

CONTRACT DOCUMENTS
AND TECHNICAL SPECIFICATIONS

FOR

**JEFFERSON COUNTY
DRAINAGE DISTRICT No. 6
CORLEY DIVERSION PROJECT
GLO CONTRACT No. 24-065-004-E161**



BOARD OF DIRECTORS

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PREPARED BY:

SPIX **SCHAUMBURG & POLK, INC.**

8865 College Street
Beaumont, Texas 77707
Firm Registration No. F-000520

JUNE 2026



DRAFT INDEX- PAGE NUMBERS TO BE ADDED UPON FINAL EDIT

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Part I – Bidding and Agreement Forms and Bonds



JEFFERSON COUNTY DRAINAGE DISTRICT NO. 6
Karen K. Johnson, MBA, CTCD, CTCM: Chief Business Officer

6550 Walden Rd., Beaumont, Texas 77707 Phone: 409-842-1818 Fax: 409-842-2729

LEGAL NOTICE

ADVERTISEMENT FOR INVITATION FOR BIDS:

Notice is hereby given that sealed bids will be accepted by Jefferson County Drainage District No. 6 for (IFB 26-009/KKJ) Corley Diversion Project. Specifications for this project may be obtained from the Jefferson County Drainage District No. 6 webpage <http://www.dd6.org/purchasing/bid-specs/bids>.

This project will be federally funded by the U.S. Housing and Urban Development (HUD) Department through the Texas General Land Office (GLO) via contract #24-065-004-E161. Bidders shall comply with regulations governing the CDBG Regional Mitigation Program (Regulation 24 CFR 570). Applicable requirements include but are not limited to compliance with the Davis-Bacon and Related Acts, Fair Labor Standards, Equal Employment Opportunity, Affirmative Action, Section 3 of the HUD Act of 1968, and contracting with small, minority, and disadvantaged firms, as detailed in the project manual. In addition, the successful bidder must ensure that employees and applicants for employment are not discriminated against because of race, color, religion, sex, sexual identity, gender identity, or national origin.

A Mandatory Pre-Bid Conference will be held on June 30, 2026 at 2:00 PM CST at the Jefferson County Drainage District No. 6 main office located at 6550 Walden Road, Beaumont, Texas 77707.

The District shall require the bidder to furnish a bid security in the amount of (5%) of the total contract cost. The bid bond must be executed with a surety company authorized to do business in the State of Texas and approved by the District's advisors. Within ten (10) days after the date of the signing of the contract, the bidder shall furnish a performance bond to the District for the full amount of the contract.

Bidders shall forward an original and three (3) copies of their bid to the address shown below. The District does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Sealed bids will be publicly opened and read aloud in the Jefferson County Drainage District No. 6 boardroom at the time and date below. Bidders are invited to attend the sealed bid opening.

All Bids shall be submitted to the District Administration Office in a sealed envelope marked:

BID NAME: Corley Diversion Project
BID NO: IFB 26-009/KKJ
DUE DATE: 2:00 PM CST, July 9, 2026
MAIL OR DELIVER TO: Jefferson County Drainage District No. 6
Administration Office 6550 Walden Rd.
Beaumont, Texas 77707

Any questions relating to these requirements should be directed to Karen K. Johnson, MBA, CTCD, CTCM Chief Business Officer, in writing to kjohnson@dd6.org, by Monday July 6, 2026 by 1:00 PM, CST. Jefferson County Drainage District No. 6 reserves the right to accept or reject any or all bids, to waive technicalities and to take whatever action is in the best interest of the District.

All interested vendors are invited to submit a bid in accordance with the terms and conditions stated in this bid. All contractors/subcontractors whose System for Award Management (SAM.gov) registration is not active or that are debarred, suspended or otherwise excluded from or ineligible for participation in federal assistance programs may not undertake any activity in part or in full under this project.

RESPONDENTS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE INVITATION.



Karen K. Johnson, MBA, CTCD,
CTCM Chief Business Officer
Jefferson County Drainage District No. 6, Texas

Advertise In
Beaumont Enterprise June 14, 2026 & June 21, 2026
Beaumont Examiner June 11, 2026 & June 18, 2026

II. INSTRUCTIONS TO BIDDERS

DEFINED TERMS - Terms used in these Instructions to Bidders and the Notice Inviting Bids are defined in the General Conditions for Construction. The term "Bidder" means one who submits a Bid directly to the District, as distinguished from a sub-bidder, who submits a Bid to a Bidder.

1. COMPETENCY OF BIDDERS –

1.1. In selecting the lowest, responsive, responsible Bidder, consideration will be given to:

- 1.1.1. the financial standing and ability of the Bidder to satisfactorily complete the job being bid;
- 1.1.2. the competence, judgment, skill, ability and capacity of the Bidder to perform the work in accordance with the terms and conditions of the specification;
- 1.1.3. the past experience of the District with the Bidder and the experience of the Bidder with other governmental entities.

1.2. In determining the best value for the District, the District may consider:

- 1.2.1. The total price with or without Alternatives
- 1.2.2. the reputation of the bidder and of the bidder's goods or services;
- 1.2.3. the quality of the bidder's referenced services;
- 1.2.4. the extent to which the goods or services meet the District's needs;
- 1.2.5. the bidder's past relationship with the District;
- 1.2.6. the impact on the ability of the District to comply with laws and rules relating to contracting with historically underutilized businesses and nonprofit organizations employing persons with disabilities;
- 1.2.7. the total long-term cost to the District to acquire the bidder's services; and
- 1.2.8. any relevant criteria specifically listed in the request for bids or proposals.

2. DISQUALIFICATION OF BIDDERS - More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the District believes that any Bidder is interested in more than one Bid for the Work contemplated, all Bids in which such Bidder is interested will be rejected. If the District believes that any collusion exists among the Bidders, all Bids will be rejected.

3. BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND THE SITE

- 3.1.** It is the responsibility of each Bidder before submitting a Bid to examine the Contract Documents thoroughly; visit the site to become familiar with local conditions that may affect cost, progress, or performance of the Work; consider federal, state, and local laws and regulations that may affect cost, progress, or performance of the Work; study and carefully correlate the Bidder's observations with the Contract Documents; and notify the Engineer of any and all conflicts, errors, or discrepancies found in the Contract Documents.
- 3.2.** Reference is made to the Supplementary General Conditions for identification of those reports of explorations and tests of subsurface conditions at the site which have been utilized by the Engineer in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such reports; however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with non-technical data, interpretations, and opinions contained therein or the completeness thereof is the responsibility of the Bidder.
- 3.3.** Copies of such reports and drawings will be made available for review by the District to any Bidder upon request if said reports and drawings are not bound herein. Those reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which the Bidder is entitled to rely, as provided in the Supplementary General Conditions are incorporated therein by reference.
- 3.4.** Information and data reflected in the Contract Documents with respect to underground utilities at, or

contiguous to, the site is based upon information and data furnished to the District and the Engineer of such underground utilities or others, and the District does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions or the Section entitled "Protection of Existing Facilities" of the technical specifications.

- 3.5. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground utilities and/or other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Section 4.2 of the General Conditions, (Physical Conditions).
- 3.6. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and underground utilities) at, or contiguous to, the site or otherwise which may affect cost, progress, or performance of the Work and which the Bidder deems necessary to determine its Bid for performing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents.
- 3.7. On request, in advance, the District will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. The Bidder shall fill all holes and shall clean up and restore the site to its former condition upon completion of such exploration and tests.
- 3.8. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands designated for use by the Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the Contractor. Easement for permanent structures or permanent changes in existing structures is to be obtained and paid for by the District unless otherwise provided in the Contract Documents.
- 3.9. The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of Item #4 General Conditions, herein, entitled: "Bidder's Examination of Contract Documents and the Site," that without exception the Bid is premised upon performing 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 the terms and conditions for performance of the Work.

4. BIDDING:

- 4.1. All bids must be on the bid forms provided in (Part I-Bidding and Agreement Forms and Bonds- Section IV) and must be written in ink or by keyboard. Pencil quotations will not be considered. The bid must be executed personally by the bidder, or if executed by an agent, a power of attorney or other evidence of his authority to act on behalf of the bidder must accompany the bid. If the bidder is a corporation, the certificate of corporate bidder must be executed under the corporate seal by some duly authorized officer of the corporation other than the officers signing the bid. By execution of the bid, the bidder accepts all general and special conditions of the contract and the specifications.
- 4.2. TIME & DATE: Bids must be in the District Administration Office by 2:00 P.M, CST **July, 9,2026**, unless otherwise specified; an early postmark will not suffice. Be sure you have allowed ample time for postal delivery. The District will not be responsible for the delivery of your Bid. If you choose to send your bid by postal delivery then it is recommended that you call the District's Purchasing Department, 409-842-1818 to verify receipt of your bid prior the bid opening. **Bids may NOT be faxed or e-mailed.**
- 4.3. WITHDRAWAL OF BID: A bidder may withdraw his proposal before Board of Directors acceptance of his bid without prejudice to himself, by submitting a written request for its withdrawal to the kjohnson@dd6.org
- 4.4. Bids should show net prices, extensions and net total. In case of conflict between unit price and extensions, the unit price will govern.
- 4.5. No change in price will be considered after bids have been opened.

- 4.6. Unless otherwise specified, any catalog or manufacturer's reference or brand name used in describing an item is merely descriptive, and not restrictive, and is used only to indicate type, style or quality of material desired. If a bidder quotes on a material other than the one specified, which he considers comparable, the name and grade of said material must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. In the absence of these qualifications, he will be expected to furnish the Section called for.
- 4.7. If this bid is altered, any erasure or alteration of figures on the item on which the erasure or alteration is made must be initialed by signee of this bid.
- 4.8. Bids will not be considered in cases in which bidder quotes an item price and also an alternate price on the proposed substitute item, except in cases in which alternate bids are called for.
- 4.9. Bidders are invited to be present at the opening of bids. After opening, bids may be inspected in the Administration offices.
- 4.10. If a mistake is not discoverable and verifiable by the District, bidder's incorrect interpretation of Engineering specifications set forth in a construction contract will not release him from his obligations, once a contract has been awarded by the District Board of Directors and bidder has received notice of such award.

5. TAXES:

- 5.1. The District is exempt from the Federal Excise and Transportation Tax, and the Limited Sales and Use Tax. Unless the bid form or specification specifically indicates otherwise, the price bid must be net exclusive of the above-mentioned taxes and will be so construed.

6. REJECTIONS:

- 6.1. All materials enumerated in the bid form shall be subject to inspection. If found inferior to the quality called for, or not equal in value to the department's samples, or deficient in weight, measurements, workmanship or otherwise, this fact shall be certified to the Engineer who shall have the right to reject the whole or any part of the same.

7. AWARD:

- 7.1. The District reserves the right to consider and make awards of bids on Sections of similar nature that in all respects will serve the purpose for which the purchase is being made. The District reserves the right to be the sole judge as to whether such Sections will serve the purpose.
- 7.2. Unless otherwise specified, the District reserves the right to accept or reject in whole or in part any bid submitted or to waive any informality in the best interest of the District.
- 7.3. Contractor is an independent contractor. Award of a contract does not create a joint venture between Contractor and the District.

8. BID DEPOSIT:

- 8.1. The bid deposit, may be in the form of a cashier's check, a certified check made payable to JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 or a Bid bond. The bond shall be executed by a surety authorized by the Texas State Insurance Commission and must be signed by both the surety and the bidder.
- 8.2. The Bid deposit should be placed in a separate envelope and enclosed with your bid. Should your bid deposit not be acceptable to the District, your bid will be returned.
- 8.3. Sections not in accordance with samples and specifications must be removed by the bidder at his expense. All disputes concerning quality of supplies delivered under this proposal will be determined by the District Project Manager or his/her designated representative.

9. BILLING

9.1. All bills are subject to approval by the Project Manager.

10. LIQUIDATED DAMAGES FOR DELAYS.

10.1. If the work is not completed within the number of working days stipulated in the applicable bid for Lump Sum Contract provided, the Contractor shall pay to the District as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) the amount of \$3072.00 Dollars for each calendar day of delay, until the work is completed. The Contractor and his sureties shall be liable to the District for the amount thereof.

11. OSHA REQUIREMENTS:

11.1. The contractor hereby guarantees to JEFFERSON COUNTY DRAINAGE DISTRICT NO.6, Texas, that all material, supplies and equipment as listed on the proposal, contract or Purchase Order meets the requirements, specifications and standards as provided for under the Federal Occupational Safety and Health Act of 1970, as amended and in force at the date hereof.

12. BIDS:

12.1. Bids must remain firm for ninety (90) days from the bid opening date to allow for award by the Board of Directors, unless otherwise specified.

13. PUBLIC INFORMATION ACT:

13.1. Texas Government Code, Chapter 552, gives you the right to access government records; and an officer for public information and the officer's agent may not ask why you want them. All government information is presumed to be available to the public. Certain exceptions may apply to the disclosure of the information. Governmental bodies shall promptly release requested information that is not confidential by law, either constitutional, statutory, or by judicial decision, or information for which an exception to disclosure has not been sought.

14. WEBSITE – Vendors are responsible for verifying all addenda to specifications downloaded from the District website.

15. FORCE MAJEURE– Neither the District nor the Contractor shall be required to perform any term, condition or covenant of this contract so long as performance is delayed or prevented by force majeure.

16. FUNDING OUT– The State of Texas statutes prohibit the obligation and expenditure of public funds beyond the fiscal year for which a budget has been approved. Should, during the term of this contract, funds be withdrawn by the funding authority, a Force Majeure shall be deemed to exist, and this contract may be terminated without penalty or recourse by either party.

17. INTERPRETATIONS - All questions about the meaning or intent of the Contract Documents are to be directed in writing to the kjohnson@dd6.org. Interpretations or clarifications in response to such questions will be resolved by the issuance of Addenda posted publicly on the District's website. **Questions must be received seven (7) days prior to the date of opening Bids. No exceptions.** Only questions that have been resolved by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

18. BID SECURITY, BONDS, AND INSURANCE - Each Bid shall be accompanied by a certified or cashier's check or approved Bond in the amount stated in the Notice Inviting Bids. Said check or bond shall be made payable to the District and shall be given as a guarantee that the Bidder, if awarded the Work, will enter into a Contract with the District, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond within ten (10) days; each of said bonds to be in the amount stated in the Supplementary General Conditions. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, shall be forfeited to the District

19. RETURN OF BID SECURITY - Within 14 working days after the execution of the contract, the District will

return all bid securities accompanying each of the bids that are not considered in making the award.

- 20. SUBMISSION OF BIDS** - The Bid shall be accompanied by the proper **Bid Bond or Security, Bidder's General Information Form, Attorney's Review Certification Form**, and shall be delivered by the time and to the place stipulated in the Invitation for Bids. It is the Bidder's sole responsibility to ensure that its Bid is received in proper time. The envelope enclosing the sealed Bid shall be plainly marked in the upper left-hand corner with the name and address of the Bidder and shall bear the words "BID FOR IFB 26-009/KKJ," followed by "CORLEY DIVERSION". The envelope enclosing the sealed Bid shall be addressed to Karen K. Johnson, Chief Business Officer, and shall be delivered or mailed to the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6, 6550 Walden Road, Beaumont, Texas 77707.

21. BID BOND-(COMPLETE AND RETURN WITH BID)

KNOW ALL MEN BY THESE PRESENTS:

That _____, Contractor, as Principal,

and _____, as Surety,

are held and firmly bound unto JEFFERSON COUNTY DRAINAGE DISTRICT NO.6, herein called the District, in the sum of:

\$ _____ (Figure)

_____ + _____ (Written Form)
(not less than five percent (5%) of the largest total amount of the bid)

for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to the District to perform the Work required under the Bidding Schedule(s) of the District's Contract Documents entitled:

**JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 CORLEY DIVERSION PROJECT
IFB 26-009/KKJ**

NOW THEREFORE, if said Principal is awarded a contract by the District, and, within the time, and in the manner required in the Invitation for Bids and the Instructions to Bidders, enters into a written Agreement on the form of agreement bound with said Contract Documents, furnishes the required Certificates of Insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by the District and the District prevails, said Surety shall pay all costs incurred by the District in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this _____ day of _____, 20_____.

