal to be welded to obtain strongest bond, E-70XX.
5. Deposit metal in successive layers to provide 1 to 3 passes or beads as required to complete the structural weld or control heat in the weld after backfill joint.
6. Deposit no more than 1/4 inch of metal on each pass. Thoroughly clean each individual pass with wire brush or hammer to remove dirt, slag or flux.
7. Do not weld under weather condition that would impair strength of weld, such as wet surface, rain or snow, dust or high winds, unless work is properly protected.
8. Make tack weld of same material and by same procedure as completed weld. Otherwise, remove tack welds during welding operation.
9. Remove dirt, scale, and other foreign matter from inside piping before tying in sections, fittings, or valves.
10. Welded Joints for Large Diameter Water Lines:
 - a. Use exterior welds for 30-inch diameter and smaller.
 - b. Employ an independent certified testing laboratory, approved by Project Manager, to perform weld acceptance tests on welded joints. Include cost of such testing and associated work to accommodate testing in contract unit price bid for water line. Furnish copies of test reports to Project Manager for review. Project Manager has final decision as to suitability of welds tested.
 - (1) Weld acceptance criteria:
 - (a) Conduct in accordance with ASTM E165 - Standard Test Method for Liquid Penetrant Examination and ASTM E709 - Standard Guide for Magnetic Particle Examination. Use X-ray methods for butt welds, for 100 percent of joint welds.
 - (b) Examine welded surfaces for the following defects:

- I. Cracking.
 - II. Lack of fusion/penetration.
 - III. Slag which exceeds one-third (t) where (t) equals material thickness.
 - IV. Porosity/Relevant rounded indications greater than 3/16 inch; rounded indication is one of circular or elliptical shape with length equal to or less than three times its width.
 - V. Relevant linear indications in which length of linear indication exceeds three times its width.
 - VI. Four or more relevant 1/16-inch rounded indications in line separated by 1/16 inch or less edge to edge.
11. After pipe is joined and prior to start of welding procedure, make spigot and bell essentially concentric by jacking, shimming or tacking to obtain clearance tolerance around periphery of joint except for deflected joints.
 12. Furnish each welder employed steel stencil for marking welds, so work of each welder can be identified. Mark pipe with assigned stencil adjacent to weld. When welder leaves job, stencil must be voided and not duplicated. Welder making defective welds must discontinue work and leave project site. Welder may return to project site only after recertification.
 13. Scaffolding: Do not drag scaffolding or other items along interior of pipe.
 14. Provide cylindrical corrosion barriers for polyurethane or epoxy-lined steel pipe 24-inch diameter and smaller, unless minimum wall thickness is 0.5 inch or greater.
 - a. In addition to welding requirements contained here in Paragraph 3.06, conform to protection fitting manufacturer's installation recommendations.
 - b. Provide services of technical representative of manufacturer available on site at beginning of pipe laying operations. Representative to train welders and advise regarding installation and general construction methods. Welders must have 12 months prior experience All steel pipe is to have cutback 3/4 inch to no greater than 1 inch of internal diameter coating from weld bevel.

- c. Furnish steel fittings with cylindrical corrosion barriers with shop welded extensions to end of fittings. Extension length to measure no less than diameter of pipe. Shop apply lining in accordance with AWWA C 210 or AWWA C 222.
 - d. All steel pipe receiving field adjustments are to be cold cut using standard practices and equipment. No cutting using torch is to be allowed.
- D. Harnessed Joints (Concrete Cylinder Pipe, Bar Wrapped Pipe or Steel Pipe):
1. Use of snap-ring type restrained joints on pipe is limited to 20-inch through 48-inch diameters.
 2. Position snap-ring joint bolt on top (12 o'clock portion). Provide minimum 1/2-inch joint recess. Use joint "diapers" minimum of 12 inches wide.
 3. For field adjustments with deflections or joint offsets beyond manufacturer's recommendations:
 - a. Field trim spigot.
 - b. Do not engage ring.
 4. Harnessed joints are not permitted in areas defined on Drawings as potentially petroleum contaminated material, in tunnels, or at bend greater than 5 degrees.
 5. Install harness type joints including snap rings at straight sections of pipe.
- E. Restrained Joints:
1. For existing water lines and water lines less than 16 inches in diameter, restrain pipe joints with concrete thrust blocks unless otherwise shown on Drawings.
 2. Thrust restraint lengths shown on Drawings are minimum anticipated lengths. These lengths are based on deflections or joint offsets indicated and on use of prestressed concrete cylinder pipe for large diameter lines and ductile iron pipe for small diameter lines. Adjustments in deflections or joint offsets or use of other pipe material may result in reduction or increase of thrust lengths.
 3. Pipe manufacturer or representative to perform thrust restraint calculations in accordance with latest revision of applicable standard for pipe material chosen. Submit calculations for all pipe materials sealed by a registered Professional Engineer in State of Texas for review by Project Manager. Make adjustments in thrust restraint lengths at no additional cost to Owner.
 4. Include buoyancy conditions for soil unit weight when computing thrust restraint calculations.

5. Passive resistance of soil will not be permitted in calculation of thrust restraint for some pipe materials.
 6. For 16-inch lines and larger use minimum 16-foot length of pipe in and out of joints made up of beveled pipe where restraint joint lengths are not identified on Drawings. Otherwise, provide restraint joints for a minimum length of 16 feet on each side of beveled joints.
 7. Installation.
 - a. Install restrained joints mechanism in accordance with manufacturer's recommendations.
 - b. Examine and clean mechanism; remove dirt, debris and other foreign material.
 - c. Apply gasket and joint NSF 61 FDA food grade approved lubricant.
 - d. Verify gasket is evenly seated.
 - e. Do not over stab pipe into mechanism.
 8. Prevent any lateral movement of thrust restraints throughout pressure testing and operation.
 9. Place 2500 psi concrete conforming to Section 03315 - Concrete for Utility Construction, for blocking at each change in direction of existing water lines, to brace pipe against undisturbed trench walls. Finish placement of concrete blocking, made from Type I cement, 4 days prior to hydrostatic testing of pipeline. Test may be made 2 days after completion of blocking if Type II cement is used.
- F. Joint Grout (Concrete Cylinder Pipe, Bar Wrapped Pipe, Mortar Coated Steel Pipe):
1. Mix cement grout mixture by machine when more than 1/2 cubic yard is required. When less than 1/2 cubic yard is required, grout may be hand mixed. Mix grout only in quantities for immediate use. Place grout within 20 minutes after mixing. Discard grout that has set. Retempering of grout by any means is not permitted.
 2. Prepare grout in small batches to prevent stiffening before it is used. Do not use grout which has become so stiff that proper placement cannot be assured without retempering. Use grout for filling grooves of such consistency that it will adhere to ends of pipe.
 3. Surface Preparation: Remove defective concrete, laitance, dirt, oil, grease and other foreign material from concrete surfaces with wire brush or hammer to sound, clean surface. Remove rust and foreign materials from metal surfaces in contact with grout.

4. Follow established procedures for hot and cold weather concrete placement.
5. Complete joint grout operations and backfilling of pipe trenches as closely as practical to pipe laying operations. Allow grouted exterior joints to cure at least 1 hour before compacting backfill.
6. Grouting Exterior Joint Space: Hold wrapper in place on both sides of joint with minimum 5/8-inch-wide steel straps or bands. Place no additional bedding or backfill material on either side of pipe until after grout band is filled and grout has mechanically stiffened. Pull ends of wrapper together at top of pipe to form access hole. Pour grout down one side of pipe until it rises on other side. Rod or puddle grout to ensure complete filling of joint recess. Agitate for 15 minutes to allow excess water to seep through joint band. When necessary, add more grout to fill joint completely. Protect gap at top of joint band from backfill by allowing grout to stiffen or by covering with structurally protective material. Do not remove band from joint. Proceed with placement of additional bedding and backfill material.
7. Interior Joints for Pipe 24 Inches and Smaller: Circumferentially butter bell with grout prior to insertion of spigot, strike off flush surplus grout inside pipe by pulling filled burlap bag or inflated ball through pipe with rope. After joint is engaged, finish off joint grout smooth and clean. Use swab approved by Project Manager for 20-inch pipe and smaller.
8. Protect exposed interior surfaces of steel joint bands by pointing with grout. Remove and replace improperly cured or otherwise defective grout.
9. Strike off grout on interior joints and make smooth with inside diameter of pipe.
10. When installed in tunnel or encasement pipe and clearance within casing does not permit outside grout to be placed in normal manner, apply flexible sealer, such as Flex Protex or equal, to outside joint prior to joint engagement. Clean and prime surfaces receiving sealer in accordance with manufacturer's recommendations. Apply sufficient quantities of sealer to assure complete protection of steel in joint area. Fill interior of joint with grout in normal manner after joint closure.
11. Interior Joints for Water Lines 30 Inches and Larger: Clean joint space, wet joint surfaces, fill with stiff grout and trowel smooth and flush with inside surfaces of pipe using steel trowel so that surface is smooth. Accomplish grouting at end of each work day. Obtain written acceptance from Project Manager of inside joints before proceeding with next day's pipe laying operation. During inspection, insure no delamination of joint mortar has occurred by striking joint mortar lining with rubber mallet. Remove and replace delaminated mortar lining.

12. Work which requires heavy equipment to be over water line must be completed before mortar is applied to interior joints.
- G. Large Diameter Water Main Joint Testing: In addition to testing individual joints with feeler gauge approximately 1/2 inch wide and 0.015-inch thick, use other joint testing procedure approved or recommended by pipe manufacturer which will help ensure watertight installation prior to backfilling. Perform tests at no additional cost to Owner.
- H. Make curves and bends by deflecting or offsetting joints or other method as recommended by manufacturer and approved by Project Manager. Submit details of other methods of providing curves and bends which exceed manufacturer's recommended deflection or joint offset prior to installation.
 1. Deflection of pipe joints shall not exceed maximum deflection recommended by pipe manufacturer, unless otherwise indicated on Drawings.
 2. If deflection exceeds that specified but is less than 5 percent, repair entire deflected pipe section such that maximum deflection allowed is not exceeded.
 3. If deflection is equal to or exceeds 5 percent from that specified, remove entire portion of deflected pipe section and install new pipe.
 4. Replace, repair, or reapply coatings and linings as required.
 5. Assessment of deflection may be measured by Project Manager at location along pipe. Arithmetical averages of deflection or similar average measurement methods will not be deemed as meeting intent of standard.
 6. When rubber gasketed pipe is laid on curve, join pipe in straight alignment and then deflect or offset to curved alignment.
- I. Closures Sections and Approved Field Modifications to Steel, Concrete Cylinder Pipe, Bar Wrapped Pipe and Fittings:
 1. For large diameter water lines, provide minimum overlap of 4 inches on each side for butt-strap closures.
 2. For pipe diameters 36 inches and greater, perform field welds on interior and exterior of pipe.
 3. Apply welded-wire fabric reinforcement to interior and exterior of exposed interior and exterior surfaces greater than 6 inches in diameter. Welded-wire fabric: minimum W1; maximum spacing 2 inches by 4 inches; 3/8 inch from surface of steel plate or middle third of lining or coating thickness for mortar thickness less than 3/4 inch.
 4. Fill exposed interior and exterior surfaces with nonshrink grout.

3.07 CATHODIC PROTECTION APPURTENANCES

- A. Where identified on Drawings, modify pipe for cathodic protection as detailed on Drawings and specified. Unless otherwise noted, provide insulation kits including test stations at connections to existing water system or at locations to isolate one type of cathodic system from another type, between water line, access manhole piping and other major openings in water line, or as shown on Drawings.
- B. Bond joints for pipe installed in tunnel or open cut, except where insulating flanges are provided. Weld strap, wire or clip between bell and spigot of each joint or as shown on Drawings. No additional bonding required where joints are welded for thrust restraint. Repair coatings as specified by appropriate AWWA standard, as recommended by manufacturer, and as approved by Project Manager.
- C. Bonding Strap or Clip: Free of foreign material that may increase contact resistance between wire and strap or clip.

3.08 SECURING, SUPPORTING AND ANCHORING

- A. Support piping, as shown on Drawings and as specified in this Section, to maintain line and grade and prevent transfer of stress to adjacent structures.
- B. Where shown on Drawings, anchor pipe fittings and bends installed on water line by welding consecutive joints of pipe together to distance each side of fitting. Restrained length, as shown on Drawings, assumes that installation of pipe and subsequent hydrostatic testing begin upstream and proceed downstream, with respect to normal flow of water in pipe. If installation and testing differs from this assumption, submit for approval revised method of restraining pipe joints upstream and downstream of device used to test against (block valve, blind flange or dished head plug).
- C. Use adequate temporary blocking of fittings when making connections to distribution system and during hydrostatic tests. Use sufficient anchorage and blocking to resist stresses and forces encountered while tapping existing water line.

3.09 POLYETHYLENE WRAP FOR DUCTILE IRON PIPE

- A. Conform to requirements of Section 02528 - Polyethylene Encasement/Wrap.

3.10 CLEANUP AND RESTORATION

- A. Provide cleanup and restoration crews to work closely behind pipe laying crews and, where necessary, during disinfection and hydrostatic testing, service transfers, abandonment of old water lines, backfill and surface restoration.
- B. Unless otherwise approved by Project Manager, comply with the following:
 - 1. Once water line is installed to limits approved in layout submitted, immediately begin preparatory work for disinfection effort.
 - 2. No later than three days after completing disinfection preparatory work, submit to Owner appropriate request for disinfection.

4. Immediately after transfer of services, begin abandonment of old water lines and site restoration.
 5. Do not exceed a total of 50 percent of total project linear feet of disturbed right-of-way and easement until site is restored in accordance with Section 01740 - Site Restoration.
 6. Exceeding any of the above footage limitations shall be considered a material breach of the Contract and subject to termination in accordance with the General Conditions.
- C. For large diameter water lines, do not install more than 2,000 linear feet of water line, without previous 2,000 linear feet being restored in accordance with Section 01740 - Site Restoration. Schedule paving crews so repaving work will not lag behind pipe laying work by more than 1,000 linear feet. Failure to comply with this requirement shall be considered a material breach of the Contract and subject to termination in accordance with the General Conditions.

3.11 CLEANING PIPING SYSTEMS

- A. Remove construction debris or foreign material and thoroughly broom clean and flush piping systems. Provide temporary connections, equipment and labor for cleaning.

3.12 DISINFECTION OF WATER LINES

- A. Conform to requirements of Section 02514 - Disinfection of Water Lines.

3.13 FIELD HYDROSTATIC TESTS

- A. Conform to requirements of Section 02515 - Hydrostatic Testing of Pipelines.

END OF SECTION

SECTION 02512

WATER TAP AND SERVICE LINE INSTALLATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Tapping existing mains and furnishing and installing new service lines for water.
- B. Relocation of existing small water meters.
- C. Specifications identify requirements for both small-diameter (less than or equal to 20 inches) water lines and large-diameter (greater than 20 inches) water lines. When specifications for large-diameter water lines differ from those for small-diameter water lines, paragraphs for large-diameter water lines will govern for large-diameter pipe.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 02085 – Valve Boxes, Meter Boxes, and Meter Vaults
- C. Section 02317 – Excavation and Backfill for Utilities
- D. Section 02503 – Copper Tubing

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment for water taps and copper service lines 3/4 inch through 1 inch is on unit price basis for each installation. Separate measurements will be made for "short side", "long side" and "extra-long side" connections as defined in Paragraph 1.05, Definitions.
 - 2. Payment for water taps and service lines 1-1/2 inch through 2-inch is on unit price basis for each installation. Separate measurements will be made for "short side", "long side" and "extra-long side" connections as defined in Paragraph 1.05, Definitions.
 - 3. Payment for "short side", "long side" and "extra-long side" includes locating water line, tap installation and connection to meter and restoring site.
 - 4. Payment for each small meter includes labor, materials, and equipment to relocate existing small meter.

5. No additional payment will be made for bedding, backfill, compaction, push under pavement, etc.
 6. Refer to Section 01270 - Measurement and Payment for unit price procedures
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM B 418 - Standard Specification for Cast and Wrought Galvanic Zinc Anodes.
- B. AWWA C 800 - Standard for Underground Service Line Valves and Fittings.
- C. AWWA C 900 - Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. Through 12 in. (100 mm through 300 mm), for Water Transmission and Distribution.
- D. AWWA C 105 – Polyethylene Encasement for Ductile-Iron Pipe Systems.

1.05 DEFINITIONS

- A. Short Side Connection: Service line connecting proposed curb stop, located inside water meter box, to water line on same side of street.
- B. Long Side Connection: Service line connecting proposed curb stop, located inside water meter box, to water line on opposite side of street or from center of streets where supply line is located in street center such as boulevards and streets with esplanades. Distance not to exceed 60 linear feet (at right angles to water line).
- C. Extra Long Side Connection: Service line connecting proposed curb stop, located inside water meter box, to water line on opposite side of street or from center of streets where supply line is located in street center such as boulevards and streets with esplanades. Distance greater than 60 linear feet (at right angles to water line).

PART 2 PRODUCTS

2.01 MATERIALS

- A. Copper Tubing: In accordance with Section 02503 - Copper Tubing. Polybutylene tubing is not permitted.
- B. Corporation Stops: AWWA C 800 as modified in this Section:
 1. Inlet End: AWWA standard thread.
 2. Valve Body: Tapered plug type, O-ring seat ball type, or rubber seat ball type.