_____(SEAL)_____(SEAL)
(Principal) (Surety)

By: _____ By: _____
(Signature) (Signature)

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

22. ATTORNEY'S REVIEW CERTIFICATION (COMPLETE AND RETURN WITH BID)

ATTORNEY'S REVIEW CERTIFICATION

I, the undersigned, _____, the duly authorized and acting legal representative of the _____, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and am of the opinion that each of the agreements may be duly executed by the proper parties, acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties; and that the agreements shall constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Attorney's signature: _____ Date: _____

Print Attorney's Name: _____

Texas State Bar Number: _____

23. BIDDER'S GENERAL INFORMATION

The Bidder shall furnish the following information. Additional sheets shall be attached as required. Failure to complete any of the following Item Numbers will cause the Bid to be non-responsive and may cause its rejection. In any event, no Award will be made until all of the Bidder's General Information (i.e. Items 1 through 12 inclusive) is provided to the District.

1.1. Bidder/Contractor's name and complete address:

- ☐ Corporation
☐ Partnership
☐ Individual

1.2. Project Manager:

1.3. Contact Number:

1.4. Name of person who inspected the site:

1.5. Date of Inspection:

1.6. Name, Address, and Telephone number of Surety Company and Agent providing the required Bonds:

1.7. ATTACH TO THIS BID the experience or resume of the person who will be designated as the full-time, on-site General Construction Superintendent or full-time, on-site Construction Manager for the Contractor.

1.8. ATTACH TO THIS BID a financial statement, references, and other information, sufficiently comprehensive to permit an appraisal of Contractor's current financial condition.

1.9. ATTACH TO THIS BID a list of 3 projects completed as of recent date involving work of similar type and complexity, listing the following data for each project:

- Owner's Name
- Owner's Contact Representative Name, Phone Number and Email Address
- Project Name
- Brief Description of Project Scope
- Contract Value
- Date Completed-

1.10. How many years has Bidder been engaged in the type of construction work required by this contract?

a) As a General Contractor:

b) As a Sub-Contractor:

c) Under its present business name:

d) Under another business name:

1.11. Has Bidder ever failed to complete any Work awarded to it? ☐ Yes ☐ No

- 1.12. If so, list below: Names of projects, names of owners, and reason(s) project(s) was not completed.
- a) _____
- b) _____
- c) _____
- d) _____
- 1.13. ATTACH TO THIS BID a list of construction equipment owned by Bidder which will be available for the work required by this Contract. Attach additional sheets as required. Include the following information:
- Description (Model/ Capacity)
 - Quantity
 - Years in Service
 - Service Records/Condition
- 1.14. The Materials to be used on this Project shall be certified by the Texas Department of Transportation (TxDOT) in accordance with Item 520 of TxDOT's 2014 Standard Specifications prior to this Bid Submittal. A copy of the Certification must be submitted with the Bid.
- 1.15. The Special Specifications shall govern over Special Provisions to Standard Specifications and Special Provisions to Standard Specifications shall govern over Standard Specifications.
- 1.16. List below all sub-contractors which will perform work covered by this contract. Attach additional sheets as required.
- 1.17. The Contractor shall not execute an agreement with any subcontractor or permit any subcontractor to perform any work included in this contract until Contractor has verified the subcontractor is eligible to participate in federally funded contracts.
- 1.18. No proposed subcontractor shall be disapproved by the District except for cause
- 1.19. The Contractor shall be as fully responsible to the District for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.
- 1.20. Nothing contained in the Contract shall create any contractual relation between any subcontractor and the District.

Sub-Contractor (Name/Phone No.)	Percentage of Work to be completed by Sub-Contractor	(%) Services Performed (%) Materials Provided	On-Site Foreman (Name/Phone No.)
1.			
2.			
3.			

Authorized Signature for Bidder

Date

- 24. DISCREPANCIES IN BIDS-** The Bidder shall furnish a price for all Bid Items in the schedule, and failure to do so will render the Bid as non-responsive and may cause its rejection. Subtotal prices must be shown on the Bid Summary, and total contract price must be shown in both words and figures. In the event of a discrepancy between the written and number amounts, the number will prevail.
- 25. MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS** - Unauthorized conditions, limitations, or provisions attached to the Bid will render it informal and may cause its rejection as being non-responsive. The completed Bid forms shall be without interlineations, alterations, or erasures. Alternative Bids will not be considered unless expressly called for and if supplied, without request, will be considered as additional bids and will be judged non-responsive and therefore rejected. Oral, telegraphic, facsimile or telephone Bids or modifications will not be considered.
- 26. AWARD OF CONTRACT** - Award of Contract, if awarded, may be awarded either to the lowest responsible Bidder or to the bidder who provides goods or services at the best value for the District, and will be made to a responsive, responsible Bidder whose Bid complies with all the requirements prescribed. Unless otherwise indicated, a single award will not be made for less than all the Bid Items of an individual Bid Schedule. In the event the Work is identified in more than one Bid Schedule, the District may award schedules individually or in combination. In the case of 2 or more Bid Schedules which are alternative to each other, only one of such alternative schedules will be awarded. The District may reject any and all bids.
- 27. EXECUTION OF AGREEMENT** - The Bidder to whom award is made shall execute a written Agreement with the District on the form provided, shall secure all insurance documents specified, and shall furnish all certificates and bonds required by the Contract Documents within ten (10) working days after receipt of the Agreement forms from the District. Failure or refusal to enter into an Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for an annulment of the award and forfeiture of the Bid Security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the District may award the Contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the District may award the Contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid Securities shall be likewise forfeited to the District. Upon failure or refusal of any Bidder to execute the agreement when notified of award, the District may at its option, reject all bids and call for total or partial rebidding of the project.
- 28. WORKER'S COMPENSATION REQUIREMENT** - The Bidder should be aware that in accordance with laws of the State of Texas, the Bidder will, if awarded the Contract, be required to secure the payment of compensation to its employees and execute the Worker's Compensation Certification.
- 29. WAGE RATE REQUIREMENTS** - Attention is particularly called to the requirement of paying not less than the prevailing Davis Bacon Related Acts (DBRA) wage rates specified in the Contract Documents. These rates are minimums to be paid during the life of the contract. It is therefore the responsibility of the Bidder to inform themselves as to local labor conditions. Wage rates as of May 18, 2026 are set out in the contract documents, and are subject to revisions. It shall be the duty of the Contractor to keep posted on all the latest revisions. See the Attached Federal Labor Standards Provisions (ATTACHMENT A)
- 30. H.B. 1295 COMPLIANCE Texas Ethics Commission Certificate Number** -The Awarded Vendor for the contract shall comply with the requirements of Section 2252.908 of the Texas Government Code as adopted in

2015 as House Bill 1295. The law requires that a governmental entity may not enter in certain contracts with a business entity unless the business entity submits a Disclosure of Interested Parties to the governmental entity. The law applies only to a contract that either (1) requires an action or vote by the governing body of the entity or agency before the contract may be signed or (2) has a value of at least \$1 million. Compliance with the law requires that the awarded Vendor utilize the Texas Ethics Commission website to enter the required information on Form 1295 and print a copy of the complete form. The form must be signed, notarized and submitted to the contracting government entity.

When submitting a bid or proposal to the District vendors will be required to submit both:

- 30.1.** Submit a **FORM 1295 online** via the Texas Ethics Commission website link below.

Vendors must enter the required information on Form 1295 and print a copy of the completed form. The form will include a certification of filing that will contain a unique certification number.

- 30.2.** Submit a **FORM 1295 hard copy** (completed & signed by an Authorized Agent of the Awarded Vendor), to the Jefferson County Drainage District No. 6 Administration Office.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

INSERT A HARD COPY OF FORM H.B 1295

31. SENATE BILL 2252 CERTIFICATION- TO BE COMPLETED BY JEFFERSON COUNTY DRAINAGE DISTRICT NO. 6

31.1. Pursuant to Chapter 2252, Texas Government Code, Vendor represents and certifies that, at the time of execution of this Agreement neither Vendor, nor any wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of the same (i) engages in business with Iran, Sudan, or any foreign terrorist organization as described in Chapters 806 or 807 of the Texas Government Code, or Subchapter F of Chapter 2252 of the Texas Government Code, or (ii) is a company listed by the Texas Comptroller of Public Accounts under Sections 806.051, 807.051, or 2252.153 of the Texas Government Code. The term "foreign terrorist organization" in this paragraph has the meaning assigned to such term in Section 2252.151 of the Texas Government Code.

SENATE BILL 2252 CERTIFICATION

On this day, I, Karen K. Johnson, MBA, CTCD/CTCM, Chief Business Officer for Jefferson County Drainage District No. 6 Texas, pursuant to Texas Government Code, Chapter 2252, Section 2252.152 and Section 2252.153, certify that I did review the website of the Comptroller of the State of Texas concerning the listing of companies that is identified under Section 806.051, Section 807.051, or Section 2253.253 and I have ascertained that the below named company is not contained on said listing of companies which do business with Iran, Sudan, or any Foreign Terrorist Organization.

Company Name

IFB/RFQ/RFQ number

Certification check performed by:

Purchasing Representative

Date

32. H.B. 89 COMPLIANCE – Verification –

- 32.1.** The Awarded Vendor for the contract shall comply with the requirements of Senate Bill 252 Ch. 2252 Certification: Texas Government Code, Chapter 2252, Section 2252.152 and Section 2252.153 of the Texas Government Code as adopted in 2017 as House Bill 89 (HB89).

The law requires that a governmental entity may not enter in certain contracts with a business entity unless the business entity submits an executed HB89 Compliance form to the governmental entity. Compliance with the law requires that the awarded Vendor must sign, notarize and submit the HB89 Form to the contracting governmental entity.

- 32.2. HB 89 COMPLIANCE VERIFICATION FORM TO BE COMPLETED AND RETURNED WITH THE BID.**

HOUSE BILL 89 VERIFICATION FORM

I, _____, the undersigned representative of (company or business

name) _____

(heretofore referred to as company) being an adult over the age of eighteen (18) years of age, after being duly sworn by the undersigned notary, do hereby depose and verify under oath that the company named above, under the provisions of Subtitle F, Title 10, Government Code Chapter 2270:

1. Does not boycott Israel currently; and
2. Will not boycott Israel during the term of the contract.

Pursuant to Section 2270.001, Texas Government Code:

1. "Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes; and
2. "Company" means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or a limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of those entities or business association that exist to make a profit.

Signature of Company Representative

Date

On this _____ day of _____, 2026, personally appeared _____, the above-named person, who after by me being duly sworn, did swear and confirm that the above is true and correct.

Notary Signature

Date

33. H.B. 23-CONFLICT OF INTEREST

33.1. CONFLICT OF INTEREST QUESTIONNAIRE TO BE COMPLETED AND RETURNED WITH THE BID.

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	
1 Name of vendor who has a business relationship with local governmental entity.	Date Received	
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 in this section is being disclosed. _____ Name of Officer This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary. A. Is the local government officer named in this section 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 named in this section AND the taxable income is not received from the local governmental entity? ☐ Yes ☐ No C. Is the filer of this questionnaire employed by 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? ☐ Yes ☐ No D. Describe each employment or business and family relationship with the local government officer named in this section.		
4 _____ 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.

34. SAM (SYSTEM FOR AWARD MANAGEMENT) – Verification

Vendors doing business with the District are required to be registered with The System for Award Management (SAM), with an “active” status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/Fed Reg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: <https://www.sam.gov>

- 34.1. Vendors must Provide (with your BID) a printed copy of your current active SAM Status including your UIN (Unique Identification number).

**Federal Award Management Registration**

CALL NOW TO SPEAK TO A REGISTRATION SPECIALIST
 **(844) 513-9067**



SYSTEM FOR AWARD MANAGEMENT REGISTRATION SUPPORT

Complete Your SAM.gov Registration Or Renewal Online. Registration Advisors Are Standing By To Provide Immediate Assistance And Expedited Registration Service.

START YOUR SAM REGISTRATION HERE!

What type of registration is this?
☐ New ☐ SAM Renewal ☐ CCR Renewal

Get Registered Now!

Step 1 of 3 contact details

System For Award Management Registration

SAM Registration Is Required To Win Contracts and Receive Grants

A SAM registration is required for any business, organization, or agency that is eligible to, or plans to, receive payments from the federal government. In order to qualify for federal contracts or grants, a fully accurate, and compliant System For Award Management registration is required. More importantly if you have already completed a government contract or have been awarded a grant, an up-to-date SAM registration is required in order for you to receive payment.



Registration Specialists Are Standing By To Assist

SAM | CCR | ORCA | CAGE

Get Your SAM Registration Expedited

(844) 513-9067

INSERT A PRINTED COPY OF YOUR CURRENT ACTIVE SAM STATUS INCLUDING YOUR UIN (UNIQUE IDENTIFICATION NUMBER).

35. NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

35.1. NON-COLLUSION AFFIDAVIT TO BE COMPLETED AND RETURNED WITH THE BID

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

STATE OF TEXAS

§

§

COUNTY OF JEFFERSON

§

NON-COLLUSION AFFIDAVIT

_____, being first duly sworn, deposes and says that:

(1) He/She is _____ of _____, the Bidder that has submitted the attached Bid;

(2) He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with another Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix an overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

Title _____

Subscribed and sworn to me this _____ day of _____ 2026 .

By: _____

Notary Public

My commission expires _____

NOTE: QUALIFICATIONS NOT ACCOMPANIED BY THIS AFFIDAVIT WILL NOT BE CONSIDERED

Jefferson County Drainage District No. 6, Texas is an affirmative action/equal opportunity employer. The District does not discriminate based on race, color, national origin, sex, sexual orientation, gender identity, religion, age or handicapped status in employment or the provision of services, section 3 residents, minority business enterprises, small business enterprises, women business enterprises, and labor surplus area firms are encouraged to submit Qualifications.

36. CERTIFICATION REGARDING LOBBYING- DISCLOSURE OF LOBBYING ACTIVITIES

36.1. Certification Regarding Lobbying to be Completed and returned with the Bid

CERTIFICATION REGARDING LOBBYING

(To be submitted with each bid or offer exceeding \$100,000)

The undersigned certifies, to the best of his or her knowledge and belief, that:

(a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of 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.

(b) 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.

(c) The undersigned shall require that the language paragraph 1 and 2 of this anti-lobbying 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 was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995).

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 et seq., apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Printed Name and Title of Contractor's Authorized Official _____

Date _____

36.2. INSTRUCTIONS FOR COMPLETION OF SF-LLL DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether sub-awardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity 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 a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

- 36.2.1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
- 36.2.2. Identify the status of the covered Federal action.
- 36.2.3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
- 36.2.4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or sub-award recipient. Identify the tier of the sub-awardee, e.g., the first sub-awardee of the prime is the 1st tier. Sub-awards include but are not limited to subcontracts, sub-grants and contract awards under grants.
- 36.2.5. If the organization filing the report in item 4 checks "Sub-awardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
- 36.2.6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
- 36.2.7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
- 36.2.8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Qualifications (RFQ) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/Qualification control number assigned by the Federal agency). Included prefixes, e.g., "RFQ-DE-90-001."
- 36.2.9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
- 36.2.10. Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action. Enter the full names of the individual(s) performing services and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
- 36.2.11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

36.3. DISCLOSURE OF LOBBYING ACTIVITIES

- 36.3.1. **DISCLOSURE OF LOBBYING ACTIVITIES FORM TO BE COMPLETED AND RETURNED WITH THE BID**

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31
U.S.C. 1352 (See reverse for public burden disclosure)

1. Type of Federal Action: _____ a. contract _____ b. grant _____ c. cooperative agreement _____ d. loan _____ e. loan guarantee _____ f. loan insurance	2. Status of Federal Action: _____ a. bid/offer/application _____ b. initial award _____ c. post-award	3. Report Type: _____ a. initial filing _____ b. material change
1. Name and Address of Reporting Entity: Prime Subawardee Tier _____, if Known: Congressional District, if known:		2. If Reporting Entity in No. 4 is Sub awardee, Enter Name and Address of Prime: Congressional District, if known:
3. Federal Department/Agency:	7. Federal Program Name/Description: CFDA Number, if applicable: _____	
8. Federal Action Number, if known:	9. Award Amount, if known: \$ _____	
10. a. Name and Address of Lobbying Registrant <i>(if individual, last name, first name, MI):</i>	b. Individuals Performing Services <i>(including address if different from No. 10a)</i> <i>(last name, first name, MI):</i>	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature: _____ Print Name: _____ Title: _____ Telephone No.: _____ Date: _____	
Federal Use Only	Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)	

37. ECONOMIC OPPORTUNITIES FOR SECTION 3 RESIDENTS AND SECTION 3 BUSINESS CONCERNS.

- 37.1.** The work to be performed under this Contract is subject to the requirements of section 3 of the Housing and Urban Development (HUD) Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- 37.2.** The parties to this Contract agree to comply with HUD's regulations in 24 CFR part 75, which implement section 3. As evidenced by their execution of this Contract, the parties to this Contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 75 regulations.
- 37.3.** The Contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 75. The Contractor will not subcontract with any subcontractor where the Contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 75.
- 37.4.** The Contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the Contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 75 require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under 24 CFR part 75. Minimum expectations of effort to direct employment opportunities to such workers are identified in the GLO Project Implementation Manual.
- 37.5.** Noncompliance with HUD's regulations in 24 CFR part 75 may result in sanctions, termination of this Contract for default, and debarment or suspension from future HUD-assisted contracts.

38. SECTION 3 BUSINESS CONCERN CERTIFICATION FOR CONTRACTING

- 38.1. Description:** Businesses seeking a preference in contracting on applicable Section 3 projects may qualify as a Section 3 business concern if they meet the following criteria: At least 51 percent of the business is owned and controlled by low- or very low-income persons, or at least 51 percent of the business is owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing, or over 75 percent of the labor hours performed for the business over the prior threemonth period are performed by Section 3 workers.
- 38.2. IF APPLICABLE, FORM SECTION 3 BUSINESS CONCERN CERTIFICATION FOR CONTRACTING TO BE COMPLETED AND RETURNED WITH THE BID**
- 38.3. IF THE FORM IS NON-APPLICABLE, PLEASE WRITE NA AT THE TOP OF EACH PAGE**

SECTION 3 BUSINESS CONCERN CERTIFICATION FOR CONTRACTING

Instructions: Enter the following information and select the criteria that applies to certify your business' Section 3 Business Concern status.

Business Information

Name of Business: _____

Address of Business: _____

Name of Business Owner: _____

Phone Number of Business Owner: _____

Email Address of Business Owner: _____

Preferred Contact Information

☐ Same as above

Name of Preferred Contact: _____

Phone Number of Preferred Contact: _____

Type of Business (select from the following options):

☐ Corporation

☐ Partnership

☐ Sole Proprietorship

☐ Joint Venture

Select from *ONE* of the following three options below that applies:

☐ At least 51 percent of the business is owned and controlled by low- or very low-income persons (Refer to income guidelines on page 4).

☐ At least 51 percent of the business is owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.

☐ Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers (Refer to definition on page 4).

Business Concern Affirmation

I affirm that the above statements (on the frontside of this form) are true, complete, and correct to the best of my knowledge and belief. I understand that businesses who misrepresent themselves as Section 3 business concerns and report false information to [insert name of recipient/grantee] may have their contracts terminated as default and be barred from ongoing and future considerations for contracting opportunities. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.

Print Name: _____

Signature: _____ Date: _____

*Certification expires within six months of the date of signature

Information regarding Section 3 Business Concerns can be found at 24 CFR 75.5

FOR ADMINISTRATIVE USE ONLY

Is the business a Section 3 business concern based upon their certification?

☐ **YES**

☐ **NO**

EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.

**The City of (insert locality here)
Or
the (insert name here) Housing Authority
Section 3 Income Limits**

Eligibility Guidelines

The worker's income must be at or below the amount provided below for an individual (household of 1) regardless of actual household size.

**Individual Income Limits for City of (insert locality here)
FY 20 (insert year here)**

Income Limits Category	FY 20 (enter year here) Income Limits
Extremely Low- Income Limits (30%)	
Very Low-Income Limits (50%)	
Low Income Limits (80%)	

See <https://www.huduser.gov/portal/datasets/il.html> for most recent income limits.

Section 3 Worker Definition:

- A low or very low-income resident (the worker's income for the previous or annualized calendar year is below the income limit established by HUD); or
- Employed by a Section 3 business concern; or
- A YouthBuild participant.

Targeted Section 3 Worker Definition:

- Employed by a Section 3 business concern or
- Currently meets or when hired met at least one of the following categories as documented within the past five years:
 - A resident of public housing; or
 - A resident of other public housing projects or Section 8-assisted housing; or
 - A YouthBuild participant.

39. SECTION 3 WORKER AND TARGETED SECTION 3 WORKER SELF-CERTIFICATION

39.1. IF APPLICABLE, FORM SECTION 3 WORKER AND TARGETED SECTION 3 WORKER SELF-CERTIFICATION TO BE COMPLETED AND RETURNED WITH THE BID

39.2. IF THE FORM IS NON-APPLICABLE, PLEASE WRITE NA AT THE TOP OF EACH PAGE

Section 3 Worker and Targeted Section 3 Worker Self-Certification

The purpose of HUD's Section 3 program is to provide employment, training and contracting opportunities to low-income individuals, particularly those who are recipients of government assistance for housing or other public assistance programs. **Your response is voluntary, confidential, and has no effect on your employment.**

Eligibility for Section 3 Worker or Targeted Section 3 Worker Status

A Section 3 worker seeking certification shall self-certify and submit this form to the recipient contractor or subcontractor, that the person is a Section 3 worker or Targeted Section 3 Worker as defined in 24 CFR Part 75.

Instructions: Enter/select the appropriate information to confirm your Section 3 worker or Targeted Section 3 Worker status.

Employee Name: _____

1. Are you a resident of public housing or a Housing Choice Voucher Holder (Section 8)? ☐ YES ☐ NO
2. Are you a resident of the [City/County of insert name] ☐ YES ☐ NO
3. In the field below, select the amount of individual income you believe you earn on an annual basis. *The grantee should confirm that their state and local laws do not prohibit this question.

☐ Less than \$10,000

☐ \$10,001 - \$20,000

☐ \$20,001 - \$30,000

☐ \$30,001 - \$40,000

☐ \$40,001 - \$50,000

☐ \$50,001 - \$60,000

☐ More than \$60,000

following two options below:

I qualify as a:

☐ Section 3 Worker (as defined on page 4 of Section 3 Worker Certification Form)

☐ Targeted Section 3 Worker (as defined on pages 4-5 of Section 3 Worker Certification Form)

Employee Affirmation

I affirm that the above statements (on frontside of this form) are true, complete, and correct to the best of my knowledge and belief. I hereby certify, under penalty of law, that the following information is correct to the best of my knowledge.

Employee Address: _____

Print Name: _____ Date Hired: _____

Signature: _____ Date: _____

FOR ADMINISTRATIVE USE ONLY

Is the employee a Section 3 worker based upon their self-certification? ☐ YES ☐ NO

Is the employee a Targeted Section 3 worker based upon their self-certification? ☐ YES ☐ NO

Was this an applicant who was hired as a result of the Section 3 project? ☐ YES ☐ NO

If Yes, what is the name of the company? _____

What was the date of hire? _____

EMPLOYERS MUST RETAIN THIS FORM IN THEIR SECTION 3 COMPLIANCE FILE FOR FIVE YEARS.

**The City of (insert locality here)
Or
the (insert name here) Housing Authority
Section 3 Income Limits**

Eligibility Guidelines

The worker's income must be at or below the amount provided below for an individual (household of 1) regardless of actual household size.

**Individual Income Limits for City of (insert locality here)
FY 20 (insert year here)**

Income Limits Category	FY 20 (enter year here) Income Limits
Extremely Low Income Limits (30%)	
Very Low Income Limits (50%)	
Low Income Limits (80%)	

See <https://www.huduser.gov/portal/datasets/il.html> for most recent income limits.

Section 3 Worker Definition:

- A low or very low-income resident (the worker's income for the previous or annualized calendar year is below the income limit established by HUD); or
- Employed by a Section 3 business concern; or
- A YouthBuild participant.

Targeted Section 3 Worker Definition:

- Employed by a Section 3 business concern or
- Currently meets or when hired met at least one of the following categories as documented within the past five years:
 - A resident of public housing; or
 - A resident of other public housing projects or Section 8-assisted housing; or

A YouthBuild participant. Targeted Section 3 Worker Definition (for housing and community development)

- Employed by a Section 3 business concern or
- Currently meets or when hired met at least one of the following categories as documented within the past five years:
 - Living within the service area or the neighborhood of the project, as defined in 24 CFR 75.5
 - A YouthBuild participant.

40. EQUAL EMPLOYMENT OPPORTUNITY

Attention is called to the requirements for ensuring that employees and applicants for employment are not discriminated against because of race, color, religion, sex, sexual identity, gender identity, or national origin, and other civil rights requirements. Please see below EQUAL OPPORTUNITY GUIDELINES FOR CONSTRUCTION CONTRACTORS:

- 40.1. What are the responsibilities of the offeror or bidder to ensure equal employment opportunity?** For contracts over \$ 10,000, the offeror or bidder must comply with the "Equal Opportunity Clause" and the "Standard Federal Equal Opportunity Construction Contract Specifications."
- 40.2. Are construction contractors required to ensure a legal working environment for all employees?** Yes, it is the construction contractor's responsibility to provide an environment free of harassment, intimidation, and coercion to all employees and to notify all foremen and supervisors to carry out this obligation, with specific attention to minority or female individuals.
- 40.3. To alleviate developing separate facilities for men and women on all sites, can a construction contractor place all women employees on one site?** No, two or more women should be assigned to each site when possible.
- 40.4. Are construction contractors required to make special outreach efforts to Section 3 or minority and female recruitment sources?** Yes, construction contractors must establish a current list of Section 3, minority and female recruitment sources. Notification of employment opportunities, including the availability of on-the-job training and apprenticeship programs, should be given to these sources. The efforts of the construction contractors should be kept in file.
- 40.5. Should records be maintained on the number of Section 3 residents, minority and females applying for positions with construction contractors?** Yes, records must be maintained to include a current list of names, addresses and telephone numbers of all Section 3, minority and female applicants. The documentation should also include the results of the applications submitted.
- 40.6. What happens if a woman or minority is sent to the union by the Contractor and is not referred back to the Contractor for employment?** If the unions impede the construction contractor's responsibility to provide equal employment opportunity, a written notice should be submitted to TDA.
- 40.7. What efforts are made by construction contractors to create entry-level positions for Section 3 residents, women and minorities?** Construction contractors are required to develop on-the-job training programs, or participate in training programs, especially those funded by the Department of Labor, to create positions for Section 3 residents, women and minorities and to meet employment needs.
- 40.8. Are any efforts made by the Contractor to publicize their Equal Employment Opportunity (EEO) policy?** Yes, the construction contractor is responsible for notifying unions and sources of training programs of their equal employment opportunity policy. Unions should be requested to cooperate in the effort of equal opportunity. The policy should be included in any appropriate manuals, or collective bargaining agreements. The construction contractor is encouraged to publicize the equal employment opportunity policy in the company newspaper and annual report. The Contractor is also responsible to include the EEO policy in all media advertisement.
- 40.9. Are any in-service training programs provided for staff to update the EEO policy?** At least annually a review of the EEO policy and the affirmative action obligations are required of all personnel employees of a decision-making status. A record of the meeting including date, time, location, persons present, subject matter discussed, and disposition of the subject matter should be maintained.

- 40.10. What recruitment efforts are made for Section 3 residents, minorities and women?** The construction contractor must notify both orally and in writing, Section 3, minority and female recruitment sources one month prior to the date of acceptance for apprenticeship or other training programs.
- 40.11. Are any measures taken to encourage promotions for minorities and women?** Yes, an annual evaluation should be conducted for all minority and female personnel to encourage these employees to seek higher positions.
- 40.12. What efforts are taken to insure that personnel policies are in accordance with the EEO policy?** Personnel policies in regard to job practices, work assignments, etc. should be continually monitored to insure that the EEO policy is carried out.
- 40.13. Can women be excluded from utilizing any facilities available to men?** No, all facilities and company activities are non-segregated except for bathrooms or changing facilities to ensure privacy.
- 40.14. What efforts should be utilized to include minority and female contractors and suppliers?** Take affirmative steps to ensure that small, minority, and women owned businesses are included on all lists for contractors/service providers. Solicit these businesses when issuing RFPs and RFQs and soliciting construction bids. Divide project activities into small tasks to allow participation. Keep records of all offers to minority and female construction contractors.
- 40.15. If a construction contractor participates in a business related association that does not comply with equal opportunity affirmative action standards, does that show his/her failure to comply?** No, the construction contractor is responsible for its own compliance.
- 40.16. Can a construction contractor hire a subcontractor who has been debarred from government contracts pursuant to EEO?** No. The construction contractor must suspend, terminate or cancel its contract with any Subcontractor who is in violation of the EEO policy.
- 40.17. What effort has been taken by the construction contractor to monitor all employment to insure the company EEO policy is being carried out?** The construction contractor must designate a responsible individual to keep accurate records of all employees that includes specific information required by the government.

41. CERTIFICATION OF BIDDER REGARDING CIVIL RIGHTS LAWS AND REGULATIONS

- 41.1. CERTIFICATION OF CONTRACTOR REGARDING CIVIL RIGHTS LAWS AND REGULATIONS FORM TO BE COMPLETED AND RETURNED WITH THE BID**

CONTRACTOR CERTIFICATIONS

U.S. Department of Housing and Urban Development

CERTIFICATION OF BIDDER REGARDING CIVIL RIGHTS LAWS AND REGULATIONS

INSTRUCTIONS

CERTIFICATION OF BIDDER REGARDING Executive Order 11246 and Federal Laws Requiring Federal Contractor to adopt and abide by equal employment opportunity and affirmative action in their hiring, firing, and promotion practices. This includes practices related to race, color, gender, religion, national origin, disability, and veterans' rights.

NAME AND ADDRESS OF BIDDER (include ZIP Code)

CERTIFICATION BY BIDDER

Bidder has participated in a previous contract or subcontract subject to Civil Rights Laws and Regulations.

☐ Yes

☐ No

The undersigned hereby certifies that:

- ☐ The Provision of Local Training, Employment, and Business Opportunities clause (Section 3 provision) is included in the Contract. A written Section 3 plan (Local Opportunity Plan) was prepared and submitted as part of the bid proceedings (if bid equals or exceeds \$100,000).
- ☐ The Equal Opportunity clause is included in the Contract (if bid equals or exceeds \$10,000).

Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

☐ Yes

☐ No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE

DATE

42. POLICY OF NONDISCRIMINATION ON THE BASIS OF DISABILITY

42.1. Section 504 Rehabilitation Act of 1973, as amended.-The Contractor agrees that no otherwise qualified individual with disabilities shall, solely by reason of his/her disability, be denied the benefits of, or be subjected to discrimination, including discrimination in employment, under any program or activity receiving federal financial assistance.

42.2. SECTION 504 CERTIFICATION FORM TO BE COMPLETED AND RETURNED WITH THE BID

SECTION 504 CERTIFICATION FORM

The _____ does not discriminate on the basis of disability (Contractor
Name)

status in the admission or access to, or treatment or employment in, its federally assisted programs or activities.

(Name) _____

(Address) _____

City State Zip

Telephone Number () _____ - _____ Voice

() _____ - _____ TDD

_____ has been designated to coordinate compliance with the
nondiscrimination requirements contained in the Department of Housing and Urban Development's (HUD)
regulations implementing Section 504 (24 CFR Part 8, dated June 2, 1988).

43. CONTRACTORS LOCAL OPPORTUNITY PLAN

**43.1. CONTRACTORS LOCAL OPPORTUNITY PLAN FORM TO BE COMPLETED AND
RETURNED WITH THE BID**

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 the (City/County) of _____.

- A. To ascertain from the City/County'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 ensure 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 ensure 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

Printed Name

Title

Date

44. SECTION 109 OF THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974

- 44.1.** The Contractor shall comply with the provisions of Section 109 of the Housing and Community Development Act of 1974. No person in the United States shall on the ground of race, color, national origin, religion, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

45. AGE DISCRIMINATION ACT OF 1975

- 45.1.** The Contractor shall comply with the Age Discrimination Act of 1975 which provides that no person in the United States shall on the basis of age be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

46. SOLID WASTE DISPOSAL ACT

- 46.1.** A non-federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

47. VERIFICATION OF NO TELECOMMUNICATIONS OR SURVEILLANCE EQUIPMENT

- 47.1.** As stated in 2 CFR 216, vendors must ensure that no telecommunications or surveillance equipment is purchased, installed, or repaired using any components manufactured or provided by any entity identified as prohibited in 2 CFR 216.
- 47.2.** Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

48. ADDITIONAL FEDERAL REQUIREMENTS

- 48.1.** Required Contract Provisions are detailed in Attachment B

III. SCOPE OF WORK

1. GENERAL

- 1.1. This contract shall provide for construction of drainage improvements for Jefferson County Drainage District No. 6 in the City of Beaumont, Jefferson County, Texas. The project is funded by CDBG-MIT MOD grant funding.
- 1.2. The intent of these Contract Documents is to provide for construction and completion, in every detail, of the work described herein and in the plans. It is further intended that the Contractor shall furnish all necessary superintendence, labor, equipment, tools, materials, safety measures, environmental protection, disposal of surplus items, site restoration, and all other related construction to complete the work in accordance with the plans, specifications, and terms of the Contract.