3. Outlet End: Flared-copper connection for use with Type K, soft copper or compression type fitting.
- C. Provide taps for water line types and sizes in accordance with pipe tapping schedule located at end of this Section.
- D. Dual Strap Saddles: Red brass body and straps; ductile-iron; vinyl-coated body and straps; or ductile-iron, vinyl-coated body and stainless-steel straps.
- E. Taps for PVC Water Lines: Use dual-strap or single, wide-band strap saddles which provide full support around circumference of pipe and bearing area of sufficient width along axis of pipe, 2 inches minimum, ensuring that pipe will not be distorted when saddle is tightened. Provide approved stainless-steel tapping saddle with AWWA standard thread.
- F. Taps for Steel Pipe: Not allowed, unless specifically approved by Project Manager. Use saddle only when tap is approved on steel pipe.
- G. Curb Stops and Brass Fittings: AWWA C 800 as modified in this Section.
 1. Inlet End: Flared copper connection or compression-type fitting
 2. Valve Body: Straight-through or angled, meter-stop design equipped with following:
 - a. O-ring seal straight plug type.
 - b. Rubber seat ball type.
 3. Outlet End: Female, iron-pipe thread or swivel-nut, meter-spud thread on 3/4-inch and 1-inch stops and 2-hole flange on 1 1/2 and 2-inch sizes.
 4. Fittings: Provide approved fittings. Use same size open end wrenches and tapping machines as used with respective Mueller fittings.
 5. Factory Testing of Brass Fittings:
 - a. Submerge in water for 10 seconds at 85 psi with stop in both closed and open positions.
 - b. Reject fitting that shows air leakage. Project Manager may confirm tests locally. Entire lot from which samples were taken will be rejected when random sampling discloses unsatisfactory fittings.
- H. Angle Stops: In accordance with AWWA C 800; ground-key, stop type with bronze lock- wing head stop cap; inlet and outlet threads conform to application tables of AWWA C 800; and inlets flared connection or compression.
 1. Outlet for 3/4-inch and 1-inch size: Meter swivel nut with saddle support.

2. Outlet for 1 1/2-inch through 2-inch size: O-ring sealed meter flange, iron pipe threads.
- I. Fittings: In accordance with AWWA C 800 and following:
1. Castings: Smooth, free from burrs, scales, blisters, sand holes, and defects which would make them unfit for intended use.
 2. Nuts: Smooth cast and has symmetrical hexagonal wrench flats.
 3. Flare-Joint Fittings: Smooth cast. Machine seating surfaces for metal-to-metal seal to proper taper or curve, free from pits or protrusions.
 4. Thread fittings, of all types, shall have N.P.T. or AWWA threads, and protect male threaded ends in shipment by plastic coating, or approved equal.
 5. Compression tube fittings shall have Buna-N beveled gasket.
 6. Stamp of manufacturer's name or trademark and of fitting size on body.

PART 3 EXECUTION

3.01 GENERAL

- A. For service lines and lateral connections larger than those allowed in Pipe Tapping Schedule, branch connections and multiple taps may be used. Space corporation stops minimum of 2 feet apart.
- B. Tapped collars of appropriate sizes: Approved in new construction only provided they are set at right angles to proposed meter location.
- C. Use tapping machine manufactured for pressure tapping purposes for 2-inch and smaller service taps on pressurized water lines.
- D. For new meter or when existing meter conflicts with proposed pavement improvements, locate water meters one foot inside street right-of-way, or when this is not feasible, one foot on curb side of sidewalk. Contact Project Manager when major landscaping or trees conflict with service line and meter box location. No additional payment will be made for work on customer side of meter.
- E. New location and installation of existing small meter shall conform to requirements of this Section.
- F. Successfully perform hydrostatic and disinfection testing prior to installing service taps and lines.

3.02 SERVICE INSTALLATION

- A. Set service taps at right angles to proposed meter location and locate taps in upper pipe segment within 45 degrees of pipe springline.
- B. Install service lines in accordance with Section 02317 - Excavation and Backfill for Utilities.
- C. Lay service lines with minimum of 30 inches of cover as measured from top of curb or, in absence of curbs, from centerline elevation of crowned streets or roads. Provide minimum of 18 inches of cover below flow line of ditches to service lines.
- D. Service lines across existing street (push-unders): Pull service line through prepared hole under paving. Use only full lengths of tubing. Take care not to damage copper tubing when pulling it through hole. Compression-type union is only permitted when span underneath pavement cannot be accomplished with a full standard length of tubing. Use one compression-type union for each full length of tubing.
- E. Maintain service lines free of dirt and foreign matter.
- F. Install service lines so that top of meter will be 4 to 6 inches below finished grade.
- G. Anticipate existing sanitary sewers to have cement stabilized sand backfill to bottom of pavement. Include cost of such crossings in unit price for services.
- H. When copper line must be installed in cement stabilized sand use an 8 MIL polyethylene encasement tubing in accordance with AWWA C105.

3.03 CURB STOP INSTALLATION

- A. Set curb stops or angle stops at outer end of service line inside of meter box. Secure opening in curb stop to prevent unwanted material from entering. In close quarters, make S-curve in field. Do not flatten tube. In 3/4-inch and 1-inch services, install meter coupling, swivel-nut, or curb stop ahead of meter. Install straight meter coupling on outlet end of meter.

3.04 GALVANIC CORROSION CONTROL

- A. For 1-1/2 inch and 2 inch meters utilizing two bolt flanges, install 2.5 ounce sacrificial zinc anode caps meeting ASTM B 418 requirements on the end of each bolt on both outlet and inlet side of the meter connection.

3.05 SEQUENCE OF OPERATIONS

- A. Open trench for proposed service line in accordance with Section 02317 - Excavation and Backfill for Utilities.
- B. Install curb stop on meter end of service line.

- C. With curb stop open and prior to connecting service line to meter in slack position, open corporation stop and flush service line thoroughly. Close curb stop, leaving corporation stop in full-open position.
- D. Check service line for apparent leaks. Repair leaks before proceeding.
- E. Schedule inspection with Project Manager prior to backfilling. After inspection, backfill in accordance with Section 02317 - Excavation and Backfill for Utilities.
- F. Install meter box centered over meter with top of lid flush with finished grade. Meter box: Refer to Section 02085 - Valve Boxes, Meter Boxes, and Meter Vaults.

Table 02512-1

PIPE TAPPING SCHEDULE				
WATERLINE TYPE AND DIAMETER	SERVICE SIZE			
	3/4"	1"	1-1/2"	2"
4" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
4" Asbestos Cement	WBSS	WBSS	DSS, WBSS	DSS, WBSS
4" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" and 8" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" and 8" Asbestos Cement	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" and 8" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" and 8" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" Cast Iron or Ductile Iron	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" Asbestos Cement	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
16" and Up Cast Iron or Ductile Iron	DWBSS	DWBSS	DWBSS	DWBSS
16" and Up Asbestos Cement	DWBSS	DWBSS	DWBSS	DWBSS
16" and Up PVC (AWWA C900)	DWBSS	DWBSS	DWBSS	DWBSS

DSS - DUAL STRAP SADDLES

WBSS - WIDE BAND STRAP SADDLES DWBSS - DUAL WIDE BAND STRAP SADDLES

END OF SECTION

SECTION 02513

WET CONNECTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wet connections for new water lines and service lines to existing water lines.

1.02 RELATED SECTIONS

- A. Section 01270 - Measurement and Payment
- B. Section 02221 - Removing Existing Pavements, Structures, Wood, and Demolition Debris
- C. Section 02501 - Ductile Iron Pipe and Fittings
- D. Section 02502 - Steel Pipe and Fittings
- E. Section 02503 - Copper Tubing
- F. Section 02504 - Fiberglass Reinforced Pipe
- G. Section 02505 - High Density Polyethylene (HDPE) Solid and Profile Wall Pipe
- H. Section 02506 - Polyvinyl Chloride Pipe
- I. Section 02507 - Prestressed Concrete Cylinder Pipe
- J. Section 02508 - Extra Strength Clay Pipe
- K. Section 02509 - Fiberglass Reinforced Pipe for Pressure Mains
- L. Section 02510 - Polypropylene (PP) Corrugated Wall Pipe
- M. Section 02511 - Water Lines
- N. Section 02512 - Water Tap and Service Line Installation
- O. Section 02513 - Wet Connections
- P. Section 02514 - Disinfection of Water Lines
- Q. Section 02515 - Hydrostatic Testing of Pipelines
- R. Section 02516 - Cut, Plug, and Abandonment of Water Line

- S. Section 02517 - Water Line in Tunnels
- T. Section 02518 - Steel Pipe and Fittings for Large Diameter Water Lines
- U. Section 02520 - Fire Hydrants
- V. Section 02521 - Gate Valves
- W. Section 02522 - Butterfly Valves
- X. Section 02523 - Pressure Reducing Valves
- Y. Section 02524 - Air Release and Vacuum Relief Valves
- Z. Section 02525 - Tapping Sleeves and Valves
- AA. Section 02526 - Water Meters
- BB. Section 02527 - Polyurethane Coatings on Steel or Ductile Iron Pipe
- CC. Section 02528 - Polyethylene Encasement/Wrap

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment for wet connections shown on Drawings is on unit price basis for each wet connection. Separate payment will be made for each size of water line.
 - 2. No compensation will be given for extra work or for damages occurring as result of incomplete shutoff.
 - 3. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. AWWA C 800 - Standard for Underground Service Line Valves and Fittings.
- B. OSHA 29 CFR 1926.1101 - Asbestos.

1.05 DEFINITIONS

- A. Wet connections consist of isolating sections of pipe to be connected with existing valves, draining isolated sections, and completing connections.

- B. Connection of 2-inch or smaller lines, which may be referred to on Drawings as "2-inch standard connections" or "gooseneck connections" will be measured as 2-inch wet connections. This item is not to be used as part of 2-inch service line.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pipe shall conform to requirements of applicable portions of Sections 02501 through 02528 related to piping materials and to water distribution.
- B. Corporation cocks and saddles shall conform to requirements of Section 02512 - Water Tap and Service Line Installation.
- C. Valves shall conform to requirements of Section 02521 - Gate Valves.
- D. Brass fittings shall conform to requirements of AWWA C 800.

PART 3 EXECUTION

3.01 CONNECTION OPERATIONS

- A. Plan wet connections in manner and at hours with least inconvenience public. Notify Project Manager at least 72 hours in advance of making connections.
- B. Do not operate valves on water lines in use by New Danville Community without prior approval from Owner.
- C. Conduct connection operations when Inspector is at job site. Connection work shall progress without interruption until complete once existing water lines have been cut or plugs have been removed for making connections.

3.02 2-INCH WET CONNECTIONS

- A. Use corporation cocks, saddles, copper tubing as required for line and grade adjustment, and brass fittings necessary to adapt to existing water line. Use 2-inch valves when indicated on Drawings for 2-inch copper gooseneck connections.

3.03 CONNECTION TO ASBESTOS-CEMENT (AC) PIPE

- A. Notify Project Manager when AC pipe is encountered.
- B. Refer to Section 02221 – Removing Existing Pavements and Structures for crew training, safety precautions, and AC pipe removal requirements.
- C. Protocol:

1. Mechanically excavate to no more than 6 in. of AC Pipe. Carefully uncover the remainder of pipe by hand or with shovel.
2. Keep pipe adequately wet before and during work.
3. Place 2 layers of 6 mil polyethylene sheeting under the asbestos pipe to prevent soil contamination.
4. Use hand tools to remove collars. Replace minimum 6 ft. section of pipe. Use of power tools is prohibited.
5. Do not crush AC pipe in place. Remove waste AC pipe.

END OF SECTION

SECTION 02514

DISINFECTION OF WATER LINES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Disinfection of new potable water lines.
- B. Disinfection of repair part used in wet connection, tapping sleeve and valves, clamps, valves and other related repairs.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01454 – Testing Laboratory Services
- C. Section 02317 – Excavation and Backfill for Utilities

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No separate payment will be made for disinfection of water lines under this Section. Include cost in unit price of water lines being disinfected.
 - 2. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Adjusting Payment for Retesting.
 - 1. Subsequent disinfection operations which may be necessary due to nonconforming or incomplete construction will be charged to Contractor. Charges will be deducted from retainage amounts when construction estimates are processed for final payment.
 - 2. Total charge will consist of base charge of \$135.00 plus footage charge based on number of feet of specified diameter pipe in construction project. Footage charge is as follows:

Size of Pipe	Charge per Linear Foot
2 inch to 4 inch	\$0.03
6 inch	\$0.04
8 inch	\$0.05
10 inch to 12 inch	\$0.07
16 inch to 20 inch	\$0.09
24 inch to 30 inch	\$0.13
32 inch to 48 inch	\$0.16
54 inch	\$0.20
60 inch	\$0.22
66 inch	\$0.31
72 inch to 84 inch	\$0.40
90 inch to 96 inch	\$0.58
108 inch	\$0.75
120 inch or larger	\$1.00

- C. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. AWWA C 651 - Standard for Disinfecting Water Mains.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONDUCTING DISINFECTION

- A. Promptly disinfect water lines constructed before tests are conducted on water lines and before water lines are connected to New Danville water distribution system.
- B. Water for disinfection and flushing will be furnished by New Danville.
- C. Unless otherwise provided in Contract Documents, Contractor will conduct disinfection operations assisted by Operator.
- D. Coordinate chlorination operations through Project Manager.
- E. Chlorine Disinfection for Connections and/or Repairs to Existing Mains less than or equal to 20-feet in length. When directed by Project Manager, follow procedures for disinfection by swabbing as listed below.
1. Comply with requirements of AWWA C 651 – Standard for Disinfecting Water Mains.

2. Minimize entry of contaminants into existing pipe by using temporary caps or other means. Dewater excavation and prevent entry of dirty water into pipe. Examine interior of existing pipe and remove pieces of pipe, scale, and other debris.
3. Coordinate with Project Manager for operation of valves and flushing line as necessary to complete disinfection procedures.
4. Prior to isolation of water line, take chlorine residual test upstream of repair location, record results.
5. Use appropriate personal protective equipment including rubber gloves and goggles. When necessary, use respiratory protection.
6. Mix a solution of 2 oz. of calcium hypochlorite (65% available chlorine) and 1 gallons of water, or 1 gallon of 5 percent bleach and 4 gallons of water.
7. Thoroughly swab new pieces of pipe, couplings, clamps, sleeves, and other components of pipe connection or repair using clean rags saturated with mixture or sprayer. A clean mop saturated with mixture may be used for longer pieces of pipe. Swab existing pipe exposed inside excavation.
8. After repair or connection is complete in place, coordinate with Project Manager to flush area of repair until water is clear. Obtain chlorine residual from downstream source. Compare results with previous chlorine residual standard.
9. If downstream chlorine results are higher than the upstream results, continue flushing until the downstream results equals the initial upstream result.
10. If downstream residuals are equal to or lower than upstream results, coordinate with Project Manager to re-isolate line segment and re-swab newly installed pipe and fittings. Return to step 8.
11. When chlorine residual downstream of repair equals the initial upstream results, slowly and fully open all valves isolated and proceed to backfill per Section 02317 - Excavation and Backfill for Utilities.

3.02 PREPARATION

- A. Provide temporary blind flanges, cast-iron sleeves, plugs, necessary service taps, copper service leads, risers and jumpers of sizes, location and materials, and other items needed to facilitate disinfection of new water lines prior to connection to New Danville water distribution system. Normally, each valved section of water line requires two each 3/4-inch taps. A 2-inch minimum blow-off is required for water lines up to and including 6-inch diameter.

- B. Use fire hydrants as blow-offs to flush newly constructed water lines 8-inch diameters and above. Where fire hydrants are not available on water lines, install temporary blow-off valves as approved by Project Manager and remove promptly upon successful completion of disinfection and testing.
- C. Slowly fill each section of pipe with water in manner approved by Project Manager. Average water velocity when filling pipeline should be less than one foot per second and shall not, under any circumstance, exceed 2 feet per second. Before beginning disinfection operations, expel air from pipeline.
- D. Backfill excavations immediately after installation of risers or blow-offs.
- E. Install blow-off valves at end of water line to facilitate flushing of dead-end water lines. Install permanent blow-off valves according to drawings.

3.03 DISINFECTION BY OWNER PERSONNEL

- A. Correct problems that may prevent disinfection operations prior to advising Project Manager to perform disinfection work. When disinfection work cannot be performed due to covered up valves, missing valve stacks, inoperative fire hydrants or other nonconforming construction, charge will be levied against Contractor for each trip made by Operator.
- B. Notify and coordinate with Project Manager minimum of 72 hours before disinfection work is to be performed.

3.04 DISINFECTION BY CONTRACTOR

- A. The following procedure will be used when disinfection by Contractor is required by Contract Documents:
 - 1. Use not less than 100 parts of chlorine per million parts of water.
 - 2. Introduce chlorinating material to water lines in accordance with AWWA C 651.
 - 3. After contact period of not less than 24 hours, flush system with clean water until residual chlorine is no greater than 1.0 parts per million parts of water.
 - 4. Open and close valves in lines being sterilized several times during contact period.
 - 5. If chemical compound is used for sterilizing agent, place in pipes as directed by Project Manager.