2. SUMMARY OF WORK

BASE BID The Base Bid includes all items of work necessary for the Segment 1 drainage improvements, and includes, but is not limited to the following:

2.1. SEGMENT 1 DRAINAGE IMPROVEMENTS

- 2.1.1. Construct approximately 2,251 LF of 12" through 36" diameter storm sewer, including all connections to existing and proposed storm sewer.
- 2.1.2. Construct approximately 336 LF of 10'x6' reinforced concrete box culvert by open cut, including removing existing utilities, and temporary surface restoration.
- 2.1.3. Construct approximately 15,700 LF of 10'x10' reinforced concrete box culvert by open cut, including removing existing utilities, and temporary surface restoration.
- 2.1.4. Construct approximately 516 LF of E-80 9'x10' reinforced concrete box culvert by jacking and boring under TxDOT and CPKC right-of-way, including bond breaker plate, joint restraints, and compliance with TxDOT and CPKC railroad requirements.
- 2.1.5. Construct approximately 200 LF of E-80 10'x10' reinforced concrete box culvert by jacking and boring under Port of Beaumont railroad, including bond breaker plate, joint restraints, and compliance with Port of Beaumont requirements.
- 2.1.6. Construct approximately 10 surface inlets, 38 standard back of curb catch basins, 17 back of curb catch basins with 5' extension, 13 non-standard catch basins under pavement, and 2 non-standard catch basins with 5' extension.
- 2.1.7. Construct approximately 46 Type B manholes (4' dia.) under concrete pavements, 1 Type B manhole (6' dia.) under concrete pavement, 1 Type B manhole (4' dia.) under asphalt pavement or natural ground, 5 Type C manholes (4' dia.) under asphalt pavement or natural ground, and 3 Type D manholes (4' dia.) under concrete pavement.
- 2.1.8. Construct Outfall at Port of Beaumont including outfall structure, sheet pile coffer dam, concrete piles, reinforced concrete slab, headwall and wingwalls, and connections to proposed 10'x10' reinforced concrete box culverts.
- 2.1.9. Construct 4 reinforced concrete junction boxes, including all connections to existing and proposed storm sewers, 4' diameter riser with C.I. ring & cover.

2.2. SEGMENT 1 POTABLE WATER IMPROVEMENTS

- 2.2.1. Provide water service control measures to maintain potable water service to existing water meters during construction.

- 2.2.2. Construct approximately 1,078 LF of 2" through 20" waterline crossing proposed box culverts, including connection to existing and proposed waterlines, testing and disinfection.
- 2.2.3. Construct approximately 1,912 LF of 6" and 8" waterline parallel to proposed box culverts, including connection to existing and proposed waterlines, testing and disinfection.
- 2.2.4. Furnish and install approximately 16 - 2" gate valves, 1 - 4" gate valve, 17 - 6" gate
- 2.2.5. valves, 8 - 8" gate valves, 6 - 12" gate valves, and 4 - 20" gates valves, including adjustable cast iron valve box & cover, concrete valve pad and thrust blocking.
- 2.2.6. Construct approximately 14 near side water service connections and 18 far side water service connections on the new parallel water lines.
- 2.2.7. Construct approximately 36 LF of 12" x ¼" steel casing.
- 2.2.8. Construct temporary 2" water line along the south side of Blanchette Street.

2.3. SEGMENT 1 SANITARY SEWER IMPROVEMENTS

- 2.3.1. Provide sanitary sewer service control measures to maintain sanitary sewer service to existing connections during construction.
- 2.3.2. Construct approximately 631 LF of 4" through 12" sanitary sewer crossing proposed box culverts, including connection to existing and proposed sanitary sewers.
- 2.3.3. Construct approximately 1,402 LF of 6" and 8" sanitary sewer parallel to proposed box culverts, including connection to existing and proposed sanitary sewers.
- 2.3.4. Construct approximately 78 LF of 12" x ¼" and 15" x ¼" steel casing.
- 2.3.5. Construct approximately 2 near side sanitary sewer connections and 2 far side sanitary sewer connections on the new parallel sanitary sewer lines.
- 2.3.6. Construct approximately 20 Type A manholes (4' dia.) under natural ground and 12 Type A manholes (4' dia.) under concrete pavement.

2.4. SEGMENT 1 PAVING IMPROVEMENTS

- 2.4.1. Remove existing concrete and/or asphalt pavement, including concrete curbs and base material.
- 2.4.2. Construct approximately 5,011 SY of 10" concrete pavement with 8" compacted limestone base, including standard concrete curb.
- 2.4.3. Construct approximately 7,513 SY of 7" concrete pavement with 6" compacted limestone base, including standard concrete curb.
- 2.4.4. Construct approximately 10,297 SY of 6" Concrete pavement with 6" compacted limestone base, including standard concrete curb.
- 2.4.5. Construct approximately 1,150 SY of 3" HMAC pavement, in two lifts, with 6" compacted limestone base, including all required embankment.
- 2.4.6. Construct approximately 71 reinforced concrete curb ramps.
- 2.4.7. Construct approximately 500 SY of 4" reinforced concrete sidewalks.
- 2.4.8. Construct approximately 2,048 SY of 4" reinforced concrete driveways.
- 2.4.9. Construct approximately 178 SY of 2" HMAC driveways, including 6" compacted limestone base.

2.5. SEGMENT 1 MISCELLANEOUS

- 2.5.1. Restore existing surface outside of paved areas, including fine grading and sodding.
- 2.5.2. Remove existing shrub bushes and trees within the street right-of-way.

ADDITIVE BID ITEMS - The following Additive Bid Items include all items of work necessary for Segment 2 and Segment 3 drainage improvements, and includes, but is not limited to the following:

2.6. SEGMENT 2 DRAINAGE IMPROVEMENTS

- 2.6.1. Construct approximately 717 LF of 18" through 30" diameter storm sewer, including all connections to existing and proposed storm sewer.
- 2.6.2. Construct approximately 671 LF of 12'x6' reinforced concrete box culvert by open cut, including removing existing utilities, and temporary surface restoration.
- 2.6.3. Construct approximately 2,949 LF of 12'x8' reinforced concrete box culvert by open cut, including removing existing utilities, and temporary surface restoration.
- 2.6.4. Construct approximately 1,056 LF of 12'x10' reinforced concrete box culvert by open cut, including removing existing utilities, and temporary surface restoration.
- 2.6.5. Construct approximately 311 LF of E-80 12'x8' reinforced concrete box culvert by jacking and boring under UP railroad right-of-way, including bond breaker plate, joint restraints, and compliance with UP railroad requirements.
- 2.6.6. Construct approximately 2 surface inlets, and 2 standard back of curb catch basins.
- 2.6.7. Construct approximately 1 Type B manholes (4' dia.) under concrete pavements, 10 Type B manhole (4' dia.) under asphalt pavement or natural ground, 2 Type C manholes (4' dia.) under asphalt pavement or natural ground, and 3 Type D manholes (5' dia.) under concrete pavement.
- 2.6.8. Construct 2 reinforced concrete junction boxes, including all connections to existing and proposed storm sewers, 4' diameter riser with C.I. ring & cover.

2.7. SEGMENT 2 POTABLE WATER IMPROVEMENTS

- 2.7.1. Provide water service control measures to maintain potable water service to existing water meters during construction.
- 2.7.2. Construct approximately 568 LF of 2" through 20" waterline crossing proposed box culverts, including connection to existing and proposed waterlines, testing and disinfection.
- 2.7.3. Construct approximately 1,575 LF of 8" waterline parallel to proposed box culverts, including connection to existing and proposed waterlines, testing and disinfection.
- 2.7.4. Construct approximately 225 LF of 8" waterline by jacking and boring under the UP railroad right-of-way, including steel casing, connection to proposed waterlines, testing and disinfection, and compliance with the UP railroad requirements.
- 2.7.5. Furnish and install approximately 6 - 2" gate valves, 15 - 6" gate valves, 12 - 8" gate valves, 2 - 12" gate valves, and 2 - 20" gates valves, including adjustable cast iron valve box & cover, concrete valve pad and thrust blocking.
- 2.7.6. Construct approximately 15 near side water service connections and 15 far side water service connections on the new parallel water lines.
- 2.7.7. Construct approximately 54 LF of 12" x ¼" steel casing.

2.7.7. Construct approximately 1 fire hydrant.

2.8. SEGMENT 2 SANITARY SEWER IMPROVEMENTS

2.8.1. Provide sanitary sewer service control measures to maintain sanitary sewer service to existing connections during construction.

2.8.2. Construct approximately 356 LF of 8" through 12" sanitary sewer crossing proposed box culverts, including connection to existing and proposed sanitary sewers.

2.8.3. Construct approximately 30 LF of 12" x ¼" and 15" x ¼" steel casing.

2.8.4. Construct approximately 10 Type A manholes (4' dia.) under natural ground and 2 Type A manholes (4' dia.) under concrete pavement.

2.9. SEGMENT 2 PAVING IMPROVEMENTS

2.9.1. Remove existing concrete and/or asphalt pavement, including concrete curbs and base material.

2.9.2. Construct approximately 1,054 SY of 6" Concrete pavement with 6" compacted limestone base, including standard concrete curb.

2.9.3. Construct approximately 8,185 SY of 3" HMAc pavement, in two lifts, with 6" compacted limestone base, including all required embankment.

2.9.4. Construct approximately 3 reinforced concrete curb ramps.

2.9.5. Construct approximately 6 SY of 4" reinforced concrete sidewalks.

2.9.6. Construct approximately 415 SY of 2" HMAc driveway transitions, including 6" compacted limestone base.

2.10. SEGMENT 2 MISCELLANEOUS

2.10.1. Restore existing surface outside of paved areas, including fine grading and sodding.

2.11. SEGMENT 3 DRAINAGE IMPROVEMENTS

2.11.1. Construct approximately 322 LF of 48" diameter storm sewer, including all connections to existing and proposed storm sewer.

2.11.2. Construct approximately 1,060 LF of 8'x6' reinforced concrete box culvert by open cut, including removing existing utilities, and temporary surface restoration.

2.11.3. Construct approximately 2 Type B manholes (4' dia.) under asphalt pavement or natural ground.

2.11.4. Construct 5 reinforced concrete junction boxes, including all connections to existing and proposed storm sewers, 4' diameter riser with C.I. ring & cover.

2.12. SEGMENT 3 POTABLE WATER IMPROVEMENTS

2.12.1. Provide water service control measures to maintain potable water service to existing water meters during construction.

2.12.2. Construct approximately 110 LF of 2" through 6" waterline crossing proposed box culverts, including connection to existing and proposed waterlines, testing and disinfection.

2.12.3. Furnish and install approximately 2 - 2" gate valves and 4 - 6" gate valves, including adjustable cast iron valve box & cover, concrete valve pad and thrust blocking.

2.13. SEGMENT 3 SANITARY SEWER IMPROVEMENTS

- 2.13.1. Provide sanitary sewer service control measures to maintain sanitary sewer service to existing connections during construction.
- 2.13.2. Construct approximately 190 LF of 6" through 10" sanitary sewer crossing proposed box culverts, including connection to existing and proposed sanitary sewers.
- 2.13.3. Construct approximately 310 LF of 6" sanitary sewer parallel to proposed box culverts, including connection to existing and proposed sanitary sewers.
- 2.13.4. Construct approximately 44 LF of 12" x ¼" and 15" x ¼" steel casing.
- 2.13.5. Construct approximately 4 Type A manholes (4' dia.) under natural ground and 2 Type A manholes (4' dia.) under concrete pavement.

2.14. SEGMENT 3 PAVING IMPROVEMENTS

- 2.14.1. Remove existing concrete and/or asphalt pavement, including concrete curbs and base material.
- 2.14.2. Construct approximately 818 SY of 6" Concrete pavement with 6" compacted limestone base, including standard concrete curb.
- 2.14.3. Construct approximately 3,063 SY of 3" HMAC pavement, in two lifts, with 6" compacted limestone base, including all required embankment.
- 2.14.4. Construct approximately 144 SY of 2" HMAC driveway transitions, including 6" compacted limestone base.

2.15. SEGMENT 3 MISCELLANEOUS

- 2.15.1. Restore existing surface outside of paved areas, including fine grading and sodding.

3. SPECIAL CONDITIONS

- 3.1. The Contractor shall coordinate the construction schedule with the Owner prior to commencing work, and shall pay close attention to the project schedule to ensure that the work is completed in a timely manner.
- 3.2. The Contractor will be required to coordinate construction with existing private utilities, including but not limited to CenterPoint, Entergy, AT&T, and Spectrum.
- 3.3. The Contractor will be required to coordinate with Tolunay-Wong Engineers (TWE), the Geotechnical Engineer of Record (GER), for the construction across the CPKC railroad right-of-way.
- 3.3. The Contractor shall coordinate construction with City of Beaumont Water Utilities regarding water and sanitary sewer system utilities.
- 3.4. The Contractor shall refer to the City of Beaumont's Ordinances; **Sec. 28.04.007 Performance Standards**, regarding construction noise within a residential area prior to commencing work on this project.
- 3.5. The Contractor shall complete the City of Beaumont Water Utility Service Agreement for Fire Hydrant Construction Meters.
- 3.6. The Contractor shall comply with the City of Beaumont Oversized Load Permit Provisions, refer to <https://www.beaumonttexas.gov/385/Permit-Information> .

END OF SCOPE OF WORK

IV. Bid Forms

1. BID RECIPIENT

- 1.1. This Bid is submitted to: Jefferson County Drainage District No. 6 ,6550 Walden Rd. Beaumont, TX 77707
- 1.2. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2. BIDDER'S ACKNOWLEDGEMENTS

- 2.1. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

3. BIDDER'S REPRESENTATIONS

- 3.1. In submitting this Bid, Bidder represents that:

- 3.1.1. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

- 3.1.2. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied himself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3.1.3. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - 3.1.4. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - 3.1.5. Bidder has considered the information known to Bidder itself; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
 - 3.1.6. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
 - 3.1.7. Bidder is aware of the general nature of work to be performed by The District and others at the Site

that relates to the Work as indicated in the Bidding Documents.

- 3.1.8. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- 3.1.9. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- 3.1.10. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Section, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

4. BIDDER'S CERTIFICATION

4.1. Bidder certifies that:

- 4.1.1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- 4.1.2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- 4.1.3. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- 4.1.4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
 - “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of The District, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive The District of the benefits of free and open competition;
 - “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of The District, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

5. BASIS OF BID

- 5.1. Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.
- 5.2. Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

6. BID FORM

			JEFFERSON COUNTY DRAINAGE DISTRICT No. 6 - CORLEY DIVERSION PROJECT CDBG-GLO-MIT CONTRACT No. 24-065-004-E161 (IFB 26-009/KKJ)		
Item	Quantity	Unit	Description	Unit Price	Total Price
BASE BID ITEMS: SEGMENT 1					
1.	1	LS	Mobilization (Segment 1) - including payment bond, performance bond, insurance, and moving equipment to and from project, all in accordance with plans & specifications; NOT TO EXCEED 3% OF TOTAL SEGMENT 1 BID for	\$	\$
2.	1	LS	Traffic Control - furnish, install, and maintain all traffic control including all signage, devices, setup, flagging, labor and equipment, and coordinating with City of Beaumont, all in accordance with plans and specifications for	\$	\$
3.	1	LS	Storm Water Pollution Prevention Plan (SWPPP) - prepare and furnish the contractor's SWPPP, including any necessary filing fees, filing required documentation, implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
4.	1	LS	Storm Water Pollution Prevention Measures, - furnish, install, and maintain SWPPP measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
Segment 1 Drainage Improvements					
5.	1	LS	Storm Sewer Flow Control Plan - prepare and furnish the contractor's plan for maintaining storm sewer flow through existing drainage structures during construction, including implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
6.	1	LS	Storm Sewer Flow Control Measures - furnish, install, and maintain storm sewer flow measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
7.	93	LF	12" Storm Sewer - furnish and install new 12" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
8.	35	LF	15" Storm Sewer - furnish and install new 15" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
9.	1,302	LF	18" Storm Sewer - furnish and install new 18" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
10.	791	LF	24" Storm Sewer - furnish and install new 24" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
11.	30	LF	36" Storm Sewer - furnish and install new 36" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
12.	336	LF	10x6 Box Culvert - furnish and install new 10'x6', inside dimension, reinforced concrete box culvert by open cut, including all labor, equipment, materials, excavation, removing existing storm sewers, manholes and inlets, and water/sanitary sewer utilities, backfill, temporary surface restoration to provide local access, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
13.	15,700	LF	10x10 Box Culvert - furnish and install new 10'x10', inside dimension, reinforced concrete box culvert by open cut, including all labor, equipment, materials, excavation, removing existing storm sewers, manholes and inlets, and water/sanitary sewer utilities, backfill, temporary surface restoration to provide local access, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
14.	200	LF	E-80 10x10 Box Culvert - furnish and install new 10'x10', inside dimension, Cooper E-80 Railroad Load reinforced concrete box culvert by jacking and boring under Port of Beaumont railroad tracks, including all connections to proposed storm sewer, bond breaker plate, joint restraints, labor, equipment, materials, excavation, backfill, and disposal of excess material, all in accordance with plans and specifications; and, compliance with ALL requirements of the Port of Beaumont, for	\$	\$
15.	4	EA	10x10 to 9x10 Box Culvert Transition - furnish and install new 10'x10' to 9'x10', inside dimensions, reinforced concrete box culvert transition by open cut, including all labor, equipment, materials, excavation, backfill, temporary surface restoration to provide local access, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
16.	516	LF	E-80 9x10 Box Culvert - furnish and install new 9'x10', inside dimension, Cooper E-80 Railroad Load reinforced concrete box culvert by jacking and boring under TxDOT and CPKC right-of-way, including all connections to proposed storm sewer, bond breaker plate, joint restraints, labor, equipment, materials, excavation, backfill, and disposal of excess material, all in accordance with plans and specifications; and, compliance with ALL terms and requirements of the TxDOT permit and CPKC permit, for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
17.	1	LS	CPKC Monitoring Plan provided by Tolunay-Wong Engineers – TWE shall provide a Settlement Monitoring Plan meeting the minimum requirements in the CPKC Rail Protocol Appendix B – “Track Movement Guidelines for Trenchless Pipe Installation” including subsurface monitoring points as required by CPKC; and, hold the required pre-construction meeting and provide daily inspection & reporting during construction per CPKC requirements.	\$ 100,000.00	\$ 100,000.00
18.	1	EA	2.5'x2.5' Surface Inlet - furnish and install concrete surface inlet with 2.5'x2.5' flat grate, and appurtenances, to include all labor, materials, and equipment, including all connections to existing and proposed storm sewer, excavation, embedment, backfill, heavy duty cast iron grate, and surface restoration, complete in place, all in accordance with plans and specifications for	\$	\$
19.	9	EA	4'x4' Surface Inlet - furnish and install concrete surface inlet with 4'x4' flat grate, and appurtenances, to include all labor, materials, and equipment, including all connections to existing and proposed storm sewer, excavation, embedment, backfill, heavy duty cast iron grate, and surface restoration, complete in place, all in accordance with plans and specifications for	\$	\$
20.	38	EA	Standard Back of Curb Catch Basin - construct reinforced concrete catch basin and appurtenances, including all labor, materials, and equipment, excavation, backfill, cast iron ring & cover, connections to existing and proposed storm sewer, and surface restoration, complete in place, all in accordance with plans and specifications for	\$	\$
21.	17	EA	Standard Back of Curb Catch Basin with 5' Extension - construct reinforced concrete catch basin and appurtenances, including all labor, materials, and equipment, excavation, backfill, cast iron ring & cover, connections to existing and proposed storm sewer, and surface restoration, complete in place, all in accordance with plans and specifications for	\$	\$
22.	13	EA	Non-Standard Catch Basin under Pavement - construct reinforced concrete catch basin and appurtenances, including all labor, materials, and equipment, excavation, backfill, cast iron ring & cover, connections to existing and proposed storm sewer, and surface restoration, complete in place, all in accordance with plans and specifications for	\$	\$
23.	2	EA	Non-Standard Catch Basin under Pavement with 5' Extension - construct reinforced concrete catch basin and appurtenances, including all labor, materials, and equipment, excavation, backfill, cast iron ring & cover, connections to existing and proposed storm sewer, and surface restoration, complete in place, all in accordance with plans and specifications for	\$	\$
24.	46	EA	Type B Manhole (4' Diameter) under Concrete Pavement - furnish and install precast manhole under concrete pavement, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
25.	1	EA	Type B Manhole (6' Diameter) under Concrete Pavement - furnish and install precast manhole under concrete pavement, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
26.	1	EA	Type B Manhole (4' Diameter) under Asphalt Pavement or Natural Ground - furnish and install precast manhole under asphalt pavement or natural ground, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
27.	5	EA	Type C Manhole (4' Diameter) under Asphalt Pavement or Natural Ground - furnish and install precast manhole under asphalt pavement or natural ground, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
28.	3	EA	Type D Manhole (4' Diameter) under Concrete Pavement - furnish and install precast manhole under concrete pavement, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
29.	1	LS	Outfall (Sta 86+05 to Sta 86+80) - furnish all labor, materials, and equipment to construct outfall structure, including sheet pile coffer dam, 14" sq. concrete piles, reinforced concrete slab, headwall, and wingwalls, connections to proposed 10x10 box culverts, complete in place, all in accordance with plans and specifications for	\$	\$
30.	1	LS	Junction Box #1 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
31.	1	LS	Junction Box #2 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewers, excavation, backfill, 4' diameter riser with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
32.	1	LS	Junction Box #3 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
33.	1	LS	Junction Box #4 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewers, excavation, backfill, 4' diameter riser with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
Segment 1 Potable Water Improvements					
34.	1	LS	Potable Water Service Control Plan - prepare and furnish the contractor's plan for maintaining potable water service to existing water meters during construction, including implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
35.	1	LS	Potable Water Service Control Measures - furnish, install and maintain potable water service measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
36.	373	LF	2" Schedule 40 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new Schedule 40 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
37.	10	LF	4" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
38.	434	LF	6" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
39.	50	LF	8" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
40.	121	EA	12" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
41.	90	EA	20" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
42.	1,023	LF	6" C-900 Class 150 PVC Waterline parallel to Box Culvert in separate trench - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings (including bends required on offsets and grade adjustments), testing, disinfection, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
43.	889	LF	8" C-900 Class 150 PVC Waterline parallel to Box Culvert in separate trench - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings (including bends required on offsets and grade adjustments), testing, disinfection, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
44.	16	EA	2" Gate Valve - furnish and install 2" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
45.	1	EA	4" Gate Valve - furnish and install 4" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
46.	17	EA	6" Gate Valve - furnish and install 6" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
47.	8	EA	8" Gate Valve - furnish and install 8" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
48.	6	EA	12" Gate Valve - furnish and install 12" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
49.	4	EA	20" Gate Valve - furnish and install 20" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
50.	14	EA	Water Service (near side) - furnish and install new water service (near side) and appurtenances, including all labor, materials, and equipment to replace existing service connections onto relocated water lines, complete in place, including excavation, backfill, connections, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
51.	18	EA	Water Service (far side) - furnish and install new water service (far side) and appurtenances, including all labor, materials, and equipment to replace existing service connections onto relocated water lines, complete in place, including excavation, backfill, connections, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
52.	36	LF	12"x1/4" Steel Casing - furnish and install 12" steel casing on proposed water line, complete in place, including all labor, equipment and materials, including excavation, backfill, casing spacers, end seals, and shoring, all in accordance with the plans and specifications for	\$	\$
53.	1	LS	Temporary 2" Water Line - furnish all labor, materials and equipment to install a temporary 2" Schedule 40 PVC waterline along the south side of Blanchette Street including 2" tap and valve on existing 6" water line, including piping, fittings, testing, disinfection, 4 temporary service lines, connection to existing water meters, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
Segment 1 Sanitary Sewer Improvements					
54.	1	LS	Sanitary Sewer Flow Control Plan - prepare and furnish the contractor's plan for maintaining sanitary sewer service to existing services during construction, including implementation of plan and breakdown of plan, all in strict accordance with plans and specifications for	\$	\$
55.	1	LS	Sanitary Sewer Flow Control Measures - furnish, install and maintain sanitary sewer service measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
56.	28	LF	4" Sanitary Sewer - furnish all labor, materials and equipment to install new 4" SDR-26 PVC sanitary sewer, complete in place, all depths, including excavation, backfill, connection to existing sanitary sewer line, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
57.	364	LF	6" Sanitary Sewer Crossing Box Culvert - furnish all labor, materials and equipment to install new 6" SDR-26 PVC sanitary sewer across the proposed box culverts, complete in place, all depths, including removal of existing sanitary sewer, excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
58.	146	LF	8" Sanitary Sewer Crossing Box Culvert - furnish all labor, materials and equipment to install new 8" SDR-26 PVC sanitary sewer across the proposed box culverts, complete in place, all depths, including removal of existing sanitary sewer, excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
59.	93	LF	12" Sanitary Sewer Crossing Box Culvert - furnish all labor, materials and equipment to install new 12" SDR-26 PVC sanitary sewer across the proposed box culverts, complete in place, all depths, including removal of existing sanitary sewer, excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
60.	1,018	LF	6" Sanitary Sewer Parallel to Box Culvert - furnish all labor, materials and equipment to install new 6" SDR-26 PVC sanitary sewer, complete in place, all depths, including excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
61.	384	LF	8" Sanitary Sewer Parallel to Box Culvert - furnish all labor, materials and equipment to install new 8" SDR-26 PVC sanitary sewer, complete in place, all depths, including excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
62.	26	LF	12" Steel Casing through Box Culvert - furnish and install 12"x1/4" steel casing through proposed box culvert, complete in place, including all labor, equipment and materials, penetration into box culvert, excavation, backfill, casing spacers, end seals, all in accordance with the plans and specifications for	\$	\$
63.	52	LF	15" Steel Casing through Box Culvert - furnish and install 15"x1/4" steel casing through proposed box culvert, complete in place, including all labor, equipment and materials, penetration into box culvert, excavation, backfill, casing spacers, end seals, all in accordance with the plans and specifications for	\$	\$
64.	2	EA	Sanitary Sewer Service (near side) - furnish and install new sanitary sewer service (near side) and appurtenances, including all labor, materials, and equipment to replace existing service connections onto relocated sanitary sewer lines, complete in place, including excavation, backfill, connections, piping, fittings, testing, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
65.	2	EA	Sanitary Sewer Service (far side) - furnish and install new sanitary sewer service (far side) and appurtenances, including all labor, materials, and equipment to replace existing service connections onto relocated sanitary sewer lines, complete in place, including excavation, backfill, connections, piping, fittings, testing, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
66.	20	EA	Type A Manhole (4' Diameter) under Natural Ground - furnish and install fiberglass manhole under natural ground, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, rainstopper insert, water-tight connections to existing and proposed sanitary sewer lines, testing, and surface restoration including sodding, all in accordance with the plans and specifications for	\$	\$
67.	12	EA	Type A Manhole (4' Diameter) under Concrete Pavement - furnish and install fiberglass manhole under concrete pavement, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, rainstopper insert, water-tight connections to existing and proposed sanitary sewer lines, and testing, all in accordance with the plans and specifications for	\$	\$
Segment 1 Paving Improvements					
68.	32,971	SY	Removing Existing Pavement - furnish all labor and equipment to remove existing concrete and/or asphalt pavement, including concrete curbs, and base material, and disposal of all material, all in accordance with plans and specifications for	\$	\$
69.	5,011	SY	10" Concrete Pavement - furnish all labor, materials, and equipment to construct 10" reinforced concrete pavement with 8" compacted limestone base, including all embankment, and standard concrete curb, all in accordance with plans and specifications for	\$	\$
70.	7,513	SY	7" Concrete Pavement - furnish all labor, materials, and equipment to construct 7" reinforced concrete pavement with 6" compacted limestone base, including all embankment, and standard concrete curb, all in accordance with plans and specifications for	\$	\$
71.	19,297	SY	6" Concrete Pavement - furnish all labor, materials, and equipment to construct 6" reinforced concrete pavement with 6" compacted limestone base, including all embankment, and standard concrete curb, all in accordance with plans and specifications for	\$	\$
72.	1,150	SY	3" HMAc Pavement - furnish all labor, materials, and equipment to construct 3" HMAc pavement, in two lifts, with 6" compacted limestone base, including all required embankment, all in accordance with plans and specifications for	\$	\$
73.	71	EA	Pedestrian Facilities Curb Ramps - furnish all labor, materials, and equipment to construct reinforced concrete curb ramps, all in accordance with plans and specifications for	\$	\$
74.	500	SY	4" Concrete Sidewalk - furnish all labor, materials, and equipment to construct 4" reinforced concrete sidewalks, all in accordance with plans and specifications for	\$	\$
75.	2,048	SY	4" Concrete Driveway - furnish all labor, materials, and equipment to construct 4" reinforced concrete driveways, all in accordance with plans and specifications for	\$	\$
76.	178	SY	2" HMAc Driveway - furnish all labor, materials, and equipment to construct 2" HMAc driveways, with 6" compacted limestone base, all in accordance with plans and specifications for	\$	\$
Segment 1 Miscellaneous Improvements					
77.	113,000	SY	Surface Restoration - furnish all labor, materials, and equipment to restore the existing surface outside of paved areas, including fine grading, sodding, and all other work required, complete in place, in accordance with the plans and specifications for	\$	\$
78.	8	EA	Shrub Removal - furnish all labor, materials, and equipment to remove existing shrub bushes within the street right-of-way, in accordance with plans and specifications for	\$	\$
79.	78	EA	Tree Removal - furnish all labor, materials, and equipment to remove existing trees within the street right-of-way, in accordance with plans and specifications for	\$	\$
ADDITIVE BID ITEMS: SEGMENT 2					
80.	1	LS	Additional Mobilization (Segment 2) - including payment bond, performance bond, and insurance, all in accordance with plans & specifications; NOT TO EXCEED 3% OF TOTAL SEGMENT 2 BID for	\$	\$
81.	1	LS	Traffic Control - furnish, install, and maintain all traffic control including all signage, devices, setup, flagging, labor and equipment, and coordinating with City of Beaumont, all in accordance with plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
82.	1	LS	Storm Water Pollution Prevention Plan (SWPPP) - prepare and furnish the contractor's SWPPP, including any necessary filing fees, filing required documentation, implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
83.	1	LS	Storm Water Pollution Prevention Measures - furnish, install, and maintain SWPPP measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
Segment 2 Drainage Improvements					
84.	1	LS	Storm Sewer Flow Control Plan - prepare and furnish the contractor's plan for maintaining storm sewer flow through existing drainage structures during construction, including implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
85.	1	LS	Storm Sewer Flow Control Measures - furnish, install, and maintain storm sewer flow measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
86.	645	LF	18" Storm Sewer - furnish and install new 18" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
87.	34	LF	24" Storm Sewer - furnish and install new 24" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
88.	38	LF	30" Storm Sewer - furnish and install new 30" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
89.	671	LF	12x6 Box Culvert - furnish and install new 12'x6', inside dimension, reinforced concrete box culvert by open cut, including all labor, equipment, materials, excavation, removing existing storm sewers, manholes and inlets, and water/sanitary sewer utilities, backfill, temporary surface restoration to provide local access, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
90.	2,949	LF	12x8 Box Culvert - furnish and install new 12'x8', inside dimension, reinforced concrete box culvert by open cut, including all labor, equipment, materials, excavation, removing existing storm sewers, manholes and inlets, and water/sanitary sewer utilities, backfill, temporary surface restoration to provide local access, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
91.	1,056	LF	12x10 Box Culvert - furnish and install new 12'x10', inside dimension, reinforced concrete box culvert by open cut, including all labor, equipment, materials, excavation, removing existing storm sewers, manholes and inlets, and water/sanitary sewer utilities, backfill, temporary surface restoration to provide local access, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
92.	311	LF	E-80 12x8 Box Culvert - furnish and install new 12'x8', inside dimension, Cooper E-80 Railroad Load reinforced concrete box culvert by jacking and boring under Union Pacific railroad right-of-way, including removing exist. waterline, all connections to proposed storm sewer, bond breaker plate, joint restraints, labor, equipment, materials, excavation, backfill, and disposal of excess material, all in accordance with plans and specifications; and, compliance with ALL terms and requirements of the Union Pacific permit, for	\$	\$
93.	1	EA	12x6 to 12x8 Box Culvert Transition - furnish and install new 12'x6' to 12'x8', inside dimensions, reinforced concrete box culvert transition by open cut, including all labor, equipment, materials, excavation, backfill, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
94.	2	EA	3'x3' Surface Inlet - furnish and install concrete surface inlet with 3'x3' flat grate, and appurtenances, to include all labor, materials, and equipment, including all connections to existing and proposed storm sewer, excavation, embedment, backfill, heavy duty cast iron grate, and surface restoration, complete in place, all in accordance with plans and specifications for	\$	\$
95.	2	EA	Standard Back of Curb Catch Basin - construct reinforced concrete catch basin and appurtenances, including all labor, materials, and equipment, excavation, backfill, cast iron ring & cover, connections to existing and proposed storm sewer, and surface restoration, complete in place, all in accordance with plans and specifications for	\$	\$
96.	1	EA	Type B Manhole (4' Diameter) under Concrete Pavement - furnish and install precast manhole under concrete pavement, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
97.	10	EA	Type B Manhole (4' Diameter) under Asphalt Pavement or Natural Ground - furnish and install precast manhole under asphalt pavement or natural ground, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
98.	2	EA	Type C Manhole (4' Diameter) under Asphalt Pavement or Natural Ground - furnish and install precast manhole under asphalt pavement or natural ground, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
99.	3	EA	Type D Manhole (5' Diameter) under Concrete Pavement - furnish and install precast manhole under concrete pavement, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
100.	1	LS	Junction Box #5 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
101.	1	LS	Junction Box #6 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
Segment 2 Potable Water Improvements					
102.	1	LS	Potable Water Service Control Plan - prepare and furnish the contractor's plan for maintaining potable water service to existing water meters during construction, including implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
103.	1	LS	Potable Water Service Control Measures - furnish, install and maintain potable water service measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
104.	104	LF	2" Schedule 40 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new Schedule 40 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
105.	277	LF	6" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
106.	99	LF	8" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
107.	43	EA	12" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
108.	45	EA	20" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
109.	1,575	LF	8" C-900 Class 150 PVC Waterline parallel to Box Culvert in separate trench - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings (including bends required on offsets and grade adjustments), testing, disinfection, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
110.	225	LF	8" C-900 Class 150 PVC Waterline crossing Union Pacific RR - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline by jacking and boring under Union Pacific railroad right-of-way, complete in place, including 12" x 1/4" steel casing, excavation, backfill, disposal of excess material, connection to proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with plans and specifications; and, compliance with ALL terms and requirements of the Union Pacific permit, for	\$	\$
111.	6	EA	2" Gate Valve - furnish and install 2" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
112.	15	EA	6" Gate Valve - furnish and install 6" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
113.	12	EA	8" Gate Valve - furnish and install 8" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
114.	2	EA	12" Gate Valve - furnish and install 12" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
115.	2	EA	20" Gate Valve - furnish and install 20" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
116.	15	EA	Water Service (near side) - furnish and install new water service (near side) and appurtenances, including all labor, materials, and equipment to replace existing service connections onto relocated water lines, complete in place, including excavation, backfill, connections, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
117.	15	EA	Water Service (far side) - furnish and install new water service (far side) and appurtenances, including all labor, materials, and equipment to replace existing service connections onto relocated water lines, complete in place, including excavation, backfill, connections, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with plans and specifications for	\$	\$
118.	54	LF	12"x1/4" Steel Casing - furnish and install 12" steel casing on proposed water line, complete in place, including all labor, equipment and materials, including excavation, backfill, casing spacers, end seals, and shoring, all in accordance with the plans and specifications for	\$	\$
119.	1	EA	Fire Hydrant - furnish all labor, materials and equipment to install new fire hydrant assemblies including excavation, backfill, connections to existing waterlines, valves, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
Segment 2 Sanitary Sewer Improvements					
120.	1	LS	Sanitary Sewer Flow Control Plan - prepare and furnish the contractor's plan for maintaining sanitary sewer service to existing services during construction, including implementation of plan and breakdown of plan, all in strict accordance with plans and specifications for	\$	\$
121.	1	LS	Sanitary Sewer Flow Control Measures - furnish, install and maintain sanitary sewer service measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
122.	316	LF	8" Sanitary Sewer Crossing Box Culvert - furnish all labor, materials and equipment to install new 8" SDR-26 PVC sanitary sewer across the proposed box culverts, complete in place, all depths, including removal of existing sanitary sewer, excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
123.	40	LF	12" Sanitary Sewer Crossing Box Culvert - furnish all labor, materials and equipment to install new 12" SDR-26 PVC sanitary sewer across the proposed box culverts, complete in place, all depths, including removal of existing sanitary sewer, excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
124.	15	LF	12" Steel Casing through Box Culvert - furnish and install 12"x1/4" steel casing through proposed box culvert, complete in place, including all labor, equipment and materials, penetration into box culvert, excavation, backfill, casing spacers, end seals, all in accordance with the plans and specifications for	\$	\$
125.	15	LF	15" Steel Casing through Box Culvert - furnish and install 15"x1/4" steel casing through proposed box culvert, complete in place, including all labor, equipment and materials, penetration into box culvert, excavation, backfill, casing spacers, end seals, all in accordance with the plans and specifications for	\$	\$
126.	10	EA	Type A Manhole (4' Diameter) under Natural Ground - furnish and install fiberglass manhole under natural ground, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, rainstopper insert, water-tight connections to existing and proposed sanitary sewer lines, testing, and surface restoration including sodding, all in accordance with the plans and specifications for	\$	\$
127.	2	EA	Type A Manhole (4' Diameter) under Pavement - furnish and install fiberglass manhole under concrete pavement, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, rainstopper insert, water-tight connections to existing and proposed sanitary sewer lines, and testing, all in accordance with the plans and specifications for	\$	\$
Segment 2 Paving Improvements					
128.	9,239	SY	Removing Existing Pavement - furnish all labor and equipment to remove existing concrete and/or asphalt pavement, including concrete curbs, and base material, and disposal of all material, all in accordance with plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
129.	1,054	SY	6" Concrete Pavement - furnish all labor, materials, and equipment to construct 6" reinforced concrete pavement with 6" compacted limestone base, including all embankment, and standard concrete curb, all in accordance with plans and specifications for	\$	\$
130.	8,185	SY	3" HMAC Pavement - furnish all labor, materials, and equipment to construct 3" HMAC pavement, in two lifts, with 6" compacted limestone base, including all required embankment, all in accordance with plans and specifications for	\$	\$
131.	3	EA	Pedestrian Facilities Curb Ramps - furnish all labor, materials, and equipment to construct reinforced concrete curb ramps, all in accordance with plans and specifications for	\$	\$
132.	6	SY	4" Concrete Sidewalk - furnish all labor, materials, and equipment to construct 4" reinforced concrete sidewalks, all in accordance with plans and specifications for	\$	\$
133.	415	SY	2" HMAC Driveway Transition - furnish all labor, materials, and equipment to construct 2" HMAC driveway transition, with 6" compacted limestone base, all in accordance with plans and specifications for	\$	\$
Segment 2 Miscellaneous Improvements					
134.	20,000	SY	Surface Restoration - furnish all labor, materials, and equipment to restore the existing surface outside of paved areas, including fine grading, sodding, and all other work required, complete in place, in accordance with the plans and specifications for	\$	\$
ADDITIVE BID ITEMS: SEGMENT 3					
135.	1	LS	Additional Mobilization (Segment 3) - including payment bond, performance bond, and insurance, all in accordance with plans & specifications; NOT TO EXCEED 3% OF TOTAL SEGMENT 3 BID for	\$	\$
136.	1	LS	Traffic Control - furnish, install, and maintain all traffic control including all signage, devices, setup, flagging, labor and equipment, and coordinating with City of Beaumont, all in accordance with plans and specifications for	\$	\$
137.	1	LS	Storm Water Pollution Prevention Plan (SWPPP) -prepare and furnish the contractor's SWPPP, including any necessary filing fees, filing required documentation, implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
138.	1	LS	Storm Water Pollution Prevention Measures , - furnish, install, and maintain SWPPP measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
Segment 3 Drainage Improvements					
139.	1	LS	Storm Sewer Flow Control Plan - prepare and furnish the contractor's plan for maintaining storm sewer flow through existing drainage structures during construction, including implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
140.	1	LS	Storm Sewer Flow Control Measures - furnish, install, and maintain storm sewer flow measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
141.	322	LF	48" Storm Sewer - furnish and install new 48" diameter storm sewer pipe, including all connections to existing and proposed storm sewer, labor, equipment, materials, excavation, backfill, surface restoration, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
142.	1,060	LF	8x6 Box Culvert - furnish and install new 8'x6', inside dimension, reinforced concrete box culvert by open cut, including all labor, equipment, materials, excavation, removing existing storm sewers, manholes and inlets, and water/sanitary sewer utilities, backfill, temporary surface restoration to provide local access, and disposal of excess material, all in accordance with plans and specifications for	\$	\$
143.	2	EA	Type B Manhole (4' Diameter) under Asphalt Pavement or Natural Ground - furnish and install precast manhole under asphalt pavement or natural ground, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, water-tight connections to existing and proposed storm sewer lines, all in strict accordance with the plans and specifications for	\$	\$
144.	1	LS	Junction Box #8 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
145.	1	LS	Junction Box #9 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
146.	1	LS	Junction Box #10 - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
147.	1	LS	Junction Box #11a - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
148.	1	LS	Junction Box #11b - Furnish all labor, materials, and equipment to construct a reinforced concrete junction box, including all connections to existing and proposed storm sewer, excavation, backfill, 4' diameter precast manhole with C.I. ring & cover, complete in place, all in accordance with plans and specifications for	\$	\$
Segment 3 Potable Water Improvements					
149.	1	LS	Potable Water Service Control Plan - prepare and furnish the contractor's plan for maintaining potable water service to existing water meters during construction, including implementation of plan and breakdown of plan, all in accordance with plans and specifications for	\$	\$
150.	1	LS	Potable Water Service Control Measures - furnish, install and maintain potable water service measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
151.	40	LF	2" Schedule 40 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new Schedule 40 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
152.	70	LF	6" C-900 Class 150 PVC Waterline crossing Box Culvert - furnish all labor, materials and equipment to install new C-900 Class 150 PVC waterline across the proposed box culverts, complete in place, all depths, including removal of existing waterline, excavation, backfill, connection to existing and proposed waterlines, piping, fittings, testing, disinfection, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
153.	2	EA	2" Gate Valve - furnish and install 2" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
154.	4	EA	6" Gate Valve - furnish and install 6" AWWA gate valve and appurtenances, including all labor, excavation, backfill, surface restoration, adjustable cast iron valve box & cover, concrete valve pad, and thrust blocking, complete in place and operable, in accordance with plans and specifications for	\$	\$
Segment 3 Sanitary Sewer Improvements					
155.	1	LS	Sanitary Sewer Flow Control Plan - prepare and furnish the contractor's plan for maintaining sanitary sewer service to existing services during construction, including implementation of plan and breakdown of plan, all in strict accordance with plans and specifications for	\$	\$
156.	1	LS	Sanitary Sewer Flow Control Measures - furnish, install and maintain sanitary sewer service measures, including all devices, materials, setup, labor and equipment, all in accordance with plans and specifications for	\$	\$
157.	101	LF	6" Sanitary Sewer Crossing Box Culvert - furnish all labor, materials and equipment to install new 6" SDR-26 PVC sanitary sewer across the proposed box culverts, complete in place, all depths, including removal of existing sanitary sewer, excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
158.	49	LF	8" Sanitary Sewer Crossing Box Culvert - furnish all labor, materials and equipment to install new 8" SDR-26 PVC sanitary sewer across the proposed box culverts, complete in place, all depths, including removal of existing sanitary sewer, excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
159.	40	LF	10" Sanitary Sewer Crossing Box Culvert - furnish all labor, materials and equipment to install new 10" SDR-26 PVC sanitary sewer across the proposed box culverts, complete in place, all depths, including removal of existing sanitary sewer, excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
160.	310	LF	6" Sanitary Sewer Parallel to Box Culvert - furnish all labor, materials and equipment to install new 6" SDR-26 PVC sanitary sewer, complete in place, all depths, including excavation, backfill, connection to existing and proposed sanitary sewers, piping, fittings, testing, and necessary appurtenances, all in accordance with the plans and specifications for	\$	\$
161.	32	LF	12" Steel Casing through Box Culvert - furnish and install 12"x1/4" steel casing through proposed box culvert, complete in place, including all labor, equipment and materials, penetration into box culvert, excavation, backfill, casing spacers, end seals, all in accordance with the plans and specifications for	\$	\$
162.	12	LF	15" Steel Casing through Box Culvert - furnish and install 15"x1/4" steel casing through proposed box culvert, complete in place, including all labor, equipment and materials, penetration into box culvert, excavation, backfill, casing spacers, end seals, all in accordance with the plans and specifications for	\$	\$