3.05 BACTERIOLOGICAL TESTING

- A. After disinfection and flushing of water lines, bacteriological tests will be performed by a testing laboratory in accordance with Section 01454 - Testing Laboratory Services. When test results indicate need for additional disinfection of water lines based upon Texas Department of Health requirements, assist lab with additional disinfection operations.

3.06 COMPLETION

- A. Upon completion of disinfection and testing, remove risers except those approved for use in subsequent hydrostatic testing, and backfill excavation promptly.

END OF SECTION

SECTION 02515

HYDROSTATIC TESTING OF PIPELINES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Field hydrostatic testing of newly installed water pipelines.

1.02 RELATED SECTIONS

- A. Section 01270 - Measurement and Payment
- B. Section 02514 - Disinfection of Water Lines

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No payment will be made for hydrostatic testing of pipelines under this Section. Include cost in unit price of pipelines being tested.
 - 2. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PREPARATION

- A. Disinfect water system pipelines prior to hydrostatic testing.
- B. Hydrostatically test newly installed water pipelines after disinfection, when required, and before connecting to New Danville water distribution system.
- C. Water for testing may be charged to Contractor at New Danville water rates. Prior to hydrostatic testing, obtain a transient meter from the New Danville Operator.
- D. Test pipelines with maximum lengths between valves, or plugs, according to the following criteria.

1. 2,000 linear feet for small diameter pipelines (20-inches in diameters or smaller).
 2. 4,000 linear feet for large diameter pipelines (24-inches in diameters or larger).
- E. Conduct hydrostatic tests in presence of Project Manager.
- 3.02 TEST PROCEDURES
- A. Furnish, install, and operate connections, pump, meter and gages necessary for hydrostatic testing.
 - B. Allow pipeline to sit minimum of 24 hours from time it is initially disinfected until testing begins, to allow pipe wall or lining material to absorb water. Periods of up to 7 days may be required for mortar lining to become saturated.
 - C. For small diameter pipelines, expel air and apply minimum test pressure of 125 psi. For large diameter water lines, expel air and apply minimum test pressure of 150 psi.
 - D. Begin test by 9:00 a.m. unless otherwise approved by Project Manager. Maintain test pressure for 8 hours. When large quantity of water is required to maintain pressure during test, discontinue testing until cause of water loss is identified and corrected.
 - E. Keep valves inside pressure reducing stations closed during hydrostatic pressure test.
- 3.03 ALLOWABLE LEAKAGE FOR WATERLINES
- A. During hydrostatic tests, no leakage will be allowed for sections of water lines consisting of welded joints.
 - B. Maximum allowable leakage for water lines with rubber gasketed joints: 3.19 gallons per inch nominal diameter per mile of pipe per 24 hours while testing.
 - C. For meter run installation, when work cannot be isolated and line fails pressure test, visual inspection of work by Project Manager for leakage during pressure test may be used to fulfill requirements of this section.
- 3.04 CORRECTION FOR FAILED TESTS
- A. Repair joints showing visible leaks on surface regardless of total leakage shown on test. Check valves and fittings to ensure that no leakage occurs that could affect or invalidate test. Remove cracked or defective pipes, fittings, and valves discovered during pressure test and replace with new items.
 - B. Project Manager may require failed lines to be disinfected after repair and prior to retesting. Conduct and pay for subsequent disinfection operations in accordance with requirements of Section 02514 - Disinfection of Water Lines. Pay for water required for additional disinfection and retesting.

- C. Repeat test until satisfactory results are obtained.

3.05 COMPLETION

- A. Upon satisfactory completion of testing, remove risers remaining from disinfection and hydrostatic testing, and backfill excavation promptly.

END OF SECTION

SECTION 02520

FIRE HYDRANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fire hydrants.
- B. Adjustment of fire hydrants and gate valves.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01576 – Waste Material Disposal
- D. Section 02501 – Ductile Iron Pipe and Fittings
- E. Section 02502 – Steel Pipe and Fittings
- F. Section 02506 – Polyvinyl Chloride Pipe
- G. Section 02511 – Water Lines

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment is on a unit price basis for each fire hydrant assembly, including 6-inch gate valve and box, installed regardless of barrel depth.
 - 2. Payment for fire hydrant branches (leads) is on linear foot basis for each branch installed. Separate pay items are used for open-cut and augured branches.
 - 4. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. AWWA C 502 – Standard for Dry Barrel fire Hydrants (Latest Edition).
- B. AWWA C 550 - Protective Interior Coatings for Valves and Hydrants
- C. SSPC SP2 - Hand Tool Cleaning
- D. SSPC SP3 - Power Tool Cleaning
- E. SSPC SP10 - Near-White Metal Blast Cleaning
- F. SSPC SP11 - Power Tool Cleaning to Bare Metal
- G. SSPC Paint 42 – Epoxy Polyamide/Polyamidoamine Primer, Performance-Based
- H. SSPC Paint 36 – Two-Component Weatherable Aliphatic Polyurethane Topcoat, Performance-Based

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit name of hydrant manufacturer, type of bonnet paint, and engineering control drawing number for hydrant proposed for use.

PART 2 PRODUCTS

2.01 HYDRANTS

- A. Provide fire hydrants in conformance with AWWA C 502, Standard for Dry Barrel Fire Hydrants (Latest Edition).

- B. The Project Manager may, at any time prior to or during installation of hydrants, randomly select furnished hydrant for disassembly and laboratory inspection, at Owner's expense, to verify compliance with Specifications. When hydrant is found to be non-compliant, replace, at Contractor's expense, hydrants, with hydrants that comply with Specifications.
- C. Provide lower hydrant barrel fabricated from Ductile Iron Pipe as single piece, connected to upper hydrant barrel by means of joint coupling that will provide three hundred sixty degree (360) rotation of upper barrel.

2.02 LEADS

- A. Branches (Leads): Conform to requirements of Section 02501 - Ductile Iron Pipe and Fittings, Section 02502 - Steel Pipe and Fittings, and Section 02506 - Polyvinyl Chloride Pipe.

2.03 HYDRANT PAINTING

- A. New hydrants and refurbished hydrants shall be shop coated as specified herein. Exterior Above Traffic Flange (Including Bolts & Nuts). Bolts and nuts (both above and below ground) shall conform to AWWA C-502 Section 4.11 and shall be stainless steel, cadmium plated, or zinc coated.
 - 1. Surface preparation to be in accordance with SSPC-SP 10 (NACE 2) near white blast cleaned surface.
 - 2. Coat with a liquid or powder epoxy primer and two part polyurethane or TGIC polyester top coat system with total dry film thickness (DFT) of not to exceed 20 mils as follows:
 - a. Prime Coat - Liquid or powder epoxy primer with a total dry film thickness (DFT) of 4-6 mils, OR cathodic epoxy electro-coat (e-coat) with a (DFT) of 0.5-1.0 mils.
 - b. Intermediate Coat – Intermediate coat not required.
 - c. Finish Coat - Two part polyurethane enamel to be in general conformance with SSPC Paint Specification No. 36 or TGIC polyester system, with a total dry film thickness (DFT) 1.5-3.0 mils. Install color coded finish coating of bonnet in field.
 - d. Bonnet Paint - Field apply finish coat of Silicone Alkyd Resin Enamel to be in general conformance with SSPC Paint Specification No. 21. Dry film thickness of 2 - 3 mils. Bonnet colors are to be as specified in Paragraph 3.01 to designate the appropriate size of water supply line.
 - 3. Colors - Primer: Manufacturer's standard color. Finish coat of hydrant body: Federal Standard Color #15187 (Blue) or equivalent. Bonnet and Connection caps: Finished coated white. Paint white band of finish coat two (2) inches in width on hydrant body approximately six inches (6") above and parallel to traffic flange.
- B. Field Maintenance Painting (Exterior Above Traffic Flange)

1. Surface Preparation to be in accordance with SSPC - SP2, Hand Tool Cleaning, or SSPC - SP3, Power Tool Cleaning, depending on condition of existing paint and extent of corrosion. It is not necessary to remove tightly adhered mill scale, rust, and paint. Mill scale, rust and paint are considered tightly adherent when they cannot be removed with dull putty knife. In some severe cases where it is necessary to remove majority of existing paint, surface should be cleaned in accordance with SSPC -SP11, Power Tool Cleaning to Bare Metal.
 2. When surface is cleaned to bare metal (SSPC - SP11), coat hydrant with three coat Alkyd/Silicone Alkyd system in accordance with Paragraph 2.03.B.2 as for new hydrants. When surface is cleaned to SSPC - SP2 or SSPC - SP3, coat hydrant with Silicone Alkyd Resin Enamel in general conformance with SSPC Paint Specification No. 21. Total dry film thickness of 3-6 mils.
 3. Field coating should be conducted in accordance to the individual coatings manufacturer's recommendations.
- C. Exterior Below Traffic Flange (including lower barrel extensions).
1. Surface preparation in accordance with SSPC- SP10 (NACE 2) Near White Blast Cleaned Surface.
 2. Primer: One or two coats of modified or equal polyamide epoxy primer, to be in general conformance with SSPC Paint Specification No. 42 or approved equal with a total dry film thickness (DFT) of 20 mils. Exterior below traffic flange should be the same color as the above traffic flange, i.e., blue. (Federal Standard Color #15187 (Blue) or equivalent.)
- D. Interior Surfaces Above and Below Water Line Valve (including lower barrel extensions)
1. Material used for internal coating of hydrant interior ferrous surfaces must be NSF certified as suitable for contact with potable water as required by Chapter 290, Rules and Regulations for Public Water Systems, Texas Commission on Environmental Quality.
 2. Coating shall be liquid or powder epoxy system in accordance with AWWA Standard C - 550 (latest revision). Coating may be applied in two or three coats, according to manufacturer's recommendations, for total dry film thickness not to exceed 20 mils.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Set fire hydrant plumb and brace at locations and grades as shown on Drawings. When barrel of hydrant passes through concrete slab, place 1-inch-thick piece of standard sidewalk expansion joint material around section of barrel passing through concrete.
- B. Locate nozzle center line minimum 18 inches above finish grade.
- C. Place 12-inch by 12-inch yellow indicators (plastic, sheet metal, plywood, or other material approved by Project Manager) on pumper nozzles of new or relocated fire hydrants installed on new water lines not in service. Remove indicators after new water line is tested and approved by Project Manager. Obtain Project Manager's approval in writing prior to installation of hydrants which require changes in bury depth due to obstructions not shown on Drawings. Unit price adjustments will not be allowed for changes in water line flow line or fire hydrant barrel length caused by obstructions.
- D. Plug branch lines to valves and fire hydrants shown on Drawings to be removed. Deliver fire hydrants designated for salvage to nearest Utility Maintenance Quadrant Facility.
- E. Install branches (leads) in accordance with Section 02511 - Water Lines. Provide fully restrained joints for branches (leads) and fittings.
- F. Coating Requirements:
 - 1. Apply coatings in strict accordance with manufacturer's recommendations. No requirements of this specification shall cancel or supersede written directions and recommendations of specific manufacturer so as to jeopardize integrity of applied system.
 - 2. Furnish affidavit of compliance that coatings furnished complies with requirements of this specification and referenced standards, as applicable.
- G. Use following color code for field coating of hydrant bonnet to indicate size of water line supplying hydrant:

Supply Water Line Diameter (inches)	Bonnet Color
6	Yellow
8	White
12-20	Green
24 and larger	Orange

- H. Remove and dispose of unsuitable materials and debris in accordance with requirements of Section 01576 - Waste Material Disposal.

END OF SECTION

SECTION 02521

GATE VALVES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Gate valves.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 02317 – Excavation and Backfill for Utilities
- D. Section 02514 – Disinfection of Water Lines
- E. Section 02515 – Hydrostatic Testing of Pipelines

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No separate payment will be made for gate valves 20 inches in diameter and smaller under this Section. Include payment in unit price for water lines.
 - 2. Payment for gate valves 24 inches to 36 inches in diameter is on a unit price basis. Unit price includes cost of required box for gate valves.
 - 3. Payment for 2-inch blow-off valve with box is on a unit price basis for each installation.
 - 4. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM A 307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.
- B. ASTM B 62 - Standard Specification for Composition Bronze or Ounce Metal Casting.

- C. ASTM D 429 - Standard Test Methods for Rubber Property-Adhesion to Rigid Substrates.
- D. ASTM B 763 - Standard Specification for Copper Alloy Sand Castings for Valve Applications.
- E. AWWA C 500 - Standard for Metal-Seated Gate Valves for Water Supply Service.
- F. AWWA C 509 - Standard for Resilient-Seated Gate Valves for Water Supply Service.
- G. AWWA C 515- Standard for Reduced Wall, Resilient- Seated Gate Valves for Water Supply Service.
- H. AWWA C 550 - Standard for Protective Interior Coatings for Valves and Hydrants.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit manufacturer's product data for proposed valves for approval.
- C. Provide detailed drawings of gearing mechanism for 20-inch and larger gate valves.

1.06 QUALITY CONTROL

- A. Submit manufacturer's affidavit that gate valves are manufactured in the United States and conform to stated requirements of AWWA C 500, AWWA C 509, AWWA C 515, and this Section, and that they have been satisfactorily tested in the United States in accordance with AWWA C 500, AWWA C 509, and AWWA C 515.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Gate Valves: AWWA C 500, AWWA C 509, AWWA C 515 and additional requirements of this Section. Direct bury valves and those in subsurface vaults open clockwise; aboveground and plant valves open counterclockwise.
- B. If type of valve is not indicated on Drawings, use gate valves as line valves for sizes 20-inches and smaller. When type of valve is indicated, no substitute is allowed.
- C. Gate Valves 1-1/2 inches in Diameter and Smaller: 125 psig; bronze; rising-stem; single- wedge; disc type; screwed ends
- D. Coatings for Gate Valves 2 inches and larger: AWWA C 550 non-toxic, imparts no taste to water, functions as physical, chemical, and electrical barrier between base metal and surroundings, minimum 8-mil-thick, fusion-bonded epoxy. Prior to assembly of valve, apply protective coating to interior and exterior surfaces of body.

- E. Gate Valves 2 inches in diameter: Iron body, double disc or resilient-seated, non-rising stem, 150-pound test, 2-inch square nut operating clockwise to open.
- F. Gate Valves 3 inches to 12 inches in diameter: Non-directional, standard-wall resilient seated (AWWA C 509), parallel seat double disc (AWWA C 500), or reduced-wall resilient seated gate valves (AWWA C 515), 200 psig pressure rating, bronze mounting, push-on bell ends with rubber joint rings, and nut-operated unless otherwise specified. Provide approved standard-wall resilient seated valves. Provide approved reduced-wall resilient seated valves. Provide approved double disc valves. Comply with following requirements unless otherwise specified in Drawings:
 - 1. Design: Fully encapsulated rubber wedge or rubber seat ring mechanically attached with minimum 304 stainless-steel fasteners or screws; threaded connection isolated from water by compressed rubber around opening.
 - 2. Body: Cast or ductile iron, flange bonnet and stuffing box together with ASTM A 307 Grade B bolts. Manufacturer's initials, pressure rating, and year manufactured shall be cast in body.
 - 3. Bronze: Valve components in waterway to contain not more than 15 percent zinc and not more than 2 percent aluminum.
 - 4. Stems: ASTM B 763 bronze, alloy number-995 minimum yield strength of 40,000 psi; minimum elongation in 2-inches of 12 percent, non-rising.
 - 5. O-rings: For AWWA C 500, Section 3.12.2. For AWWA C 509, Sections 2.2.6 and 4.8.2. For AWWA C 515, Section 4.2.2.5.
 - 6. Stem Seals Consist of three O-rings, two above and one below thrust collar with anti- friction washer located above thrust collar for operating torque.
 - 7. Stem Nut: Independent or integrally cast of ASTM B 62 bronze.
 - 8. Resilient Wedge: Molded, synthetic rubber, vulcanized and bonded to cast or ductile iron wedge or attached with 304 stainless steel screws tested to meet or exceed ASTM D 429 Method B; seat against epoxy-coated surface in valve body.
 - 9. Bolts: AWWA C 500 Section 3.4, AWWA C 509 Section 4.4 or AWWA C 515 Section 4.4.4; stainless steel; cadmium plated, or zinc coated.
- G. Gate valves 14 inch and larger in Diameter: AWWA C 500; parallel seat double disc gate valves; push-on bell ends with rubber rings and nut-operated unless otherwise specified. Provide approved double disc valves with 150 psig pressure rating. Comply with following requirements unless otherwise specified on Drawings:

1. Body: Cast iron or ductile iron; flange together bonnet and stuffing box with ASTM A 307 Grade B bolts. Cast following into valve body manufacturer's initials, pressure rating, and year manufactured. When horizontally mounted, equip valves greater in diameter than 12 inches with rollers, tracks, and scrapers.
 2. O rings: For AWWA C 500, Section 3.12.2. For AWWA C 515, Section 4.2.2.5.
 3. Stems: ASTM B 763 bronze, alloy number-995 minimum yield strength of 40,000 psi; minimum elongation in 2-inches of 12 percent, non-rising.
 4. Stem Nut: Machined from ASTM B 62 bronze rod with integral forged thrust collar machined to size; non-rising.
 5. Stem Seals: Consist of three O-rings, two above and one below thrust collar with anti- friction washer located above thrust collar for operating torque.
 6. Bolts: AWWA C 500 Section 3.4 or AWWA C 515 Section 4.4.4; stainless steel; cadmium plated, or zinc coated.
 7. Discs: Cast iron with bronze disc rings securely panned into machined dovetailed grooves.
 8. Wedging Device: Solid bronze or cast-iron, bronze-mounted wedges. Thin plates or shapes integrally cast into cast-iron surfaces are acceptable. Other moving surfaces integral to wedging action shall be bronze monel or nickel alloy-to-iron.
 9. Provide bypass for double-disc valves (AWWA C500).
 10. Bronze Mounting: Built as integral unit mounted over, or supported on, cast-iron base and of sufficient dimensions to be structurally sound and adequate for imposed forces.
 11. Gear Cases: Cast iron; furnished on 18-inch and larger valves and of extended type with steel side plates, lubricated, gear case enclosed with oil seal or O-rings at shaft openings.
 12. Stuffing Boxes: Located on top of bonnet and outside gear case.
- H. Gate valves 14 inches to 48 inches: Provide AWWA C 515; reduced-wall, resilient seated gate valves with 250 psig pressure rating. Furnish with spur or bevel gearing.
1. Mount valves horizontally if proper ground clearance cannot be achieved by normal vertical installation. For horizontally mounted gate valves, provide bevel operation gear mounted vertically for above ground operation.