Item	Quantity	Unit	Description	Unit Price	Total Price
163.	4	EA	Type A Manhole (4' Diameter) under Natural Ground - furnish and install fiberglass manhole under natural ground, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, rainstopper insert, water-tight connections to existing and proposed sanitary sewer lines, testing, and surface restoration including sodding, all in accordance with the plans and specifications for	\$	\$
164.	2	EA	Type A Manhole (4' Diameter) under Pavement - furnish and install fiberglass manhole under concrete pavement, complete in place, including excavation, cement stabilized sand backfill, compaction, C.I. Ring and cover, rainstopper insert, water-tight connections to existing and proposed sanitary sewer lines, and testing, all in accordance with the plans and specifications for	\$	\$
Segment 3 Paving Improvements					
165.	3,881	SY	Removing Existing Pavement - furnish all labor and equipment to remove existing concrete and/or asphalt pavement, including concrete curbs, and base material, and disposal of all material, all in accordance with plans and specifications for	\$	\$
166.	818	SY	6" Concrete Pavement - furnish all labor, materials, and equipment to construct 6" reinforced concrete pavement with 6" compacted limestone base, including all embankment, and standard concrete curb, all in accordance with plans and specifications for	\$	\$
167.	3,063	SY	3" HMAC Pavement - furnish all labor, materials, and equipment to construct 3" HMAC pavement, in two lifts, with 6" compacted limestone base, including all required embankment, all in accordance with plans and specifications for	\$	\$
168.	144	SY	2" HMAC Driveway Transition - furnish all labor, materials, and equipment to construct 2" HMAC driveway transition, with 6" compacted limestone base, all in accordance with plans and specifications for	\$	\$
Segment 3 Miscellaneous Improvements					
169.	1,000	SY	Surface Restoration - furnish all labor, materials, and equipment to restore the existing surface outside of paved areas, including fine grading, sodding, and all other work required, complete in place, in accordance with the plans and specifications for	\$	\$

TOTAL BASE BID AMOUNT (Items 1 - 79)		\$
TOTAL ADDITIVE BID AMOUNT: SEGMENT 2 (Items 80 - 134)		\$
ADDITIONAL TIME TO COMPLETE SEGMENT 2 (CALENDAR DAYS)		Calendar Days
TOTAL ADDITIVE BID AMOUNT: SEGMENT 3 (Items 135- 169)		\$
ADDITIONAL TIME TO COMPLETE SEGMENT 3 (CALENDAR DAYS)		Calendar Days

7. TIME OF COMPLETION

- 7.1. Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Section 14 of the Conditions of the Contract, on or before the dates or within the number of calendar days indicated in the Agreement.
- 7.2. Bidder accepts the provisions of the Agreement as to liquidated damages.