2. Use valve body, bonnet, wedge, and operator nut constructed of ductile iron. Fully encapsulate exterior of ductile iron wedge with rubber.
 3. Ensure wedge is symmetrical and seals equally well with flow in either direction.
 4. Provide ductile iron operator nut with four flats at stem connection to apply even input torque to the stem.
 5. Bolts: AWWA C515, Section 4.4.4, Stainless Steel; cadmium plated or zinc coated.
 6. Provide high strength bronze stem and nut.
 7. O-rings: AWWA C515, Section 4.2.2.5, pressure O-rings as gaskets.
 8. Provide stem sealed by three O-rings. Top two O-rings are to be replaceable with valve fully open at full rated working pressure.
 9. Provide thrust washers to the thrust collar for easy valve operation.
- I. Gate Valves Extension Stem: When shown on Drawings, provide non-rising, extension stem having coupling sufficient to attach securely to operating nut of valve. Upper end of extension stem shall terminate in square wrench nut no deeper than 4 feet from finished grade or as shown on Drawings. Support extension stem with an arm attached to wall of manhole or structure that loosely holds extension stem and allows rotation in the axial direction only.
- J. Gate Valves in Factory Mutual (Fire Service) Type Meter Installations: Conform to provisions of this specification; outside screw and yoke valves; carry label of Underwriters' Laboratories, Inc.; flanged, Class 125; clockwise to close.
- K. Gate Valves for Tapping Steel Pipe: Provide double disc gate valve. Resilient wedge gate valve shall only be installed in a vertical position.
- L. Provide flanged joints when valve is connected to steel or PCCP.
- M. Key valve stem into the operator nut.
- N. Do not exceed 600 ft-lbs of torque on operator nut on gate valve.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Earthwork. Conform to applicable provisions of Section 02317 - Excavation and Backfill for Utilities.
- B. Operation. Do not use valves for throttling without prior approval of manufacturer.

3.02 SETTING VALVES AND VALVE BOXES

- A. Remove foreign matter from within valves prior to installation. Inspect valves in open and closed positions to verify that parts are in satisfactory working condition.
- B. Install valves and valve boxes where shown on Drawings. Set valves plumb and as detailed. Center valve boxes on valves. Carefully tamp earth around each valve box for minimum radius of 4 feet, or to undisturbed trench face when less than 4 feet. Install valves completely closed when placed in water line.
- C. For pipe section of each riser, use only 6-inch, ductile iron Class 51, or DR18 PVC pipe cut to proper length. Riser must be installed to allow complete access for operation of valve. Assemble and brace box in vertical position as indicated on Drawings.

3.03 DISINFECTION AND TESTING

- A. Assist Project Manager with disinfection of valves and appurtenances as required by Section 02514 - Disinfection of Water Lines and test as required by Section 02515 - Hydrostatic Testing of Pipelines.
- B. Double-Disc Gate Valves: Apply hydrostatic test pressure equal to twice rated working pressure of valve between discs. Valve shall show no leakage through metal, flanged joints, or stem seals. Test at rated working pressure, applied between discs. Valve shall show no leakage through metal, flanged joints, or stem seals. Do not exceed leakage rate of 1 oz per hr per inch of nominal valve size.
- C. Solid-Wedge Gate Valves: Apply hydrostatic pressure equal to twice rated working pressure of valve with both ends bulkheaded and gate open. Valve shall show no leakage through metal, flanged joints, or stem seals. Test at rated working pressure, applied through bulkheads alternately to each side of closed gate with opposite side open for inspection. Valve shall show no leakage through metal, flanged joints, or stem-seals. Do not exceed leakage rate of 1 oz per hr per inch of nominal valve size.
- D. Repair or replace valves which exceed leakage rate.

3.04 PAINTING OF VALVES

- A. Paint valves in vaults, stations, and above ground with approved paint.

END OF SECTION

SECTION 02531

GRAVITY SANITARY SEWERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Gravity sanitary sewers and appurtenances, including stacks and service connections.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01555 – Traffic Control and Regulation
- D. Section 01578 – Control of Ground and Surface Water
- E. Section 02081 – Cast-In-Place Concrete Manholes
- F. Section 02082 – Precast Concrete Manholes
- G. Section 02083 – Fiberglass Manholes
- H. Section 02090 – Frames, Grates, Rings, and Covers
- I. Section 02221 – Removing Existing Pavements, Structures, Wood, and Demolition Debris
- J. Section 02260 – Trench Safety System
- K. Section 02317 – Excavation and Backfill for Utilities
- L. Section 02320 – Utility Backfill Materials
- M. Section 02321 – Cement Stabilized Sand
- N. Section 02427 – Plastic Liner for Large-Diameter Concrete Sewers and Structures
- O. Section 02501 – Ductile Iron Pipe and Fittings
- P. Section 02504 – Fiberglass Reinforced Pipe
- Q. Section 02505 – High Density Polyethylene (HDPE) Solid and Profile Wall Pipe
- R. Section 02506 – Polyvinyl Chloride Pipe

- S. Section 02508 – Extra Strength Clay Pipe
- T. Section 02532 – Sanitary Sewer Force Mains
- U. Section 02533 – Acceptance Testing for Sanitary Sewers
- V. Section 02534 – Sanitary Sewer Service Stubs or Reconnections
- W. Section 02550 – Sliplining Sanitary Sewers
- X. Section 02556 – Cured-In-Place Pipe
- Y. Section 02558 – Cleaning and Television Inspection
- Z. Section 02571 – Pipe Bursting/Crushing Sanitary Sewers
- AA. Section 02611 – Reinforced Concrete Pipe
- BB. Section 02911 – Topsoil
- CC. Section 02921 – Hydro Mulch Seeding
- DD. Section 02922 – Sodding
- EE. Section 02951 – Pavement Repair and Restoration

1.03 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for gravity sanitary sewers by open-cut or within Potentially Petroleum Contaminated Area (PPCA) is on linear foot basis, complete in place, including sewer pipe, connections to existing manholes, post installation television inspection and testing. Measurement will be taken along centerline of pipe from centerline to centerline of manholes.
2. Payment for television inspection of existing gravity sanitary sewer will be on a linear foot basis. Measurement will be taken along centerline of pipe from centerline to centerline of manholes. See Section 02558 - Cleaning and Television Inspection.
3. Refer to Section 01270 - Measurement and Payment for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

- B. Submit proposed methods, equipment, materials and sequence of operations for sewer construction. Plan operations so as to minimize disruption of utilities to occupied facilities or adjacent property.
- C. Test Reports: Submit test reports and inspection videos as specified in Part 3 of this Section. Videos become property of Owner.

1.05 QUALITY ASSURANCE

- A. Qualifications. Install sanitary sewer that is watertight both in pipe-to-pipe joints and in pipe-to-manhole connections. Perform testing in accordance with Section 02533 - Acceptance Testing for Sanitary Sewers.
- B. Regulatory Requirements.
 - 1. Install sewer lines to meet minimum separation distance from potable water line, as scheduled below. Separation distance is defined as distance between outside of water pipe and outside of sewer pipe. When possible, install new sanitary sewers no closer to water lines than 9 feet in all directions. Where this separation distance cannot be achieved, new sanitary sewers shall be installed as specified in this section.
 - 2. Make notification to Project Manager when water lines are uncovered during sanitary sewer installation where minimum separation distance cannot be maintained.
 - 3. Lay gravity sewer lines in straight alignment and grade.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Inspect pipe and fittings upon arrival of materials at job site.
- B. Handle and store pipe materials and fittings to protect them from damage due to impact, shock, shear or free fall. Do not drag pipe and fittings along ground. Do not roll pipe unrestrained from delivery trucks.
- C. Use mechanical means to move or handle pipe. Employ acceptable clamps, rope or slings around outside barrel of pipe and fittings. Do not use hooks, bars, or other devices in contact with interior surface of pipe to lift or move lined pipe.

PART 2 PRODUCTS

2.01 PIPE

- A. Provide piping materials for gravity sanitary sewers of sizes and types indicated on Drawings or as specified.
- B. Unlined reinforced concrete pipe is not acceptable.

- C. Pipe shall be color coded green.

2.02 PIPE MATERIAL SCHEDULE

- A. Unless otherwise shown on Drawings, use pipe materials that conform to requirements specified in one or more of following Sections:
 - 1. Section 02427 - Plastic Liner for Large-Diameter Concrete Sewers and Structures.
 - 2. Section 02501 - Ductile Iron Pipe and Fittings.
 - 3. Section 02504 - Fiberglass Reinforced Pipe.
 - 4. Section 02505 - High Density Polyethylene (HDPE) Solid and Profile Wall Pipe.
 - 5. Section 02506 - Polyvinyl Chloride Pipe.
 - 6. Section 02508 - Extra Strength Clay Pipe.
 - 7. Section 02611 - Reinforced Concrete Pipe.
 - 8. Section 02532 – Sanitary Sewer Force Mains.
- B. Where shown on Drawings, provide pipe meeting minimum class, dimension ratio, or other criteria indicated.
- C. Pipe materials other than those listed above shall not be used for gravity sanitary sewers.

2.03 APPURTENANCES

- A. Stacks. Conform to requirements of Section 02534 - Sanitary Sewer Service Stubs or Reconnections.
- B. Service Connections. Conform to requirements of Section 02534 - Sanitary Sewer Service Stubs or Reconnections.
- C. Roof, street or other type of surface water drains shall not be connected or reconnected into sanitary sewer lines.

2.04 BEDDING, BACKFILL, AND TOPSOIL MATERIAL

- A. Bedding and Backfill: Conform to requirements of Section 02317 - Excavation and Backfill for Utilities, Section 02320 - Utility Backfill Materials, and Section 02321 - Cement Stabilized Sand.
- B. Topsoil: Conform to requirements of Section 02911 - Topsoil.

PART 3 EXECUTION

3.01 PREPARATION

- A. Prepare traffic control plans and set up street detours and barricades in preparation for excavation when construction will affect traffic. Conform to requirements of Section 01555 - Traffic Control and Regulation.
- B. Provide barricades, flashing warning lights, and warning signs for excavations. Conform to requirements of Section 01555 - Traffic Control and Regulation. Maintain barricades and warning lights where work is in progress or where traffic is affected by work.
- C. Perform work in accordance with OSHA standards. Employ trench safety system as specified in Section 02260 - Trench Safety System for excavations over 5 feet deep.
- D. Immediately notify agency or company owning utility line which is damaged, broken or disturbed. Obtain approval from Project Manager and agency or utility company for repairs or relocations, either temporary or permanent.
- E. Remove old pavements and structures including sidewalks and driveways in accordance with requirements of Section 02221 - Removing Existing Pavements, Structures, Wood, and Demolition Debris.
- F. Install and operate dewatering and surface water control measures in accordance with Section 01578 - Control of Ground and Surface Water.
- G. Do not allow sand, debris or runoff to enter sewer system.

3.02 DIVERSION PUMPING

- A. Install and operate required bulkheads, plugs, piping, and diversion pumping equipment to maintain sewage flow and to prevent backup or overflow. Obtain approval for diversion pumping equipment and procedures from Project Manager.
- B. Design piping, joints and accessories to withstand twice maximum system pressure or 50 psi, whichever is greater.
- C. No sewage shall be diverted into area outside of sanitary sewer.
- D. In event of accidental spill or overflow, immediately stop overflow and take action to clean up and disinfect spillage. Promptly notify Project Manager so that required reporting can be made to Texas Natural Resources Conservation Commission and Environmental Protection Agency by Project Manager.

3.03 EXCAVATION

- A. Earthwork. Conform to requirements of Section 02317 - Excavation and Backfill for Utilities. Use bedding as indicated on Drawings.
- B. Line and Grade. Establish required uniform line and grade in trench from benchmarks identified by Project Manager. Maintain this control for minimum of 100 feet behind and ahead of pipe-laying operation. Use laser beam equipment to establish and maintain proper line and grade of work. Use of appropriately sized grade boards which are substantially supported is also acceptable. Protect boards and location stakes from damage or dislocation.
- C. Trench Excavation. Excavate pipe trenches to depths shown on Drawings and as specified in Section 02317 - Excavation and Backfill for Utilities.

3.04 PIPE INSTALLATION BY OPEN CUT

- A. Install pipe in accordance with pipe manufacturer's recommendations and as specified in following paragraphs.
- B. Install pipe only after excavation is completed, bottom of trench fine graded, bedding material is installed, and trench has been approved by Project Manager.
- C. Install pipe to line and grade indicated. Place pipe so that it has continuous bearing of barrel on bedding material and is laid in trench so interior surfaces of pipe follow grades and alignment indicated. Provide bell holes where necessary.
- D. Install pipe with spigot ends toward downstream end of flow such that water flows into bell and out the spigot.
- E. Form concentric joint with each section of adjoining pipe so as to prevent offsets.
- F. Keep interior of pipe clean as installation progresses. Remove foreign material and debris from pipe
- G. Provide lubricant, place and drive home newly laid sections with come-a-long winches so as to eliminate damage to sections. Install pipe to "home" mark where provided. Use of back hoes or similar powered equipment will not be allowed unless protective measures are provided and approved in advance by Project Manager.
- H. Keep excavations free of water during construction and until final inspection.
- I. When work is not in progress, cover exposed ends of pipes with approved plug to prevent foreign material from entering pipe.
- J. Where gravity sanitary sewer is to be installed under existing water line with separation distance of at least 2 feet and less than 9 feet, install new sewer pipe so that one full 18 foot long pipe is centered on water line crossing. Embed sewer pipe in cement stabilized sand for minimum distance of 9 feet on each side of crossing.

- K. Where gravity sanitary sewer is to be installed under existing water line with separation distance of less than 2 feet, install new sewer using pressure-rated pipe as shown on Drawings. Maintain minimum 1 foot separation distance.
- L. Where the length of the stub is not indicated, install the stub to the right-of-way line and seal the free end with an approved plug.

3.05 PIPE INSTALLATION OTHER THAN OPEN CUT

- A. For installation of pipe by augering, jacking, or tunneling, conform to requirements of specification sections on tunneling augering, jacking and microtunneling work as appropriate.
- B. For rehabilitation of existing sewer lines, conform to requirements of specification Section 02550- Sliplining Sanitary Sewers, Section 02556 - Cured-In-Place Pipe or Section 02571- Pipe Bursting/Crushing Sanitary Sewers.

3.06 INSTALLATION OF APPURTENANCES

- A. Service Connections. Install service connections to conform to requirements of Section 2534 - Sanitary Sewer Service Stubs or Reconnections.
- B. Stacks. Construct stacks to conform to requirements of Section 02534 - Sanitary Sewer Service Stubs or Reconnections.
- C. Construct manholes to conform to requirements of Section 02081 - Cast-in-Place Concrete Manholes, Section 02082 - Precast Concrete Manholes, and Section 02083 - Fiberglass Manholes, as applicable. Install frames, rings, and covers to conform to requirements of Section 02090 - Frames, Grates, Rings, and Covers.

3.07 INSPECTION AND TESTING

- A. Visual Inspection: Check pipe alignment in accordance with Section 02533 - Acceptance Testing for Sanitary Sewers.
- B. Mandrel Testing. Use Mandrel Test to test flexible pipe for deflection. Refer to Section 02533 - Acceptance Testing for Sanitary Sewers.
- C. Pipe Leakage Test. After backfilling line segment and prior to tie-in of service connections, visually inspect gravity sanitary sewers where feasible, and test for leakage in accordance with Section 02533 - Acceptance Testing for Sanitary Sewers. Maintain piezometer installed to conform with Section 01578 - Control of Ground and Surface Water, until acceptance testing is completed.

3.08 BACKFILL AND SITE CLEANUP

- A. Backfill and compact soil in accordance with Section 02317 - Excavation and Backfill for Utilities.