V. ADDITIONAL REQUIRED FORMS AND INSURANCE

1. INSURANCE VERIFICATION

INSURANCE

SECTION A. Prior to the approval of this contract by The District, CONTRACTOR shall furnish a completed Insurance Certificate to the Purchasing office. The certificate shall be completed by an agent authorized to bind the named underwriter(s) to the coverages, limits (on a form approved and provided by the District), and termination provisions shown thereon, and shall furnish and contain all required information referenced or indicated thereon. The District SHALL HAVE NO DUTY TO PAY OR PERFORM UNDER THIS CONTRACT UNTIL SUCH CERTIFICATE IS RECEIVED BY THE JEFFERSON COUNTY DRAINAGE DISTRICT NO.6'S PURCHASING

DEPARTMENT, and no officer or employee of the District shall have authority to waive this requirement.

INSURANCE COVERAGE REQUIRED

SECTION B. The District reserves the right to review the insurance requirements of this section during the effective period of the contract and to adjust insurance coverages and their limits when deemed necessary and prudent by the District, based upon changes in statutory law, court decisions, or the claims history of the industry as well as the CONTRACTOR.

SECTION C. Subject to CONTRACTOR'S right to maintain reasonable deductibles in such amounts as are approved by THE DISTRICT, CONTRACTOR shall obtain and maintain in full force and effect for the duration of this contract, and any extension hereof, at CONTRACTOR'S sole expense, insurance coverage written by companies approved by the State of Texas and acceptable to THE DISTRICT, in the following type(s) and amount(s):

<u>Type of Coverage</u>	<u>Limits of Liability</u>	
1.1. Workers' Compensation	Statutory	
1.2. Employer's Liability	\$100,000	\$
1.3. Commercial General (public) Liability		
Bodily Injury (ea.oc.)	\$1,000,000	\$3,000,00
Property Damage (Incl. Contractual Coverage of the Contractor's under Section D hereof)	\$100,000 (ea. oc.)	\$300,000
1.4. Comprehensive Automobile Liability		
Bodily Injury	\$300,000 (ea. pers.)	\$1,000,00
Property Damage	\$300,000(ea. oc.)	

1.5. Commercial General Liability Insurance Policy:

The Contractor shall obtain at his expense an Owner's Protective Liability Insurance Policy naming the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 and its employees as insured with the following limits.

- a. Bodily Injury \$1,000,000 (ea. pers.) \$1,000,000 (ea. oc.)

1.6. Builder's Risk Insurance:

The Contractor shall obtain at his expense Builder's Risk Insurance against the perils of fire, lightning, windstorm, hurricane, hail, explosion, riot, civil commotion, smoke, aircraft, land vehicles, vandalism and malicious mischief in the amount of insurance equal at all times to the insurable value of materials delivered and labor performed. The policy issued in the name of the Contractor shall also name his Subcontractors and the District as additional insured, as their respective interests may appear. The policy shall have endorsements as follows:

"This insurance shall be specific as to coverage and not considered as contributing insurance with any permanent insurance maintained on the present premises. "All costs for the above specified insurance shall be borne by the Contractor. Insurance Requirement Affidavit shall be submitted with bid.

The Contractor shall require all subcontractors engaged to do work in connection with this contract to carry Public Liability and Property Damage Insurance in amounts not less than specified above.

ADDITIONAL POLICY ENDORSEMENTS

THE DISTRICT shall be entitled, upon request, and without expense, to receive copies of the policies and all endorsements thereto and may make any reasonable request for deletion, revision, or modification of particular policy terms, conditions, limitations, or exclusions (except where policy provisions are established by law or regulation binding upon either of the parties hereto or the underwriter of any of such policies). Upon such request by The DISTRICT, CONTRACTOR shall exercise reasonable efforts to accomplish such changes in policy coverages, and shall pay the cost thereof.

REQUIRED PROVISIONS

CONTRACTOR agrees with respect to the above required insurance, all insurance contracts and certificate(s) of insurance will contain and state, in writing, on the certificate or its attachment, the following required provisions.

- 1.7. Name, the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 and its officers, employees, and elected representatives as additional insured(s), (as the interest of each insured may appear) to all applicable coverage.
- 1.8. Provide for 30 days' notice to the DISTRICT for cancellation, non-renewal, or material change.
- 1.9. Provide for notice to the DISTRICT at the address shown below by registered mail.
- 1.10. CONTRACTOR agrees to waive subrogation against the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6, its officers, employees, and elected representatives for injuries, including death, property damage, or any other loss to the extent same may be covered by the proceeds of insurance.
- 1.11. Provide that all provisions of this agreement concerning liability, duty, and standard of care together shall be underwritten by contractual liability coverage sufficient to include such obligations within applicable policies.
- 1.12. For coverages that are only available with claims made policies, the required period of coverage will be determined by the following formula: Continuous coverage for the life of the contract, plus one year (to provide coverage for the warranty period) and an extended discovery period for a minimum of five (5) years which shall begin at the end of the warranty period.

NOTICES

CONTRACTOR shall notify the DISTRICT in the event of any change in coverage and shall give such notices not less than fifteen (15) days prior to the change, which notice must be accompanied by a replacement CERTIFICATE OF INSURANCE. All notices shall be given to the DISTRICT at the following address:

Administration Office

JEFFERSON COUNTY DRAINAGE DISTRICT NO.6

P.O. Box 3827

Beaumont, TX 77704-3827

SECTION D. INDEMNIFICATION. The CONTRACTOR agrees to indemnify and save harmless the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 from any and all claims, causes of action, and damages of every kind, for injury to or death of any person and damages to property arising out of the construction of said improvements or the operations embraced by this contract, and including acts or omissions of the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 in connection with said construction.

SECTION E. Approval, disapproval, or failure to act by the DISTRICT regarding any insurance supplied by CONTRACTOR shall not relieve CONTRACTOR of full responsibility or liability for damages and accidents as set forth in the contract documents. Neither shall the bankruptcy, insolvency, or denial of liability by the insurance company exonerate CONTRACTOR from liability.

2. WORKERS COMPENSATION INSURANCE

TEXAS WORKERS' COMPENSATION COMMISSION RULE 28, §110.110

As required by the Texas Workers' Compensation Rule 28, §110.110, the Contractor shall accept the following definitions and comply with the following provisions:

Workers' Compensation Insurance Coverage

2.1. Definitions:

- 2.1.1. Certificate of coverage ("certificate")-A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC- 83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.
- 2.1.2. Duration of the project-includes the time from the beginning of the work on the project until the Contractor's/person's work on the project has been completed and accepted by the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6.
- 2.1.3. Persons providing services on the project ("subcontractor" in §406.096) - includes all persons or entities performing all or part of the services the Contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the Contractor and regardless of whether that person has employees. This includes, without limitation, independent Contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

- 2.2. The Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the Contractor providing services on the project, for the duration of the project.
- 2.3. The Contractor must provide a certificate of coverage to the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 prior to being awarded the contract.
- 2.4. If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 showing that coverage has been extended.
- 2.5. The Contractor shall obtain from each person providing services on a project, and provide to the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6:

- 2.5.1. A certificate of coverage, prior to that person beginning work on the project, so the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 will have on file certificates of coverage showing coverage for all persons providing services on the project; and
- 2.5.2. No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
- 2.6. The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.
- 2.7. The Contractor shall notify the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 in writing by certified mail or personal delivery, within ten (10) days after the Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
- 2.8. The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- 2.9. The Contractor shall contractually require each person with whom it contracts to provide services on a project, to:
- 2.9.1. Provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;
- 2.9.2. Provide to the Contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.
- 2.9.3. Provide the Contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
- 2.9.4. Obtain from each other person with whom it contracts, and provide to the Contractor:
- 2.9.5. A certificate of coverage, prior to the other person beginning work on the project; and
- 2.9.6. A new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
- 2.10. Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter;
- 2.11. Notify the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
- 2.12. Contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.
- 2.13. By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 that all employees of the Contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the Contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

- 2.14. The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6.

As defined by the Texas Labor Code, Chapter 269, Section 406.096(e), building or construction is defined as:

- 2.14.1. Erecting or preparing to erect a structure, including a building, bridge, roadway, public utility facility, or related appurtenance;
- 2.14.2. Remodeling, extending, repairing, or demolishing a structure; or
- 2.14.3. Otherwise improving real property or an appurtenance to real property through similar activities.

The employment of a maintenance employee who is not engaging in building or construction as the employer's primary business does not constitute engaging in building or construction.

3. CERTIFICATE OF INSURANCE

This form is for informational purposes only and certifies that policies of insurance listed below have been issued to insured named below and are in force at this time. Notwithstanding any requirements, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, insurance afforded by policies described herein is subject to all terms, exclusions and conditions of such policies.

Prior to the beginning of work, the vendor shall obtain the minimum insurance and endorsements specified. Agents must complete the form providing all requested information and submit by fax, U.S. mail or e-mail as requested by the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 (the DISTRICT). The endorsements listed below are required as attachments to this certificate; copies of the endorsements are also acceptable. PLEASE ATTACH ALL ENDORSEMENTS TO THIS FORM AND INCLUDE THE MATCHING POLICY NUMBER ON THE ENDORSEMENT. Only JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 certificates of insurance are acceptable; commercial carriers' certificates are not.

This certificate shall be completed by a licensed insurance agent:

Name and Address of Agency:

JEFFERSON COUNTY DRAINAGE DISTRICT NO.6

Reference:

CORLEY DIVERSION PROJECT

Project

Location: _____

Phone: /

Name and Address of Insured:

Managing Dept.: _

Project Mgr.: _

Phone: /

Prime or Sub-Contractor?: _

Name of Prime Contractor, if different from Insured:

Insurers Affording Coverages:

Insurer A:

Insurer B:

Insurer C:

Insurer D:

INSR LTR	TYPE OF INSURANCE	POLICY NO.	POLICY EFF. DATE (MM/DD/YYYY)	POLICY EXP. DATE (MM/DD/YYYY)	LIMITS OF LIABILITY	
	Commercial General Liability Policy As defined in the Policy, does the Policy provide:				Each Occurrence	\$
					General Aggregate	\$
	☐ Yes ☐ No – Completed Operations/Products				Completed Operations/ Products Aggregate	\$
	☐ Yes ☐ No – Contractual Liability				Personal & Advertising Injury	\$
	☐ Yes ☐ No – Explosion				Deductible or Self Insured Retention	\$

CERTIFICATE OF INSURANCE Continued

INSR LTR	TYPE OF INSURANCE	POLICY NO.	POLICY EFF. DATE (MM/DD/YYYY)	POLICY EXP. DATE (MM/DD/YYYY)	LIMITS OF LIABILITY	
	☐ Yes ☐ No – Collapse					
	☐ Yes ☐ No – Underground					
	☐ Yes ☐ No – Contractors / Subcontractors Work					
	☐ Yes ☐ No – Aggregate Limits per Project Form CG 2503					
	☐ Yes ☐ No – Additional Insured Form – CG 2010					
	☐ Yes ☐ No – 30 Day Notice of Cancellation Form - CG 0205					
	☐ Yes ☐ No – Waiver of Subrogation Form - CG 2404					
	Pollution / Environmental Impairment Policy				Occurrence	\$
Aggregate					\$	
	Auto Liability Policy As defined in the Policy, does the Policy provide:				CSL	\$
Bodily Injury (Per Incident)					\$	
☐ Yes ☐ No – Any Auto					Bodily Injury (Per Person)	\$
☐ Yes ☐ No – All Owned Autos					Property Damage (Per Accident)	\$
☐ Yes ☐ No – Non-Owned Autos						
☐ Yes ☐ No – Hired Autos						
☐ Yes ☐ No – Waiver of Subrogation - CA0444						
☐ Yes ☐ No – 30 Day Notice of Cancellation - CA0244						
☐ Yes ☐ No – Additional Insured - CA2048						
☐ Yes ☐ No – MCS 90						
	Excess Liability ☐ Umbrella Form ☐ Excess Liability Follow Form				Occurrence	\$
Aggregate					\$	
	Workers Compensation & Employers Liability As defined in the Policy, does the Policy provide				☐ Statutory	
Each Accident					\$	
☐ Yes ☐ No – Waiver of Subrogation - WC420304					Disease - Policy Limit	\$
☐ Yes ☐ No – 30 Day Notice of Cancellation - WC420601					Disease - Each Employee	\$
	Is a Builders Risk or Installation Insurance Policy provided? ☐ Yes ☐ No					
☐ Yes ☐ No – Is THE DISTRICT shown as loss payee/mortgagee?						
	Professional Liability As defined in the Policy, does the Policy provide:				Each Claim	\$
☐ Yes ☐ No – 30 Day Notice of Cancellation Retroactive Date:					Deductible or SelfInsured Retention	\$

4. AGENT CERTIFICATION:

This is to certify to Jefferson County Drainage District No. 6 that the insurance policies above are in full force and effect.

Name of Insurance Company:	Name of Authorized Agent:
Company Address:	Agent's Address:
City: State: Zip:	City: State: Zip:
Authorized Agent's Phone Number (including Area Code):	Original signature of Authorized Agent: X
	Date:

CERTIFICATE HOLDER: DATE ISSUED: JEFFERSON COUNTY DRAINAGE DISTRICT NO.6

6550 Walden Road
Licensed Insurance Agent Printed Name:

AUTHORIZED REPRESENTATIVE SIGNATURE

VI. AGREEMENT AND BONDS

1. SAMPLE CONTRACT

THIS AGREEMENT made this _____ day of _____ in the year 2026, by and between **JEFFERSON COUNTY DRAINAGE DISTRICT NO.6**, a special district of the State of Texas, hereinafter designated as the District, and _____ hereinafter designated as the Contractor.

WITNESSETH, THAT the District and the Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. THE WORK

The Contractor shall furnish All Supervision, Technical Personnel, Labor, Materials. Machinery. Tools. Equipment and Services, including Utility and Transportation Services, and perform and complete all work required for construction of the Corley Diversion- Community Development Block Grant- Mitigation (CDBG-MIT) Project -IFB 26-009/KJS.

The work is generally described as follows:

ARTICLE 2. TIME ALLOWED FOR WORK: COMMENCEMENT TO COMPLETION

The work to be performed under this Contract shall be commenced on the day specified by the District in the Notice to Proceed and the work shall be fully completed within **500** working days after the date of commencement of the work.

The District and the Contractor recognize that time is of the essence with this Agreement and that the District will suffer financial loss if the work is not completed within the time specified, plus any extensions thereof allowed in accordance with IFB 26-029/KJS. They also recognize the delays, expenses and difficulties involved in proving in a legal proceeding the actual loss suffered by the District if the work is not completed on time. Accordingly, instead of requiring any such proof, the District and the Contractor agree that as liquidated damages for delay (but not as a penalty) the Contractor shall pay the District the sum of \$3,072.00 for each calendar day that expires after the time specified herein, plus any authorized extensions.

ARTICLE 3. CONTRACT PRICE

The District shall pay the Contractor for the completion of the Work in accordance with the Contract Documents in current funds for the total quantities of work performed at the unit prices stipulated on the Bid Forms for the several respective items totaled to equal a Contract Price of \$ _____.

ARTICLE 4. THE CONTRACT DOCUMENTS

The Contract Documents consist of: (IFB 26-009/KJS), the Awarded Contractor's Full and Complete Response to IFB 26-009/KJS, all Addenda posted prior to bid opening, any Change Orders executed pursuant to the provisions of the Contract Documents during the construction phase, and any Amendments executed pursuant to the provisions of the Contract Documents -represents the entire and integrated Agreement between the District and the Awarded Contractor and supersedes all prior negotiation, representatives, or agreements, either oral or written. This Agreement may be amended only by written instrument signed by both the District and the Contractor.

The District and the Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect of all covenants, agreements, and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, Jefferson County Drainage District No. 6 has lawfully caused these presents to be executed by the hand of the Board President of said District, and the said CONTRACTOR acting by the hand _____ thereunto authorized signee title, does now sign, execute and deliver this document.

Executed, on this _____ day of _____, A.D. 2026.

CONTRACTOR

JEFFERSON COUNTY
DRAINAGE DISTRICT NO. 6

By: _____

By: _____

Joshua W. Allen, Sr.