- B. Backfill trench in specified lifts only after pipe installation is approved by Project Manager.
- C. Repair and replace removed or damaged pavement, curbs, gutters, and sidewalks as specified in Section 02951 - Pavement Repair and Restoration.
- D. Provide hydro mulch seeding in areas of commercial, industrial or undeveloped land use over surface of ground disturbed during construction and not paved or not designated to be paved. Grade surface at uniform slope to natural grade as indicated on Drawings. Provide minimum of 4 inches of topsoil as specified in Section 02911 - Topsoil and apply hydro mulch according to requirements of Section 02921 – Hydro Mulch Seeding.
- E. Provide sodding in areas of residential land use over surface of ground disturbed during construction and not paved or not designated to be paved. Grade surface at uniform slope to natural grade as indicated on Drawings. Provide minimum of 4 inches of topsoil per Section 02911 - Topsoil. Sod disturbed areas in accordance with Section 02922 - Sodding.

3.09 POST-INSTALLATION TELEVISION INSPECTION

- A. Prior to final acceptance of newly constructed gravity sanitary sewers, perform cleaning and closed circuit television inspection. Post installation television inspection shall be performed in accordance with Section 02558 – Cleaning and Television Inspection.
- B. Provide TV inspection reports and video submittals in accordance with Section 02558 – Cleaning and Television Inspection for each line segment submitted.
- C. Upon completion of video review, Contractor will be notified regarding final acceptance of sewer segment.

END OF SECTION

SECTION 02533

ACCEPTANCE TESTING FOR SANITARY SEWERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Acceptance testing of sanitary sewers including:
 - 1. Visual inspection of sewer pipes
 - 2. Mandrel testing for flexible sewer pipes.
 - 3. Leakage testing of sewer pipes.
 - 4. Leakage testing of manholes.
 - 5. Smoke testing of point repairs.
 - 6. Television and Video Inspection.
- B. All tests listed in this Section are not necessarily required on this Project. Required tests are named in other Sections which refer to this Section for testing criteria and procedures.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01578 – Control of Ground and Surface Water

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No payment will be made for acceptance testing under this Section. Include payment in unit price for work requiring acceptance testing.
 - 2. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM C 828 - Standard Test Method for Low Pressure Air Test of Vitrified Clay Pipe Lines.
- B. ASTM D 3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- C. ASTM F 794 - Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
- D. ASTM F 1417 - Standard Practice for Installation Acceptance of Plastic Non-Pressure Sewer Lines Using Low-Pressure Air.
- E. ASTM C 1244 Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill.

1.05 PERFORMANCE REQUIREMENTS

- A. Gravity flow sanitary sewers are required to have straight alignment and uniform grade between manholes.
- B. Flexible pipe, including "semi-rigid" pipe, is required to show no more than 5 percent deflection. Test pipe no sooner than 30 days after backfilling of line segment but prior to final acceptance using standard mandrel to verify that installed pipe is within specified deflection tolerances.
- C. Must meet Texas Commission on Environmental Quality (TCEQ) Testing Requirements Chapter-217-57.

1.06 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Test Plan: Before testing begins and in adequate time to obtain approval through submittal process, prepare and submit test plan for approval by Project Manager. Include testing procedures, methods, equipment, and tentative schedule. Obtain advance written approval for deviations from Drawings and Specifications.
- C. Test Reports: Submit test reports for each test on each segment of sanitary sewer.

1.07 GRAVITY SANITARY SEWER QUALITY ASSURANCE

- A. Repair, correct, and retest manholes or sections of pipe which fail to meet specified requirements when tested.
- B. Provide testing reports and video tape of television inspection as directed by Project Manager.
- C. Upon completion of tape reviews by Project Manager, Contractor will be notified regarding final acceptance of sewer segment.

1.08 SEQUENCING AND SCHEDULING

- A. Perform testing as work progresses. Schedule testing so that no more than 1000 linear feet of installed sewer remains untested at one time.
- B. Coordinate testing schedules with Project Manager. Perform testing under observation of Project Manager.

PART 2 PRODUCTS

2.01 DEFLECTION MANDREL

- A. Mandrel Sizing. Rigid mandrel shall have outside diameter (O.D.) equal to 95 percent of inside diameter (I.D.) of pipe. Inside diameter of pipe, for purpose of determining outside diameter of mandrel, shall be average outside diameter minus two minimum wall thicknesses for O.D. controlled pipe and average inside diameter for I.D. controlled pipe, dimensions shall be per appropriate standard. Statistical or other "tolerance packages" shall not be considered in mandrel sizing.
- B. Mandrel Design. Rigid mandrel shall be constructed of metal or rigid plastic material that can withstand 200 psi without being deformed. Mandrel shall have nine or more "runners" or "legs" as long as total number of legs is odd number. Barrel section of mandrel shall have length of at least 75 percent of inside diameter of pipe. Rigid mandrel shall not have adjustable or collapsible legs which would allow reduction in mandrel diameter during testing. Provide and use proving ring for modifying each size mandrel.
- C. Proving Ring. Furnish "proving ring" with each mandrel. Fabricate ring of 1/2-inch-thick, 3-inch-wide bar steel to diameter 0.02 inches larger than approved mandrel diameter.
- D. Mandrel Dimensions (5 percent allowance). Average inside diameter and minimum mandrel diameter are specified in Table 02533-5, Pipe vs. Mandrel Diameter, at end of this Section. Mandrels for higher strength, thicker wall pipe or other pipe not listed in table may be used when approved by Project Manager.

2.02 EXFILTRATION TEST

- A. Water Meter: Obtain transient water meter from Owner for use when water for testing will be taken from New Danville system. Contact Owner's Operator for water meter use.
- B. Test Equipment:
 - 1. Pipe plugs.
 - 2. Pipe risers where manhole cone is less than 2 feet above highest point in pipe or service lead.

2.03 INFILTRATION TEST

A. Test Equipment:

1. Calibrated 90 degree V-notch weir.
2. Pipe plugs.

2.04 LOW PRESSURE AIR TEST

A. Minimum Requirement for Equipment:

1. Control panel
2. Low-pressure air supply connected to control panel.
3. Pneumatic plugs: Acceptable size for diameter of pipe to be tested; capable of withstanding internal test pressure without leaking or requiring external bracing.
4. Air hoses from control panel to:
 - a. Air supply.
 - b. Pneumatic plugs.
 - c. Sealed line for pressuring.
 - d. Sealed line for monitoring internal pressure.

B. Testing Pneumatic Plugs: Place pneumatic plug in each end of length of pipe on ground. Pressurize plugs to 25 psig; then pressurize sealed pipe to 5 psig. Plugs are acceptable when they remain in place against test pressure without external aids.

2.05 GROUND WATER DETERMINATION

A. Equipment: Pipe probe or small diameter casing for ground water elevation determination.

2.06 SMOKE TESTING

A. Equipment:

1. Pneumatic plugs.
2. Smoke generator as supplied by Superior Signal Company, or approved equal.
3. Blowers producing 2500 scfm minimum.

PART 3 EXECUTION

3.01 PREPARATION

- A. Provide labor, equipment, tools, test plugs, risers, air compressor, air hose, pressure meters, pipe probe, calibrated weirs, or any other device necessary for proper testing and inspection.
- B. Determine selection of test methods and pressures for gravity sanitary sewers based on ground water elevation. Determine ground water elevation using equipment and procedures conforming to Section 01578 - Control of Ground and Surface Water.

3.02 VISUAL INSPECTION OF GRAVITY SANITARY SEWERS

- A. Check pipe alignment visually by flashing light between structures. Verify if alignment is true and no pipes are misplaced. In case of misalignment or damaged pipe, remove and re- lay or replace pipe segment.

3.03 MANDREL TESTING FOR GRAVITY SANITARY SEWERS

- A. Perform deflection testing on flexible and semi-rigid pipe to confirm pipe has no more than 5 percent deflection. Mandrel testing shall conform to ASTM D 3034. Perform testing no sooner than 30 days after backfilling of line segment, but prior to final acceptance testing of line segment.
- B. Pull approved mandrel by hand through sewer sections. Replace any section of sewer not passing mandrel. Mandrel testing is not required for stubs.
- C. Retest repaired or replaced sewer sections.

3.04 LEAKAGE TESTING FOR GRAVITY COLLECTION SYSTEM PIPES

- A. For a collection system pipe that will transport wastewater by gravity flow, test gravity sanitary sewer pipes for leakage by either exfiltration or infiltration methods, as appropriate, or with low pressure air testing.
- B. Compensating for Ground Water Pressure:
 - 1. Where ground water exists, install pipe nipple at same time sewer line is placed. Use 1/2-inch capped pipe nipple approximately 10 inches long. Make installation through manhole wall on top of sewer line where line enters manhole.
 - 2. Immediately before performing line acceptance test, remove cap, clear pipe nipple with air pressure, and connect clear plastic tube to nipple. Support tube vertically and allow water to rise in tube. After water stops rising, measure height in feet of water over invert of pipe. Divide this height by 2.3 feet/psi to determine ground water pressure to be used in line testing.

C. Exfiltration test:

1. Determine ground water elevation.
2. Plug sewer in downstream manhole.
3. Plug incoming pipes in upstream manhole.
4. Install riser pipe in outgoing pipe of upstream manhole when highest point in service lead (house service) is less than 2 feet below bottom of manhole cone.
5. Fill sewer pipe and manhole or pipe riser, when used, with water to point 2-1/2 feet above highest point in sewer pipe, house lead, or ground water table, whichever is highest.
6. Allow water to stabilize for one to two hours. Take water level reading to determine drop of water surface, in inches, over one-hour period, and calculate water loss (1 inch of water in 4 feet diameter manhole equals 8.22 gallons) or measure quantity of water required to keep water at same level. Loss shall not exceed that calculated from allowable leakage according to Table 02533-1 at end of this Section.

D. Infiltration test: Ground water elevation must be not less than 2.0 feet above highest point of sewer pipe or service lead (house service).

1. Determine ground water elevation.
2. Plug incoming pipes in upstream manhole.
3. Insert calibrated 90 degree V-notch weir in pipe on downstream manhole.
4. Allow water to rise and flow over weir until it stabilizes.

E. Low Air Pressure Test: When using this test conform to ASTM C 828, or ASTM F 1417, as applicable, with holding time not less than that listed in Table 02533-2.

1. Low Pressure Air testing for sections of pipe shall be limited to lines less than 36- inch average inside diameter. Refer to charts 02533-2 and 02533-3.
2. Lines 36-inch average inside diameter and larger shall be tested at each joint. Minimum time allowable for pressure to drop from 3.5 pounds per square inch gauge to 2.5 pounds per square inch during joint test shall be 10 seconds, regardless of pipe size.

F. Retest: Repair and retest any section of pipe which fails to meet requirements.

3.05 TEST CRITERIA TABLES

A. Exfiltration and Infiltration Water Tests: Refer to Table 02533-1, Water Test Allowable Leakage, at end of this Section.

B. Low Pressure Air Test:

1. Times in Table 02533-2, Time Allowed for Pressure Loss from 3.5 psig to 2.5 psig, at end of this Section, are based on equation from Texas Commission on Environmental Quality (TCEQ) Design Criteria 217.57

$$T = 0.0850(D)(K)/(Q)$$

Where: T = time for pressure to drop 1.0 pounds per square inch gauge in seconds

K = 0.000419 DL, but not less than 1.0

D = average inside diameter in inches

L = length of line of same pipe size in feet

Q = rate of loss, 0.0015 ft³/min./sq. ft. internal surface

2. Since K value of less than 1.0 shall not be used, there are minimum testing times for each pipe diameter as given in Table 02533-3, Minimum Testing Times for Low Pressure Air Test.

Notes:

1. When two sizes of pipe are involved, compute time by ratio of lengths involved.
2. Lines with 27-inch average inside diameter and larger may be air tested at each joint.
3. Lines with average inside diameter greater than 36 inches must be air tested for leakage at each joint.
4. If joint test is used, perform visual inspection of joint immediately after testing.
5. For joint test, pipe is to be pressurized to 3.5 psi greater than pressure exerted by groundwater above pipe. Once pressure has stabilized, minimum times allowable for pressure to drop from 3.5 pounds per square inch gauge to 2.5 pounds per square inch gauge shall be 10 seconds.

3.06 LEAKAGE TESTING FOR MANHOLES

- A. After completion of manhole construction, wall sealing, or rehabilitation, but prior to backfilling, test manholes for water tightness using hydrostatic or vacuum testing procedures.
- B. Plug influent and effluent lines, including service lines, with suitably-sized pneumatic or mechanical plugs. Ensure plugs are properly rated for pressures required for test; follow manufacturer's safety and installation recommendations. Place plugs minimum of 6 inches outside of manhole walls. Brace inverts to prevent lines from being dislodged when lines entering manhole have not been backfilled.

- C. Vacuum testing:
1. Install vacuum tester head assembly at top access point of manhole and adjust for proper seal on straight top section of manhole structure. Following manufacturer's instructions and safety precautions, inflate sealing element to recommended maximum inflation pressure; do not over-inflate.
 2. Evacuate manhole with vacuum pump to 10 inches mercury (Hg), disconnect pump, and monitor vacuum for time period specified in Table 02533-4, Vacuum Test Time Table.
 3. A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury (Hg).

- D. Perform hydrostatic exfiltration testing as follows:
1. Seal wastewater lines coming into manhole with internal pipe plug. Then fill manhole with water and maintain it full for at least one hour.
 2. The maximum leakage for hydrostatic testing shall be 0.025 gallons per foot diameter per foot of manhole depth per hour.
 3. If water loss exceeds amount tabulated above, locate leaks, complete repairs necessary to seal manhole and repeat test procedure until satisfactory results are obtained.

3.07 SMOKE TEST PROCEDURES FOR POINT REPAIRS

- A. Application: Perform smoke test to:
1. Locate points of line failure for point repair.
 2. Determine when point repairs are properly made.
 3. Determine when service connections have been reconnected to rehabilitated sewer.
 4. Check integrity of connections to newly replaced service taps to liners and to existing private service connections.
- B. Limitations: Do not backfill service taps until completion of this test. Test only those taps in single manhole section at one time. Keep number of open excavations to minimum.
- C. Preparation: Prior to smoke testing, give written notices to area residents no fewer than 2 days, nor more than 7 days, prior to proposed testing. Also give notice to County and City of Willis Police and Fire Departments 24 hours prior to actual smoke testing.

- D. Isolate Section: Isolate manhole section to be tested from adjacent manhole sections to keep smoke localized. Temporarily seal annular space at manhole for sliplined sections.
- E. Smoke Introduction:
 - 1. Operate equipment according to manufacturer's recommendation and as approved by Project Manager.
 - 2. Conduct test by forcing smoke from smoke generators through sanitary sewer main and service connections. Operate smoke generators for minimum of 5 minutes.
 - 3. Introduce smoke into upstream and downstream manhole as appropriate. Monitor tap/connection for smoke leaks. Note sources of leaks.
- F. Repair and Retest: Repair and replace taps or connections noted as leaking and then retest. Taps and connections may be left exposed in only one manhole section at time. When repair or replacement, testing or retesting, and backfilling of excavation is not completed within one work day, properly barricade and cover each excavation as approved by Project Manager.
- G. Service Connections: On houses where smoke does not issue from plumbing vent stacks to confirm reconnection of sewer service to newly installed liner pipe, perform dye test to confirm reconnection. Introduce dye into service line through plumbing fixture inside structure or sewer cleanout immediately outside structure and flush with water. Observe flow at service reconnection or downstream manhole. Detection of dye confirms reconnection.

3.08 TELEVISION AND VIDEO INSPECTION PROCEDURE

- A. Refer to Document 02588- Cleaning and Television Inspection

Table 02533-1
 WATER TEST ALLOWABLE LEAKAGE

DIAMETER OF RISER OR STACK IN INCHES	VOLUME PER INCH OF DEPTH		ALLOWANCE LEAKAGE*	
	INCH	GALLONS	PIPE SIZE IN INCHES	GALLONS/MINUTE PER 100 FT.
1	0.7854	.0034	6	0.0039
2	3.1416	.0136	8	0.0053
2.5	4.9087	.0212	13	0.0066
3	7.0686	.0306	12	0.0079
4	12.5664	.0306	15	0.0099
5	19.6350	.0544	18	0.0118
6	28.2743	.1224	21	0.0138
8	50.2655	.2176	24	0.0158
			27	0.0177
			30	0.0197
			36	0.0237
			42	0.0276
For other diameters, multiply square of diameters by value for 1" diameter.			Equivalent to 50 gallons per inch of inside diameter per mile per 24 hours.	

* Allowable leakage rate must not exceed 10 gallons per inch of inside diameter per mile per 24 hours, when sewer is identified as located within 25-year flood plain.

Table 02533-2
ACCEPTANCE TESTING FOR SANITARY SEWERS

TIME ALLOWED FOR PRESSURE LOSS FROM 3.5 PSIG TO 2.5 PSIG														
Pipe Diam. (in)	Min. Time (min:sec)	Length for Min. Time (ft)	Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)										
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	500 ft	550 ft	600 ft
6	5:40	398	0.8548	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:25	7:07	7:50	8:33
8	7:33	298	1.5196	7:33	7:33	7:33	7:33	7:36	8:52	10:08	11:24	12:40	13:56	15:12
10	9:27	239	2.3743	9:27	9:27	9:27	9:54	11:52	13:51	15:50	17:48	19:47	21:46	23:45
12	11:20	199	3.4190	11:20	11:20	11:20	14:15	17:06	19:57	22:48	25:39	28:30	31:20	34:11
15	14:10	159	5.3423	14:10	14:10	17:48	22:16	26:43	31:10	35:37	40:04	44:31	48:58	53:25
18	17:00	133	7.6928	17:00	19:14	25:39	32:03	38:28	44:52	51:17	57:42	64:06	70:31	76:56
21	19:50	114	10.4708	19:50	26:11	34:54	43:38	52:21	61:05	69:48	78:32	87:15	95:59	104:42
24	22:40	99	13.6762	22:48	34:11	45:35	56:59	68:23	79:47	91:10	102:34	113:58	125:22	136:46
27	25:30	88	17.3089	28:51	43:16	57:42	72:07	86:33	100:58	115:24	129:49	144:14	158:40	173:05
30	28:20	80	21.3690	35:37	53:25	71:14	89:02	106:51	124:39	142:28	160:16	178:05	195:53	213:41
33	31:10	72	25.8565	43:06	64:38	86:11	107:44	129:17	150:50	172:23	193:55	215:28	237:01	258:34

Table 02533-3
MINIMUM TESTING TIMES FOR LOW PRESSURE AIR TEST

PIPE DIAMETER (INCHES)	MINIMUM TIME (SECONDS)	LENGTH FOR MINIMUM TIME (FEET)	TIME FOR LONGER LENGTH (SECONDS/FT)
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

Table 02533-4 VACUUM TEST TIME TABLE

DEPTH IN FEET	TIME IN SECONDS BY PIPE DIAMETER		
	48"	60"	72"
4	10	13	16
8	20	26	32
12	30	39	48
16	40	52	64
20	50	65	80
24	60	78	96
*	5.0	6.5	8.0

*Add T times for each additional 2-foot depth.
(The values listed above have been extrapolated from ASTM C 1244)

Table 02533-5
PIPE VS. MANDREL DIAMETER

Material and Wall Construction	Nominal Size (Inches)	Average I.D. (Inches)	Minimum Mandrel Diameter (Inches)
PVC-Solid (SDR 26) 5.476	6	6	5.764
	8	7.715	7.329
	10	9.646	9.162
PVC-Solid (SDR 35) 11.150	12	12	11.737
	15	14.374	13.655
	18	17.629	16.748
	21	20.783	19.744
	24	23.381	22.120
	27	26.351	25.033
PVC-Truss	8	7.750	7.363
	10	9.750	9.263
	12	11.790	11.201
	15	14.770	14.032
PVC-Profile (ASTM F 794)	12	11.740	11.153
	15	14.370	13.652
	18	17.650	16.768
	21	20.750	19.713
	24	23.500	22.325
	27	26.500	25.175
	30	29.500	28.025

Material and Wall Construction	Nominal Size (Inches)	Average I.D. (Inches)	Minimum Mandrel Diameter (Inches)
	36	35.500	33.725
	42	41.500	39.425
	48	47.500	45.125
HDPE-Profile	18	18.000	17.100
	21	21.000	19.950
	24	24.000	22.800
	27	27.000	25.650
	30	30.000	28.500
	36	36.000	34.200
	42	42.000	39.900
	48	48.000	45.600
	54	54.000	51.300
Fiberglass (Class SN 46)	60	60.000	57.000
	12	12.85	11.822
	18	18.66	17.727
	20	20.68	19.646
	24	24.72	23.484
	30	30.68	29.146
	36	36.74	34.903
	42	42.70	40.565
	48	48.76	46.322
54	54.82	50.079	
60	60.38	57.361	

END OF SECTION

SECTION 02534

SANITARY SEWER SERVICE STUBS OR RECONNECTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Installation of service stubs in sanitary sewers serving areas where sanitary sewer service did not previously exist.
- B. Reconnection of existing service connections along parallel, replacement, or rehabilitated sanitary sewers.
- C. Installation of sanitary sewer service stubs, within street right-of-way, terminating with a clean-out and a plug at the right-of-way to allow for future connection of a single service, on a double-wye fitting plugged at both to allow for future connection to two services.

1.02 RELATED SECTIONS

- A. Document 00410 – Bid Form
- B. Section 01270 – Measurement and Payment
- C. Section 01330 – Submittal Procedures
- D. Section 01504 – Temporary Facilities and Controls
- E. Section 01578 – Control of Ground and Surface Water
- F. Section 02260 – Trench Safety System
- G. Section 02317 – Excavation and Backfill for Utilities
- H. Section 02448 – Pipe and Casing Augering for Sewers
- I. Section 02533 – Acceptance Testing for Sanitary Sewers
- J. Section 02534 – Sanitary Sewer Service Stubs or Reconnections
- K. Section 02558 – Cleaning and Television Inspection
- L. Section 02921 – Hydro Mulch Seeding
- M. Section 02951 – Pavement Repair and Restoration

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
1. Payment for sanitary sewer service stubs or service reconnections with stacks located within 5 feet of sanitary sewer main centerline is on unit price basis for each stub or reconnection. Payment will be made for each service stub or reconnection installed complete in place, including service connections, couplings, and adapters disconnecting existing services, reconnecting new service, fittings, excavation, and backfill.
 2. Payment for sanitary sewer service stubs or service reconnections without stacks located within 5 feet of sanitary sewer main is on unit price basis for each stub or reconnection. Payment will be made for each service stub or reconnection installed complete in place, including service connections, couplings, and adapters disconnecting existing services, reconnecting new service, fittings, excavation, backfill and testing.
 3. Payment for sanitary sewer service leads beyond 5 feet from the right-of-way and clean-outs shall be paid as follows:
 - a. Payment for sanitary sewer service leads beyond 5 feet from the right-of-way clean-out, connection or reconnection shall be paid for on a linear foot basis. Measurement shall be taken along the centerline of the pipe from the centerline of the lead connection or stack at the sanitary sewer main and shall end 5 foot from the right-of-way. Payment will be made for each linear foot of pipe installed, complete in place, including sewer pipe, excavation, shoring, bedding, backfill, and accessories. Auger pipe for service stubs will be paid as provided in Section 02448 - Pipe and Casing Augering for Sewers.
 - b. Payment for standard 6-inch clean-out on service lead assembly for a single or double future service connection installed at end of lead is on a unit price basis for each assembly and shall include all portions of the lead and service connection with clean-out within 5 feet of the right-of-way. Payment will be made for each assembly installed and complete in place, including excavation, fittings, offsets, plugs, pipe sections, valve boxes, bedding, backfill, and testing.
 4. Pay estimates for progress payments will be made as measured above according to following schedule:
 - a. An estimate for 95 percent payment will be authorized when reconnection is completely installed and backfilled.
 - b. An estimate for 100 percent payment will be authorized when reconnection has been tested as specified in Section 02533- Acceptance Testing for Sanitary Sewers.

5. One or more connections discharging into common point are considered one service connection. Contractor shall not add service reconnections without approval of Project Manager. Project Manager may require connections to be relocated to avoid having more than two service connections per reconnection.
 6. Protruding service connections which must be removed to allow liner insertion are paid as service reconnection when connected. If abandoned, they will be paid as abandoned connection.
 7. Payment for abandonment of service connection is on unit price basis for each abandoned connection. No separate payment will be made for abandonment of service connection unless excavation is required. No separate payment will be made for excavation of sanitary sewer services within new or replacement sewer trench.
 8. No separate payment will be made for removal of existing sanitary sewer service stubs. Include payment in unit price for Section 02534 - Sanitary Sewer Service Stubs or Reconnections.
 9. No separate payment will be made for abandoned service connection when service to be abandoned is within 4 feet of active connection. Payment for only one abandoned service connection will be allowed when second abandoned connection is within 4 feet of first.
 10. If faulty remote cut is later corrected using procedures specified for reconnection by excavation, only one reconnection will be allowed for payment.
 11. Sanitary Sewer Cleanout on Service Lateral shall be provided in accordance with detail provided. Payment is on per each basis as indicated in Document 00410B.
 12. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM A 240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
- B. ASTM C 923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
- C. ASTM C 1173 - Standard Specification for Flexible Transition Couplings for Underground Piping Systems.
- D. ASTM D 395 - Standard Test Methods for Rubber Property-Compression Set.

- E. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
- F. ASTM D 543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents.
- G. ASTM D 570 - Standard Test Method for Water Absorption of Plastics.
- H. ASTM D 572 - Standard Test Method for Rubber-Deterioration by Heat and Oxygen.
- I. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.
- J. ASTM D 1149 - Standard Test Methods for Rubber Deterioration-Cracking in an Ozone Controlled Environment
- K. ASTM D 1784 - Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- L. ASTM D 2240 - Standard Test Method for Rubber Property-Durometer Hardness
- M. ASTM D 3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- N. ASTM D 3212 - Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- O. ASTM F 477 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

1.05 PERFORMANCE REQUIREMENTS

- A. Accurately locate in field all proposed service stubs along new sanitary sewer main.
- B. Accurately locate in field existing service connections and proposed service stubs along alignment of new parallel or replacement sewer main.

1.06 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit product data for each pipe product, fitting, coupling and adapter.
- C. Show reconnected services on record drawings. Give exact distance from each service connection to nearest downstream manhole.
- D. Submit Post-installation television inspection videos in accordance with Document 02558 – Cleaning and Television Inspection.

PART 2 PRODUCTS

2.01 PVC SERVICE CONNECTION

- A. As stub outs, use PVC sewer pipe of 4-inch through 10-inch diameter, conforming to ASTM D 1784 and ASTM D 3034, with cell classification of 12454. SDR (ratio of diameter to wall thickness) shall be 26 for pipe 10 inches in diameter or less.
- B. PVC pipe shall be gasket jointed with gasket conforming to ASTM D 3212.
- C. Provide service connection pipe in sizes shown on Drawings. For reconnection of existing services, select service connection pipe diameter to match existing service diameter. Reconnections to rehabilitated sanitary sewer mains shall be limited to following maximum service connection diameter:

Sewer Diameter	Maximum Service Connection Diameter
8" or less	4"
10" or greater	6"

- D. Subject to above limits, provide 6-inch service connection when more than one service discharges into single pipe.
- E. Connect service pipes to parallel or replacement sewer mains with prefabricated, full-bodied tee or wye fittings conforming to specifications for sewer main pipe material as specified in other Sections for sewers up to 18 inches in diameter.
- F. Where sewers are installed using pipe augering or tunneling, or where sewer is greater than 18 inches in diameter, use three-piece service connection or pipe saddle conforming to ASTM C-923 to connect service to sewer main.

2.02 PIPE SADDLES

- A. Use pipe saddles only on rehabilitated sanitary sewer mains. Comply with Paragraph 2.01E for new parallel and replacement sanitary sewer mains.
- B. Supply one-piece prefabricated saddle, either polyethylene or PVC, with neoprene gasket to accomplish complete seal. Use saddle fabricated to fit outside diameter of connecting pipe. Protruding lip of saddle must be at least 5/8-inch long with grooves or ridges to retain stainless steel band clamps.
- C. Use 1/2-inch stainless steel band clamps for securing saddles to liner pipe.

2.03 COUPLINGS AND ADAPTERS

- A. For connections between new PVC pipe stubouts and existing service, 4-, 6-, or 8-inch diameter, use flexible adapter coupling consisting of neoprene gasket, stainless steel shear rings with 1/2-inch stainless steel band clamps, and two nut and bolt clamps. For connections that are 10- inches or over, use neoprene gasket, with stainless steel shear band, and two stainless steel nut and bolt or T-Bolt clamps. Thermalized plastics are not allowed. Refer to approved couplings and adaptors.

1. Product characteristics, meet ASTM C1173 and requirements for neoprene rubber and metallic components.
 2. Shear Band: ½ inch 300 series stainless steel shear band with two molded on worm gear clamps (ASTM A240)
 3. Clamps: 300 Series nut and bolt clamp band fabricated from AISI Type 316 stainless steel (ASTM A240)
- B. For connections between new PVC pipe stubout and new service, use approved rubber- gasket adapter coupling conforming to requirements of 2.03A.
- C. Couplings and Adaptors components will be in accordance with following Requirements:
1. Neoprene Rubber. 100% rubber. Thermalized plastics are not allowed.
 - a. Compressive Strength/ Tensile Strength, psi min (ASTM D412 Die C, ASTM D638). Initial value: 1000 min. Value after 112 days: 1000 min
 - b. Elongation at break, % (ASTM D412, ASTM D638). Initial value: 200
Value after 112 days: 200
 - c. Shore Durometer, Type A, point change max (ASTM D2240). Initial value (1 sec. reading, min): 60. Value point change max: 15
 - d. Compression Set -- Chemical exposures, % max (ASTM D395 Method B). Initial Value: 20 max. Value after exposure: 20 max
 - e. Compression Set -- Bacteriological, unconditioned surface dry, % max (ASTM D395 Method B): Initial value 20. Value after 112 day: 20
 - f. Water Absorption, % max (ASTM D570). Initial value: 4. Value after 112 days: % max 2'4
 - g. Aged Tensile (psi) -- Tensile strength (after exposure to 300 psi (2100 kPa) oxygen at 158° ± 1.8°F [70° ± 1°C] for 96 hours), % of initial, min (ASTM D572). Initial: 70 min. After accelerated aging: 70 min.
 - h. Aged Elongation -- Elongation at break (after exposure to 300 psi (2100 kPa) oxygen at 158° ± 1.8°F [70° ± 1°C] for 96 hours), % of initial, min. (ASTM D572). Initial value: 70 min. Test after accelerated aging: 70 min.
 - i. Ozone resistance (after exposure to 100 pphm ozone for 50 hours at 104° ± 2°F [40° ± 1°C]), (ASTM D1149). Initial value: No cracking. After exposure: No cracking

j. Weight Change, % max. (approx. specimen size 1.0 x 3.0 x 0.1 inch) (25 x 75 x 2.5mm), (ASTM D543): value before and after exposure ±1.5 max

2. Stainless Steel components 300 series. (ASTM A240).

3. Components can be factory fabricated or mechanically molded

2.04 STACKS

A. Provide stacks for service connections wherever crown of sewer is 8 feet or more below finished grade.

B. Construct stacks of same material as sanitary sewer and as shown on Drawings.

C. Provide stacks of same nominal diameter at sanitary service line.

2.05 PLUGS AND CAPS

A. Seal upstream end of unconnected sewer service stubs with rubber gasket plugs or caps of same pipe type and size.

2.06 THREE PIECE SERVICE CONNECTION (TEE)

A. The connection is comprised of three parts; PVC hub, stainless steel band and rubber boot.

B. PVC hub and rubber boot shall be engineered to accept the wall thickness and internal radius of the pipe. The PVC hub and rubber boot shall protrude no more than ½" into the sewer pipe.

C. The PVC hub shall be in accordance with ASTM D-3034.

D. The rubber boot shall be in accordance with ASTM F 477.

E. The Tee shall be sized to accept 4" or 6" service lines, as required.

F. The Tee shall only be used when approved by the Project Manager.

G. Service Connection (Tee) shall be in accordance with Section 2.03.

2.07 SANITARY SEWER STANDARD CLEANOUT ON SERVICE LATERAL:

A. Where directed, the contractor shall remove (if existing) and install new sanitary sewer cleanout. This shall include: frame and cover, molded polyethylene, four-way cleanout, 12" Ultra-Rib PVC or SDR35 PVC riser pipe, 2-foot square concrete pad, cement stabilized sand backfill, and all labor, equipment, and site restoration.

B. The standard frame and cover shall be cast iron, embossed with "Sewer Cleanout" "City of Willis".

- C. The molded polyethylene, four-way cleanout shall be the “wastewater access chamber” as manufactured by Uponor ETI Co. or approved equal.
- D. Riser pipe shall be 12” Ultra-Rib PVC or SDR35 PVC.
- E. Provide sealing material between pipe riser and cleanout cover frame that is a hydrophilic elastic sealant, or approved equal.

2.08 SANITARY SEWER 4” OR 6” CLEANOUT ON SERVICE LATERAL

- A. Where directed, the contractor shall remove (if existing) and install new sanitary sewer cleanout. This shall include: 4” or 6” removable threaded countersunk plug, 4” or 6” SDR 35 PVC riser pipe with 45 degree bend and wye, 3-RT Valve Box MFG by Old Castle Precast Inc or approved equal, and all labor, equipment, and site restoration. Payment made will be made at the unit price set in Document 00410B. Where service lateral to an abandoned house is encountered, install 4” or 6” plug for future house connection. All work shall be performed as per 4-Inch Cleanout Detail on Service Lead or Drawing No. 02534-05. Cleanout box may be installed in accordance with Drawing No. 02085-01.

PART 3 EXECUTION

3.01 PERFORMANCE REQUIREMENTS

- A. Provide minimum of 72 hours notice to customers whose sanitary sewer service will potentially be interrupted.
- B. Accurately field locate service connections, whether in service or not, along rehabilitated sanitary sewer main. For parallel and replacement sewers, service connections may be located as pipe laying progresses from downstream to upstream.
- C. Properly disconnect existing connections from sewer and reconnect to rehabilitated liner, as described in this Section.
- D. Reconnect service connections, including those that go to unoccupied or abandoned buildings or to vacant lots, unless directed otherwise by Project Manager. Install a stack and cap the reconnection where the service is to a vacant lot or location where a structure has been demolished, unless directed otherwise by Project Manager.
- E. Complete reconnection of service lines within 24 hours after cured-in-place liner installation and within 72 hours after disconnection for sliplining, parallel, or replacement sanitary sewer mains.
- F. Reconnect services on cured-in-place liner at 10 feet depth or less by excavation method. Project Manager reserves the right to require service connections by excavation when remote cut service connection damages lines.

- G. Reconnection by excavation method shall include stack and fittings and required pipe length to reconnect service line.
- H. Connect services 8 inches in diameter and larger to sewer by construction of manhole. Refer to appropriate Section on manholes for construction and payment.
- I. All couplings and adapters used to either connect existing or new services to new PVC pipe stubouts shall be eccentric reducers when the coupling or adapter is used as a reducer and when used in the horizontal or on a horizontal slope less than 1:1 or less than a 45° angle (such that the flowline across the pipe size transition shall remain straight; no upset). The Contractor shall properly cut the ends of the two PVC pipes joined by a flexible coupling or adapter such that they do not extend into the transition area of the reducer. Pipe size transitions on existing or new services to new PVC pipe stubouts shall not be made in the vertical (in a stack or riser). Flexible couplings or adapters shall not be allowed for use in the vertical or on a slope greater than 1:1 or greater than a 45° angle.

3.02 PROTECTION

- A. Provide barricades, warning lights, and signs for excavations created for service connections. Conform to requirements of Section 01504 - Temporary Facilities and Controls.
- B. Do not allow sand, debris, or runoff to enter sewer system.

3.03 PREPARATION

- A. Determine existing sewer locations and number of existing service connections from closed-circuit television (CCTV) inspection tapes or from field survey. Accurately field locate existing service connections, whether in service or not. Use existing service locations to connect or reconnect service lines or liner.
- B. For rehabilitated sanitary sewer mains, allow liner to normalize to ambient temperature and recover from imposed stretch. For cured-in-place liners, verify that liner is completely cured.
- C. For new parallel and replacement sanitary sewer mains, complete testing and acceptance of downstream sewers as applicable. Provide for compliance with requirements of Paragraph 3.01E.

3.04 EXCAVATION AND BACKFILL

- A. Excavate in accordance with Section 02317 - Excavation and Backfill for Utilities.
- B. Perform work in accordance with OSHA standards. Employ Trench Safety System as specified in Section 02260 - Trench Safety System for excavations requiring trench safety.

- C. Install and operate necessary ground water and surface water control measures in accordance with requirements of Section 01578 - Control of Ground and Surface Water.
- D. Determine locations where limited access, buildings or structure preclude use of mechanical excavation equipment. Obtain approval from Project Manager for hand excavation.
- E. When the excavation shows that a service line is not connected, abandon the service reconnection and backfill the excavation.

3.05 RECONNECTION BY EXCAVATION METHOD

A. Saddle Method

1. Remove a portion of the existing sanitary sewer main or carrier pipe to expose the liner pipe. Provide sufficient working space for installing a pre-fabricated pipe saddle.
2. Carefully cut a hole in the liner pipe to accept the protrusion on the underside of the saddle. Length of protrusion shall be equal to the wall thickness of the liner pipe.
3. Apply an approximately 1/2" diameter bead of uncured, 100% pure silicone caulk (siliconized caulk will not be allowed), GE or approved equal, to the surface of the gasket that contacts the bottom of the saddle. A 1/2" bead of silicone caulk shall also be placed around the tapped hole in the polyethylene, PVC, or cured-in-place pipe. The beads of caulk should be placed approximately in the center of the gasket and, on the pipe, in the center of the area covered by the gasket. The saddle shall be installed and secured while the silicone caulk is uniformly fluid and pliable, not hardened or rubbery and with no hardened, rubbery areas or nodules. Adequate quantities of silicone caulk should be applied to allow it to flow or be extruded into any corrugations in the gasket surface and into any irregularities (scratches or gouges) in the surface of the polyethylene, PVC, or cured-in-place pipe.
4. Install the saddle with gasket using stainless steel bands on each side of the saddle. Tighten the bands to produce a watertight seal between the saddle and the liner pipe.

B. Three Piece Service Connection Method

1. Remove a portion of the existing sanitary sewer main or carrier pipe to expose the liner pipe. Provide sufficient working space to install three piece service connection.
2. Precisely cut a circular hole, per the manufactures recommendations, in the liner pipe that will form a tight fit between the liner pipe PVC stub and rubber boot.

3. Install the rubber boot into the cored hole, making sure the boot is properly oriented to the mainline. Lubricate the rubber boot with a special solution provided by the three piece service connection manufacturer. Make sure the upper and lower ribs of the rubber boot are correctly seated against the inside and outside diameter of the liner pipe.
 4. Insert the PVC hub into the rubber boot, per manufacturer's recommended instructions. Place stainless steel band around the top of the rubber boot and tighten to form a watertight seal.
- C. Service Line Connections to Saddles or Three Piece Service Connections
1. Remove and replace cracked, offset or leaking service line up to 8 feet (measured horizontally) from the center line of the new liner.
 2. Make connections between liner and existing service line using PVC sewer pipe and approved couplings/fittings using stainless steel bands to construct new stacks and/or service lines.
 3. Test all service connections by smoke testing the sewer main and connections before backfilling.
 4. Encase the entire service connection in cement stabilized sand or crushed stone. Place a minimum of 6 inches below and 12 inches above and on each side of the service line and pipe connection.

3.06 RECONNECTION BY REMOTE METHOD

- A. Make service reconnections using remote-operated cutting tools on cured-in-place liners at depth greater than 10 feet.
- B. Employ method and equipment that restore service connection capacity to not less than 90 percent of original capacity.
- C. Immediately open missed connections and repair holes drilled in error using method approved by Project Manager.

3.07 RECONNECTION ON PARALLEL OR REPLACEMENT SEGMENTS

- A. Install a full-bodied tee or wye fitting on the new sanitary sewer main for each service connection.
- B. Remove and replace cracked, offset or leaking service line for up to 5 feet, measured horizontally, from centerline of sanitary sewer main.
- C. Make up connection between main and existing service line using PVC sewer pipe and approved couplings, as shown on Drawings.
- D. Test service connections before backfilling.

- E. Embed service connection and service line as specified for sanitary sewer main as shown on Drawings. Place and compact trench zone backfill in compliance with Section 02317 - Excavation and Backfill for Utilities.

3.08 INSTALLATION OF NEW SERVICE STUBS

- A. Install service connections on sanitary sewer main for each service connection. Provide length of pipe required to allow sufficient room for standard 6-inch clean-out service lead assembly in accordance with detail 02534-05. Install plug(s) or cap on the upstream end(s) of service stub(s) as needed.
- B. Test service connections before backfilling.
- C. Embed service connection and service line as specified for sanitary sewer main, and as shown on Drawings. Place and compact trench zone backfill in compliance with Section 02317 - Excavation and Backfill for Utilities. Install minimum 2-foot length of magnetic locating tape along axis of service stub and 9 inches to 12 inches above crown of pipe, at end of stub.

3.09 TESTING

- A. Test service reconnections and service stubs. Follow applicable procedures given in Section 02533 - Acceptance Testing for Sanitary Sewers to perform smoke testing to confirm reconnection.
- B. Perform post installation CCTV inspection as specified in Section 02558 - Cleaning and Television Inspection to show locations of service connection.

3.10 CLEANUP

- A. Backfill excavation as specified in Section 02317 - Excavation and Backfill for Utilities.
- B. Replace pavement or sidewalks removed or damaged by excavation in accordance with Section 02951 - Pavement Repair and Restoration. In unpaved areas, bring surface to grade and slope surrounding excavation. Replace minimum of 4 inches of topsoil and seed according to requirements of Section 02921 - Hydro Mulch Seeding.

END OF SECTION

SECTION 02611

REINFORCED CONCRETE PIPE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Reinforced concrete pipe for sanitary sewers and storm sewers.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 02317 – Excavation and Backfill for Utilities
- D. Section 02426 – Sewer Line in Tunnels
- E. Section 02427 – Plastic Liner for Large-Diameter Concrete Sewers and Structures
- F. Section 02431 – Tunnel Grout
- G. Section 02441 – Microtunneling
- H. Section 02445 – Jack and Bore/Jack and Mine/Pilot Tube Guided Boring Tunnels
- I. Section 02448 – Pipe and Casing Augering for Sewers
- J. Section 02531 – Gravity Sanitary Sewers
- K. Section 02631 – Storm Sewers

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No separate payment will be made for reinforced concrete pipe under this Section. Include cost in unit price Work as specified in following Sections:
 - a. Section 02426 - Sewer Line in Tunnels.
 - b. Section 02531 - Gravity Sanitary Sewers.
 - c. Section 02631 - Storm Sewers.
 - 2. Refer to Section 01270- Measurement and Payment for unit price procedures.

- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for Work in this section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM C 76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
- B. ASTM C 443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
- C. ASTM C 497 - Standard Test Method for Concrete Pipe, Manhole Sections, or Tile.
- D. ASTM C 506 - Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain and Sewer Pipe
- E. ASTM C 507 – Standard Specification for Reinforced Concrete Elliptical Culverts, Storm Drains and Sewer Pipe
- F. ASTM C 655 - Standard Specification for Reinforced Concrete D-load Culvert, Storm Drain and Sewer Pipe.
- G. ASTM C 877 - Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections.
- H. ASTM C 990 – Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections using Preformed Flexible Joint Sealants.
- I. ASTM C 1479 – Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit complete product data for pipe, fittings and gaskets for approval. Indicate conformance to appropriate reference standards.
- C. Submit manufacturer's certificate that concrete pipes meet applicable standards.
- D. For jacking pipe, submit drawings and data describing grouting port design and closure procedures when required by Section 02431 - Tunnel Grout, including liner repair, as applicable.

PART 2 PRODUCTS

2.01 REINFORCED CONCRETE PIPE

- A. Conform circular reinforced concrete pipe to requirements of ASTM C 76, Class III. Conform to rubber gasket joints for sanitary sewers and storm sewers per ASTM C443 and tongue and groove joints for roadside ditch culverts with joints per ASTM C 990.
- B. Conform reinforced concrete arch pipe to requirements of ASTM C 506 for Class A-III. Joints shall conform to ASTM C 443 or tongue & groove joints shall conform to ASTM C990 with external sealing bands conforming to ASTM C 877. For roadside ditch culverts only, external sealing bands are not required.
- C. Reinforced concrete elliptical pipe, either vertical or horizontal, shall conform to requirements of ASTM C 507 for Class VE-III for vertical or Class HE-III for horizontal. Use rubber gasket joints conforming to ASTM C 877. Rubber gasket joints shall conform to ASTM C443. Tongue & groove joints shall conform to ASTM C 990 with external sealing bands conforming to ASTM C 877. For roadside ditch culverts only, external sealing bands are not required.
- D. Conform reinforced concrete D-load pipe requirements of ASTM C 655.

2.02 GASKETS

- A. When no contaminant is identified, furnish joints per Article 2.01
- B. Use the following gasket materials for pipes to be installed in potentially contaminated areas, especially where free product is found near elevation of proposed sewer:

CONTAMINANT	GASKET MATERIAL REQUIRED
Petroleum (diesel, gasoline)	Nitrile Rubber
Other Contaminants	As recommended by pipe manufacturer, and approved by Engineer of Record prior to installation

2.03 LINERS FOR SANITARY SEWER PIPE

- A. Reinforced concrete pipe for sanitary sewers shall be PVC lined and conform to Section 02427 - Plastic Liner for Large-Diameter Concrete Sewers and Structures.
- B. Reinforced concrete pipes to be installed in potentially contaminated areas shall have liners recommended by manufacturer as resistant to contaminants identified in Phase II Environmental Site Assessment Report.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Conform to requirements of following Sections, as applicable:
 - 1. Section 02441 - Microtunneling
 - 2. Section 02445 – Jack and Bore/Jack and Mine/Pilot Tube Guided Boring Tunnels
 - 3. Section 02448 - Pipe and Casing Augering for Sewers
 - 4. Section 02531 - Gravity Sanitary Sewers.
 - 5. Section 02631 - Storm Sewers.
- B. Install reinforced concrete pipe in accordance with ASTM C 1479 and manufacturer's recommendations.

END OF SECTION

SECTION 02631

STORM SEWERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. New storm sewers and appurtenances, modifications to existing storm sewer system and installation of roadside ditch culverts.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01555 – Traffic Control and Regulation
- D. Section 01578 – Control of Ground and Surface Water
- E. Section 02081 – Cast-In-Place Concrete Manholes
- F. Section 02082 – Precast Concrete Manholes
- G. Section 02086 – Adjusting Manholes, Inlets, and Valve Boxes to Grade
- H. Section 02090 - Frames, Grates, Rings, and Covers
- I. Section 02221 – Removing Existing Pavements, Structures, Wood, and Demolition Debris
- J. Section 02317 – Excavation and Backfill for Utilities
- K. Section 02320 – Utility Backfill Materials
- L. Section 02321 – Cement Stabilized Sand
- M. Section 02322 – Flowable Fill
- N. Section 02441 – Microtunneling
- O. Section 02445 – Jack and Bore/Jack and Mine/Pilot Tube Guided Boring Tunnels
- P. Section 02448 – Pipe and Casing Augering for Sewers
- Q. Section 02505 – High Density Polyethylene (HDPE) Solid and Profile Wall Pipe
- R. Section 02506 – Polyvinyl Chloride Pipe

- S. Section 02510 – Polypropylene (PP) Corrugated Wall Pipe
- T. Section 02531 – Gravity Sanitary Sewers
- U. Section 02533 – Acceptance Testing for Sanitary Sewers
- V. Section 02555 – Manhole Rehabilitation
- W. Section 02611 – Reinforced Concrete Pipe
- X. Section 02612 – Precast Reinforced Concrete Box Sewers
- Y. Section 02632 – Cast-In-Place Inlets, Headwalls, and Wingwalls
- Z. Section 02633 – Precast Concrete Inlets, Headwalls, and Wingwalls
- AA. Section 02642 – Corrugated Metal Pipe
- BB. Section 02911 – Topsoil
- CC. Section 02921 – Hydro Mulch Seeding
- DD. Section 02922 – Sodding
- EE. Section 02951 – Pavement Repair and Restoration

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment for storm sewers, including elliptical or box storm sewer, installed by open-cut, augered with or without casing, or tunneling is on linear foot basis. Measurement for storm sewers and roadside ditch culverts will be taken along center line of pipe from center line to center line of manholes or from end to end of culverts. Measurement for storm sewer will be taken along center line of storm sewer from inside wall of storm sewer junction box when installed in conjunction with storm sewer junction box. Payment will be made for each linear foot installed complete in place, including connections to existing manholes and inlets.
 - 2. Payment for storm sewer leads, including elliptical leads, is on a linear foot basis.
 - 3. Payment for corrugated metal pipe storm sewer outfall, including timber bents, is on a linear foot basis.
 - 4. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.04 DEFINITIONS

- A. Long Run Culvert: A culvert which is 40 feet or more in length.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit manufacturer's literature for product specifications and installation instructions.
- C. Submit proposed methods, equipment, materials, and sequence of operations for sewer construction. Plan operations to minimize disruption of utilities to occupied facilities or adjacent property.
- D. For flexible pipe products, submit detailed calculations per AASHTO LRFD Bridge Design Specifications. Designs are required for each pipe location and are to be signed and sealed by a licensed engineer.

1.06 QUALITY ASSURANCE

- A. The Condition for acceptance shall be watertight storm sewer that is watertight both in pipe-to-pipe joints and in pipe-to-manhole connections.
- B. Provide manufacturer's certification to Specifications.

1.07 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's recommendations.
- B. Handle pipe, fittings, and accessories carefully with approved handling devices. Do not drop or roll pipe off trucks or trailers. Do not use Materials cracked, gouged, chipped, dented, or otherwise damaged shall not be use materials for installation.
- C. Store pipe and fittings on heavy timbers or platforms to avoid contact with ground.
- D. Unload pipe, fittings, and appurtenances as close as practical to location of installation to avoid unnecessary handling.
- E. Keep interiors of pipe and fittings free of dirt and foreign matter.
- F. Store Thermoplastic (PVC, HDPE, PP) pipe out of direct sunlight.

PART 2 PRODUCTS

2.01 PIPE

- A. Provide piping materials for storm sewers shall be of sizes and types specified unless otherwise indicated on Drawings.

- B. In diameters where material alternatives are available, provide pipe from single manufacturer for each pipe diameter, unless otherwise approved by Project Manager or otherwise shown on Drawings.
- C. Existing pipe that has been removed during construction cannot be reused.

2.02 PIPE MATERIAL SCHEDULE

- A. Storm Sewer Pipe: Use pipe materials that conform to requirements specified in one or more of the following Sections as shown on the Drawings.
 - 1. Section 02506 - Polyvinyl Chloride Pipe. Not allowed in the following applications:
 - a. Potentially Petroleum Contaminated Areas (PPCA).
 - b. Augering/ jacking.
 - 2. Section 02505 - High Density Polyethylene (HDPE) Solid and Profile Wall Pipe and Section 02510 – Polypropylene (PP) Corrugated Wall Pipe. For use only where Storm Sewers are associated with Local Streets,
 - 3. Section 02611 - Reinforced Concrete Pipe.
 - 4. Section 02612 - Precast Reinforced Concrete Box Sewers.
 - 5. Section 02642 - Corrugated Metal Pipe use only where Corrugated Metal Pipe is shown on Drawings.
- B. Driveway Culvert Pipe for Streets with Open Ditches: Use pipe materials conforming to requirements specified in one or more of the following Sections as shown on the Drawings.
 - 1. Section 02505 - High Density Polyethylene (HDPE) Solid and Profile Wall Pipe and Section 02510 – Polypropylene (PP) Corrugated Wall Pipe. Use for Residential Culverts only. Use Concrete Pipe for long run culverts.
 - 2. Section 02611 - Reinforced Concrete Pipe.
 - 3. Section 02612 - Precast Reinforced Concrete Box Sewers.
- C. Provide pipe meeting minimum class, dimension ratio, or other criteria indicated.
- D. Pipe materials other than those listed above shall not be used for storm sewers.

2.03 BEDDING, BACKFILL, AND TOPSOIL MATERIAL

- A. Bedding and Backfill Material: Conform to requirements of Sections 02317 - Excavation and Backfill for Utilities, Section 02320 - Utility Backfill Materials, and Section 2321 - Cement Stabilized Sand, and Section 02322 - Flowable Fill.
- B. Topsoil: Conform to requirements of Section 02911 - Topsoil.

PART 3 EXECUTION

3.01 PREPARATION

- A. Prepare traffic control plans and set up street detours and barricades in preparation for excavation when construction will affect traffic. Conform to requirements of Section 01555 - Traffic Control and Regulation.
- B. Provide barricades, flashing warning lights, and signs for excavations. Conform to requirements of Section 01555 - Traffic Control and Regulation. Maintain barricades and warning lights for streets and intersections while Work is in progress or where traffic is affected by Work.
- C. Immediately notify agency or company owning utility lines which are damaged, broken, or disturbed. Obtain approval from Project Manager and agency for repairs or relocations, either temporary or permanent.
- D. Remove old pavements and structures, including sidewalks and driveways in accordance with requirements of Section 02221 - Removing Existing Pavements, Structures, Wood, and Demolition Debris.
- E. Install and operate dewatering and surface water control measures in accordance with Section 01578 - Control of Ground and Surface Water.

3.02 EXCAVATION

- A. Earthwork. Conform to requirements of Section 02317 - Excavation and Backfill for Utilities. Use bedding as indicated on Drawings.
- B. Line and Grade. Establish required uniform line and grade trench from benchmarks identified by Project Manager. Maintain this control for minimum of 100 feet behind and ahead of pipe-laying operation. Use laser beam equipment to establish and maintain proper line and grade of Work. Or use appropriately sized grade boards which are substantially supported.
- C. Trench Excavation. Excavate pipe trenches to level as indicated on Standard Details. Backfill excavation with specified bedding material to level of lower one-third of pipe barrel. Tamp and compact backfill to provide bedding at indicated grade. Form bedding foundation to minimum depth of one-eighth of pipe diameter, but not less than 12-inches.

3.03 PIPE INSTALLATION

- A. Install in accordance with pipe manufacturer's recommendations and as specified in this section.
- B. Install pipe only after excavation is completed, bottom of trench is shaped, bedding material is installed, and trench has been approved by Project Manager.
- C. Install pipe to line and grade indicated on Drawings. Place pipe so that it has continuous bearing of barrel on bedding material with no voids, and is laid in trench so interior surfaces of pipe follows grades and alignments indicated.
- D. Install pipe with bells of pipe facing upstream of anticipated flow.
- E. Form concentric joint with each section of adjoining pipe to prevent offsets.
- F. Place and drive home newly laid sections with a sling or come-a-long winches to eliminate damage to sections. Unless otherwise approved by Project Manager, provide end protection to prevent damage while using back hoes or similar powered equipment to drive home newly laid sections.
- G. Keep interior of pipe clean as installation progresses.
- H. Keep excavations free of water during construction and until final inspection.
- I. When work is not in progress, cover exposed ends of pipes with pipe plug specifically designed to prevent foreign material from entering pipe.
- J. For Flexible Pipe Products:
 - 1. Provide a minimum cover per County Standard detail from top of pavement to top of pipe, but no less than 2 feet.
 - 2. Accomplish transitions to different material of pipe in a manhole or inlet box. No adapter, coupling for dissimilar pipe, or saddle connections allowed.
 - 3. Provide pipe sections in standard lengths with minimum length of 13 feet. Pipe may be field modified to shorten length no less than 4 feet, unless otherwise approved by Project Manager. Field modify pipe per manufacturer's recommendations.
 - 4. No beveling at joint allowed. Cut to be perpendicular to longitudinal axis.
 - 5. Provide gasketed bell and spigot joints installed per manufacturer's recommendations. Gasketed pipe joints; clean and free of debris, show no leakage after installation.

3.04 PIPE INSTALLATION OTHER THAN OPEN CUT OR TUNNELING

- A. Conform to requirements of Section 02448 - Pipe and Casing Augering for Sewers where required.
- B. Conform to requirements of Section 02441 - Microtunneling where required.
- C. Conform to requirements of Section 02445 – Jack and Bore/Jack and Mine/Pilot Tube Guided Boring Tunnels where required.
- D. Not allowed for plastic sewer pipe.

3.05 INSTALLATION OF APPURTENANCES

- A. Construct manholes to conform to requirements of Sections 02081 - Cast-in-place Concrete Manholes and Section 02082 - Precast Concrete Manholes. Install frames, grate rings, and covers to conform to requirements of Section 02090 - Frames, Grates, Rings, and Covers.
- B. Install PVC pipe culverts with approved end treatments. Approved end treatments include concrete headwalls, wingwalls and collars.
- C. Install HDPE and PP pipe culverts with approved end treatments. Approved end treatments include concrete headwalls, wingwalls and collars.
- D. Install inlets, headwalls, and wingwalls to conform to requirements of Section 02632 - Cast-in-place Inlets, Headwalls, and Wingwalls and Section 02633 - Precast Concrete Inlets, Headwalls, and Wingwalls.
- E. Rehabilitate existing manholes to conform to requirements of Section 02555 – Manhole Rehabilitation. Adjust manhole covers and inlets to grade conforming to requirements of Section 02086 - Adjusting Manholes, Inlets, and Valve Boxes to Grade.
- F. Dimension for Type C and Type E manholes shall be as shown on Drawings.

3.06 INSPECTION AND TESTING

- A. Perform post installation television inspection in accordance with Section 02531 – Gravity Sanitary Sewers. Hand held cameras may be used in storm sewers in lieu of requirements of Paragraph 3.09 of Section 02531 – Gravity Sanitary Sewers. Clearly stencil distance markings on each joint of pipe to indicate distance from starting manhole when using hand held cameras.
- B. Mandrel Testing: Use a mandrel to test flexible pipe for deflection. Refer to Section 02533 – Acceptance Testing for Sanitary Sewers for the mandrel and test requirements.

3.07 BACKFILL AND SITE CLEANUP

- A. Backfill trench after pipe installation is inspected and approved by Project Manager.

- B. Backfill and compact soil in accordance with Section 02317 - Excavation and Backfill for Utilities.
- C. Repair and replace removed or damaged pavement and sidewalks as specified in Section 02951 - Pavement Repair and Restoration.
- D. In unpaved areas, grade surface as uniform slope to natural grade as indicated on Drawings. Provide minimum of 4 inches of topsoil and seed according to requirements of Section 02921 Hydro Mulch Seeding, or Section 02922 - Sodding, as required.

END OF SECTION

SECTION 02633

PRECAST CONCRETE INLETS, HEADWALLS, AND WINGWALLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Precast concrete inlets for storm or sanitary sewers, including cast iron frame and plate or grate.
- B. Precast concrete headwalls and wingwalls for storm sewers.
- C. Precast junction box with lid or grate top.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 02090 – Frames, Grates, Rings, and Covers
- D. Section 02317 – Excavation and Backfill for Utilities
- E. Section 04061 – Mortar

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment for inlets is on unit price basis for each inlet installed.
 - 2. Payment for headwalls and wingwalls is on unit price basis for each headwall and wingwall installed.
 - 3. Payment for junction box with lid or grate top is on unit price basis for each junction box installed.
 - 4. Payment for inlets, headwalls, wingwalls, and junction boxes includes connection of lines and furnishing and installing frames, grates, rings, and covers.
 - 5. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. ASTM C 857 - Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures.
- B. ASTM C 858 - Standard Specification for Underground Precast Concrete Utility Structures.
- C. ASTM C 891 - Standard Practice for Installation of Underground Precast Concrete Utility Structures.

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit shop drawings for approval of design and construction details for precast concrete inlets, junction box headwalls, and wingwalls. Precast units differing from standard designs shown on Drawings will be rejected unless shop drawing submittals are approved. Clearly show proposed substitution is equal or superior in every aspect to standard designs.
- C. Submit manufacturers' data and details for frames, grates, rings, and covers.

1.06 STORAGE AND SHIPMENT

- A. Store precast units on level blocking. Do not place loads until design strength is reached. Shipment of acceptable units may be made when 28-day strength requirements have been met.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Concrete: Provide concrete for precast machine-made units meeting requirements of ASTM C 858 regarding reinforced concrete, cement, aggregate, mixture, and concrete test. Minimum 28-day compressive strength shall be 4,000 psi.
- B. Reinforcing Steel: Place reinforcing steel to conform to details shown on Drawings and as follows:
 - 1. Provide positive means for holding steel cages in place throughout production of concrete units. Maximum variation in reinforcement position is plus or minus 10 percent of wall thickness or plus or minus 1/2-inch, whichever is less. Regardless of variation, maintain minimum cover of concrete over reinforcement as shown on Drawings.
 - 2. Welding of reinforcing steel is not permitted unless noted on Drawings.
- C. Mortar and Hydraulic Cement: Conform to requirements of Section 04061 - Mortar.

- D. Miscellaneous Metal: Cast-iron frames and plates conforming to requirements of Section 02090 - Frames, Grates, Rings, and Covers.

2.02 SOURCE QUALITY CONTROL

- A. Tolerances: Allowable casting tolerances for concrete units are plus or minus 1/4 inch from dimensions shown on Drawings. Concrete thickness in excess of that required will not constitute cause for rejection provided that excess thickness does not interfere with proper jointing operations.
- B. Precast Unit Identification: Mark date of manufacture and name or trademark of manufacturer clearly on inside of inlet, headwall, or wingwall.
- C. Rejection: Precast units rejected for non-conformity with these specifications and for following reasons:
 - 1. Fractures or cracks passing through shell, except for single end crack that does not exceed depth of joint.
 - 2. Surface defects indicating honeycombed or open texture.
 - 3. Damaged or misshaped ends, where damage would prevent making satisfactory joint.
- D. Replacement: Immediately remove rejected units from Work site and replace with acceptable units.
- E. Repairs: Occasional imperfections resulting from manufacture or accidental damage may be repaired if, in opinion of Project Manager, repaired units conform to requirements of these specifications.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify lines and grades are correct.
- B. Verify compacted subgrade will support loads imposed by inlets.

3.02 INSTALLATION

- A. Install units complete in place to dimensions, lines, and grades as shown on Drawings.
- B. Excavate in accordance with requirements of Section 02317 - Excavation and Backfill for Utilities.
- C. Bed precast concrete units on foundations of firm, stable material shaped to conform to shape of unit bases.

- D. Provide adequate means to lift and place concrete units.

3.03 FINISHES

- A. Use hydraulic cement to seal joints, fill lifting holes and as otherwise required.
- B. When box section of inlet has been completed, shape floor of inlet with mortar to conform to Drawing details.
- C. Adjust cast iron inlet plate frames to line, grade, and slope shown on Drawings. Grout frame in place with mortar.

3.04 QUALITY CONTROL

- A. Verify that inlets are free of leaks. Repair leaks in approved manner.

3.05 CONNECTIONS

- A. Connect storm sewer leads to inlets as shown on Drawings. Seal connections inside and outside with hydraulic cement. Make connections watertight.

3.06 BACKFILL

- A. Backfill area of excavation surrounding each completed inlet, headwall, or wingwall according to requirements of Section 02317 - Excavation and Backfill for Utilities.

END OF SECTION

SECTION 02921

HYDRO MULCH SEEDING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Seeding, fertilizing, mulching, and maintenance of areas indicated on Drawings.

1.02 RELATED SECTIONS

- A. Section 01270 – Measurement and Payment
- B. Section 01330 – Submittal Procedures
- C. Section 01576 – Waste Material Disposal
- D. Section 01740 – Site Restoration
- E. Section 02911 – Topsoil
- F. Section 02922 – Sodding

1.03 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. Payment for hydro mulch seeding is on an acre basis, within limits of construction if shown on the drawings.
 - 2. Topsoil is included in the unit price for hydro mulch seeding and is not paid for separately.
 - 3. No payment will be made for hydro mulch seeding under this Section if limits of constructions are not shown on the drawings. Include payment in Section 01740 – Site Restoration.
 - 4. Refer to Section 01270 - Measurement and Payment for unit price procedures.
- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.04 REFERENCES

- A. Federal Seed Act regulations
- B. Texas Seed Law.

- C. Texas Fertilizer Law
- D. U.S. Department of Agriculture rules

1.05 SUBMITTALS

- A. Conform to requirements of Section 01330 - Submittal Procedures.
- B. Submit certification from supplier that each type of seed conforms to these specifications and requirements of Texas Seed Law. Certification shall accompany seed delivery.
- C. Submit certificate stating that fertilizer complies with these specifications and requirements of Texas Fertilizer Law.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Topsoil: Conform to material requirements of Section 02911 - Topsoil.
- B. Seed: Conform to U.S. Department of Agriculture rules and regulations of Federal Seed Act and Texas Seed Law. Seed shall be certified 90 percent pure and furnish 80 percent germination and meet following requirements:
 - 1. Rye: Fresh, clean, Italian rye grass seed (*Lolium multi-florum*), mixed in labeled proportions. As tested, minimum percentages of impurities and germination must be labeled. Deliver in original unopened containers.
 - 2. Bermuda: Extra-fancy, treated, lawn type common bermuda (*Cynodon dactylon*). Deliver in original, unopened container showing weight, analysis, name of vendor, and germination test results.
 - 3. Wet, moldy, or otherwise damaged seed will not be accepted.
 - 4. Seed requirements, application rates, and planting dates are:

TYPE	APPLICATION RATE POUNDS/A	PLANTING DATE
Hulled Common Bermuda Grass 98/88	40	Jan 1 to Mar 31
Unhulled Common Bermuda Grass 98/88	40	
Hulled Common Bermuda Grass 98/88	40	Apr 1 to Sep 30
Hulled Common Bermuda Grass 98/88	40	Oct 1 to Dec 31
Unhulled Common Bermuda Grass 98/88	40	
Annual Rye Grass (Gulf)	30	

C. Fertilizer: Dry and free flowing, inorganic, water soluble commercial fertilizer, which is uniform in composition. Deliver in unopened containers which bear manufacturers guaranteed analysis. Caked, damaged, or otherwise unsuitable fertilizer will not be accepted. Fertilizer shall contain minimum percentages of following elements:

1. Nitrogen: 10 Percent
2. Phosphoric Acid: 20 Percent
3. Potash: 10 Percent

D. Mulch:

1. Virgin wood cellulose fibers from whole wood chips having minimum of 20 percent fibers 0.42 inches in length and 0.01 inches in diameter.
2. Cellulose fibers manufactured from recycled newspaper and meeting same fiber content and size as for cellulose fibers from wood chips.
3. Dye mulch green for coverage verification purposes.

E. Soil Stabilizer: "Terra Tack 1" or approved equal.

F. Weed control agent: Pre-emergent herbicide for grass areas, such as "Benefin," or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

- A. Place and compact topsoil in accordance with requirements of Section 02911 - Topsoil.
- B. Dispose of Objectionable and Waste Materials in accordance with Section 01576 - Waste Material Disposal.

3.02 APPLICATION

- A. Seed: Apply uniformly at rates given in Paragraph 2.01 B for type of seed and planting date.
- B. Fertilizer: Apply uniformly at rate of 500 pounds per acre.
- C. Mulch: Apply uniformly at rate of 50 pounds per 1000 square feet.
- D. Soil Stabilizer: Apply uniformly at rate of 40 pounds per acre.
- E. Weed Control Agent: Apply at manufacturer's recommended rate prior to hydro mulching.
- F. Sod: Lay single row of sod along perimeter where top soil and pavement intersect. Apply in conformance to Section 02922 - Sodding.
- G. Suspend operations under conditions of drought, excessive moisture, high winds, or extreme or prolonged cold. Obtain Project Manager approval before resuming operations.

3.03 MAINTENANCE

- A. Maintain grassed areas minimum of 90 days, or as required to establish an acceptable lawn. For areas seeded in fall, continue maintenance following spring until acceptable lawn is established.
- B. Maintain grassed areas by watering, fertilizing, weeding, and trimming.
- C. Repair areas damaged by erosion by regrading, rolling and replanting.
- D. Reseed small, sparse grass areas. When sparse areas exceed 20 percent of planted area, reseed by hydro mulch.
- E. Mow grass when height reaches 3 1/2 inches or greater on average before final acceptance. Mow to height of 2 1/2 inches.

END OF SECTION