Board President

Jefferson County Drainage District No. 6

2. Performance Bond

STATE OF TEXAS § COUNTY OF _

BOND NO. _

KNOW ALL BY THESE PRESENTS:

That _____ as Contractor, and

- _____ as Surety,

are held firmly bound unto the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6, Texas, hereinafter called the District, in the penal sum of _____ Dollars, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS said Contractor has been awarded and is about to enter into the Agreement with said District to perform the Work as specified or indicated in the Contract Documents entitled:

JEFFERSON COUNTY DRAINAGE DISTRICT NO.6

BID NO. IFB 26-009/KKJ-CORLEY DIVERSION PROJECT

NOW THEREFORE, if said Contractor shall perform all the requirements of said Contract Documents required to be performed on its part, at the times and in the manner specified herein, then this obligation shall be null and void, otherwise it shall remain in full force and effect. If said Contractor fails in any contract requirement, Surety will, upon demand of District, proceed to complete the Contractor's obligations, at Surety's expense.

PROVIDED, that any alterations in the Work to be done or the materials to be furnished, or changes in the time of completion, which may be made pursuant to the terms of said Contract Documents, shall not in any way release said Contractor or said Surety there under, nor shall any extensions of time granted under the provisions of said Contract Documents, release either said Contractor or said Surety, and notice of such alterations or extensions of the Agreement is hereby waived by said Surety.

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 Section to the same extent as if it were copied at length herein. SIGNED AND SEALED, this _____ day of _____, 20____.

(Contractor)

By:
(Signature)

Title:

Address: _

(SEAL)

(Surety)

By: _
(Signature)

Title: _

(SEAL)

3. PAYMENT BOND

STATE OF TEXAS § COUNTY OF _

BOND NO. _

KNOW ALL BY THESE PRESENTS:

That _____ as Contractor, and
_____ as Surety,
are held firmly bound unto JEFFERSON COUNTY DRAINAGE DISTRICT NO.6, Texas, hereinafter called District, in
the penal sum of _____ Dollars, for the payment of which sum well and truly to be made, we bind
ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Contractor has been awarded and is about to enter into the Agreement with the District to perform the Work
as specified or indicated in the Contract Documents entitled:

**JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 CORLEY DIVERSION PROJECT
BID NO. IFB 26-009/KKJ**

NOW THEREFORE, if said Contractor, or subcontractor, fails to pay for any materials, equipment, or other supplies, or
for rental of same, used in connection with the performance of the work contracted to be done, or for amounts due under
applicable State law for any work or labor thereon, said Surety will pay the same in an amount not exceeding the sum
specified above, and, in the event suit is brought upon this Bond, a reasonable attorney's fee to be fixed by the Court. This
Bond shall inure to the benefit of any and all persons, companies, or corporations entitled to file claims under applicable
State law.

PROVIDED, that any alterations in the work to be done or the materials to be furnished, or changes in the time of
completion, which may be made pursuant to the terms of said Contract Documents, shall not in any way release said
Contractor or said Surety there under, nor shall any extensions of time granted under the provisions of said Contract
Documents, release either said Contractor or said Surety, and notice of said alterations or extensions of the Agreement is
hereby waived by said Surety.

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 Section to
the same extent as if it were copied at length herein.

SIGNED AND SEALED, this _____ day of _____, 2026 .

(Contractor)

(Surety)

By:
(Signature)

By: _
(Signature)

Title:

Title: _

Address: _

(SEAL)

(SEAL)

Part II – Conditions of the Contract

I. GENERAL CONDITIONS FOR CONSTRUCTION

1. DEFINITIONS

Wherever used in these General Conditions or in other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

Addenda -Written or graphic instruments issued prior to the opening of Bids which make changes, additions, or deletions to the bid documents or the Contract Documents.

Agreement -The written agreement between the District and the Contractor covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof.

Beneficial Use or Occupancy -Placing all or any portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching completion of all of the Work.

Bid -The offer or proposal of the bidder submitted on the prescribed form setting forth the price or prices for the Work to be done.

Bonds -Bid, Performance, and Payment Bonds and other instruments which protect against loss due to inability or refusal of the Contractor to perform its Contract.

Change Order -A document recommended by the Engineer which is signed by the Contractor and the District and authorizes an addition to, deletion from, or revision of the work or quantities, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Completion - Completion of the Work shall be finalized by acceptance of the Work by the Governing Body of the District.

Contract Documents - This Agreement, including (IFB 26-009/KJS), the Awarded Contractor's Full and Complete Response to IFB 26-009/KJS, all Addenda posted prior to bid opening, any Change Orders executed pursuant to the provisions of the Contract Documents during the construction phase, and any Amendments executed pursuant to the provisions of the Contract Documents -represents the entire and integrated Agreement between the District and the Awarded Contractor and supersedes all prior negotiation, representatives, or agreements, either oral or written. This Agreement may be amended only by written instrument signed by both the District and the Contractor.

Contract Price -The total monies payable by the District to the Contractor for work performed under the terms and conditions of the Contract Documents.

Contract Time – The number of working days as stated in the Contract Documents for the completion of the Work.

Contractor -The person, firm, or corporation with whom the District has executed the Agreement.

Day -A calendar day of 24 hours, measured from midnight to the next midnight.

Defective Work -Work that is unsatisfactory, faulty, or deficient, or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or work that has been damaged prior to the Engineer's recommendation of final payment.

Drawings -The drawings, plans, maps, profiles, diagrams, and other graphic representations which show the character, location, nature, extent, and scope of the Work to be performed.

Effective Date of the Agreement -The date indicated in the Agreement on which it was executed, but if no such date is indicated it shall mean the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

Engineer – Engineer in charge, serving the District engineering services, his successor, or any other person or persons, employed by the District for the purpose of directing or having in charge the work embraced in this Contract.

Field Order -A written order issued by the Engineer which in the opinion of the Engineer does not involve a change in the Contract Price or the Contract Time.

General Requirements -Sections of Division 1 of the Technical Specifications.

Laws and Regulations; Laws or Regulations -Laws, rules, regulations, ordinances, codes, and/or orders promulgated by a lawfully constituted body authorized to issue such Laws and Regulations.

Notice of Award - The written notice by the District to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions enumerated therein, within the time specified, the District will enter into an Agreement.

Notice of Completion -The written notice by the District to the Contractor stating that the Work has been accepted by the Governing Body of the District.

Notice to Proceed-A written notice issued by the District to the Contractor authorizing the Contractor to proceed with the Work and establishing the date of commencement of the Contract Time.

District -A public body or authority, corporation, association, firm, or person with whom the Contractor has entered into the Agreement and for whom the work will be performed.

Partial Utilization -Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion of the Work.

Progress Payment Schedule - A schedule prepared each month by the Engineer based on measured quantities of Work completed. Monthly progress payments will be governed by the progress payment schedule.

Project -The construction of which the Work to be provided under the Contract Documents, may be the whole, or a part thereof, as indicated elsewhere in the Contract Documents.

Project Area -The area within the specified Contract limits of the improvements contemplated to be constructed in whole or in under this contract.

Responsive, Responsible Bid/Bidder - A responsive bid is one in which all of the requirements of the invitation to bid are fulfilled without exception or deviation. A Responsible Bidder is one submitting a responsive bid and who can demonstrate by financial statement, resumes of management personnel and equipment lists, it's fiscal, physical and managerial competence to complete projects of like complexity and scope of the Work as described and offered herein by these Contract Documents.

Shop Drawings - All drawings, diagrams, illustrations, schedules, and other data which are specifically prepared by or for the Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams, and other information prepared by a supplier or manufacturer and submitted by the Contractor to illustrate material or equipment for some portion of the Work.

Specifications -Those portions of the Contract Documents consisting of the General Requirements and the written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the work and certain administrative details applicable thereto.

Sub-contractor -An individual, firm, or corporation having a direct contract with the Contractor or with any other Sub- contractor for the performance of a part of the Work at the site.

Substantial Completion -Refers to the Work (or a specified part thereof) that has progressed to the point where, in the opinion of the Engineer, as evidenced by the Notice of Substantial Completion/Notice of Completion as applicable, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if there is no such Notice issued, when final payment is due in accordance with the provisions of the Contract Documents, and where the Engineer can recommend that the Work be accepted by the District. The terms "Substantial

Completion" and "substantially complete" and "substantially completed" as applied to any Work shall mean Substantial Performance of the Contract, hereunder.

Supplementary General Conditions -The part of the Contract Documents which makes additions, deletions, or revisions to these General Conditions.

Supplier -A manufacturer, fabricator, distributor, or vendor.

Technical Specifications -The Specifications as defined herein.

Underground Facilities -All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, water, sewage and drainage removal, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic or other control systems.

Unit Price Work -Work to be paid for on the basis of unit prices.

Work -The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. The Work is the result of performing services, furnishing labor, and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

2. PRELIMINARY MATTERS

2.1. Delivery of Bonds:

When the Contractor delivers the executed Agreements to the District, the Contractor shall also deliver to the District such bonds as the Contractor may be required to furnish in accordance with the Contract Documents.

2.2. Copies of Documents:

The District shall furnish to the Contractor two (2) copies (unless otherwise specified in the Supplemental Conditions) of the executed Contract Documents are reasonably necessary for the execution of the work. Additional copies will be furnished, upon request, at the cost of reproduction.

2.3. Commencement of Contract Time; Notice to Proceed:

The Contract Time will commence on the day indicated in the Notice to Proceed.

2.4. Starting the Project:

The Contractor shall start to perform the work on or after the date when the Contract Time commences but in no event shall any work be done at the site prior to the date on which the Contract Time commences.

2.5. Before Starting Construction:

- 2.5.1. The Contractor shall be responsible for all work executed under the Contract. Contractor shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.
- 2.5.2. The Contractor shall submit to the Engineer for review those documents called for under Section entitled "Contractor Submittals" in the General Requirements.
- 2.5.3. When the Contractor delivers its executed Agreement to the District, the Contractor shall also deliver certificates (and other evidence of insurance requested by the District) which the Contractor is required to purchase and maintain in accordance with the requirements of the Contract Documents.

2.6. Preconstruction Conference:

A preconstruction conference attended by the Contractor, the Engineer, and others as appropriate will be held to discuss the Work in accordance with the applicable procedures specified in the General Requirements. Finalizing Schedules:

At least seven (7) working days before preparation of the first Progress Payment Schedule, a conference will be held and attended by the Contractor, the Engineer, and others as appropriate to finalize the schedule(s) submitted in accordance with the General Requirements.

3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 Contract Documents:

3.1.1. The Contract Documents comprise the entire agreement between the District and the Contractor concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The contract Documents will be construed in accordance with the law of the place of the Project.

3.1.2. It is the intent of the Contract Documents to describe the Work, functionally complete, to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials, or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the District, the Contractor, or the Engineer or any of their consultants, agents, or employees from those set forth in the Contract Documents.

3.1.3. If, during the performance of the Work, the Contractor finds a conflict, error, or discrepancy in the Contract Documents, the Contractor shall so report to the Engineer in writing at once and, before proceeding with the Work affected thereby, shall obtain a written interpretation, clarification, or correction from the Engineer; however, the Contractor shall not be liable to the District or the Engineer for failure to report any conflict, error or discrepancy in the Contract Documents unless the Contractor had actual knowledge thereof or should reasonably have known thereof.

3.1.4. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof as follows;

- A Change Order, or

3.2. Amending and Supplementing Contract Documents:

The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by Change Order, pursuant to Section 10.

3.3. Reuse of Documents:

Neither the Contractor, nor any Subcontractor or Supplier, nor any other person or organization performing or furnishing any of the Work under a direct or indirect contract with the District shall have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of the Engineer; and they shall not reuse any of them on extensions of the Project or any other project without written consent of the District and the Engineer and specific written verification or adaptation by the Engineer.

4. AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.1. Availability of Lands:

The District shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the Contractor. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the District, unless otherwise provided in the Contract

Documents. Nothing contained in the Contract Documents shall be interpreted as giving the Contractor exclusive occupancy of the lands or rights-of-way provided. The Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment; provided, that the Contractor shall not enter upon nor use any property not under the control of the District until a written temporary construction easement agreement has been executed by the Contractor and the property owner, and a copy of said easement agreement furnished to the Engineer prior to said use; and, neither the District nor the Engineer shall be liable for any claims or damages resulting from Contractor's unauthorized trespass or use of any such properties.

4.2. Physical Conditions:

- 4.2.1. Explorations and Reports: Reference is made to the Section entitled "Physical Conditions" of the Supplementary General Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by the Engineer in the preparation of the Contract Documents. The Contractor may rely upon the accuracy of the factual data contained in such reports, however, the interpretation of such factual data, including any interpolation or extrapolation thereof, together with nonfactual data, interpretations, and opinions contained in such reports or the completeness thereof is the responsibility of the contractor.
- 4.2.2. Existing structures: Reference is made to the Section entitled "Physical Conditions" of the Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Section 4.4, herein) which are at or contiguous to the site that has been utilized by the Engineer in the preparation of the Contract Documents. The Contractor may rely upon the accuracy of the factual data contained in such drawings; however, the interpretation of such factual data, including any interpolation or extrapolation thereof, together with nonfactual data, interpretations, and opinions contained in such drawings or the completeness thereof is the responsibility of the Contractor.

4.3. Differing Site Conditions:

- 4.3.1. The Contractor shall notify the Engineer in writing of the following unforeseen conditions, hereinafter called differing site conditions, promptly upon their discovery (but in no event later than 14 working days) and before they are disturbed:
- Subsurface or latent physical conditions at the site of the Work differing materially from those indicated, described, or delineated in the Contract Documents including those reports and documents discussed in Section 4.2; and
 - Unknown physical conditions at the site of the Work of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents including those reports and documents discussed in Section 4.2.
- 4.3.2. The Engineer will review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise the District in writing of the Engineer's findings and conclusions.
- 4.3.3. If the District concludes that because of newly discovered conditions a change in the Contract Documents is required, a Change Order will be issued as provided in Section 10, of the General Conditions, to reflect and document the consequences of the difference.
- 4.3.4. In each such case, an increase or decrease in the Contract Price or an extension or reduction of the contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such difference. If the District and the Contractor are unable to agree as to the amount or length thereof, a claim may be made therefore as provided in Sections 11 and 12 of the General Conditions.
- 4.3.5. The Contractor's failure to give notice of differing site conditions within fourteen (14) working days of discovery or before they are disturbed shall constitute a waiver of all claims in connection therewith, whether direct, consequential, or inconsequential in nature.

- 4.3.6. Nothing herein shall be deemed to require the District to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the site of the construction project can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the construction.

4.4. Physical Conditions - Underground Utilities:

- 4.4.1. Shown or Indicated: The information shown or indicated in the Contract Documents with respect to existing, underground utilities at or contiguous to the site is based on information and data furnished to the District or the Engineer by the owners of such underground utilities or by others. Unless it is expressly provided in the Supplementary General Conditions and/or the section entitled "Protection and Restoration of Existing Facilities" of the General Requirements, the District and the Engineer shall not be responsible for the accuracy or completeness of any such information or data, and the Contractor shall have full responsibility for reviewing and checking all such information and data, for locating all underground utilities shown or indicated in the Contract Documents, for coordination of the work with the owners of such underground utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the work, the cost of which will be considered as having been included in the Contract Price.
- 4.4.2. Not Shown or Indicated: If an underground utility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which the Contractor could not reasonably have been expected to be aware of, the Contractor shall identify the owner of such underground utility and give written notice thereof to that owner and shall notify the Engineer in accordance with the requirements of the Supplementary General Conditions and section entitled "Protection and Restoration of Existing Facilities" of the General Requirements.

4.5. Reference Points:

- 4.5.1. The Engineer will provide one bench mark, near or on the site of the work, and will provide 2 points near or on the site to establish a base line for use by the Contractor for alignment control. Unless otherwise specified in the General Requirements, the Contractor shall furnish all other lines, grades, and bench marks required for proper execution of the work.
- 4.5.2. The Contractor shall be responsible for laying out the work (unless otherwise specified in the General Requirements) and shall preserve all bench marks, stakes, and other survey marks, and in case of their removal or destruction by its own employees or by its subcontractor's employees, the Contractor shall be responsible for the accurate replacement of such reference points by professionally qualified personnel at no additional cost to the District.

5. BONDS AND INSURANCE

5.1. Performance and other bonds:

- 5.1.1. Upon receiving a Notice of Award, the Contractor shall furnish Performance and Payment Bonds, each in the amount set forth in the Supplementary General Conditions as security for the faithful performance and payment of all the Contractor's obligations under the Contract Documents. The Performance Bond shall remain in effect at least until one year after the date of Notice of Substantial Completion/Notice of Completion as applicable, except as otherwise provided by Law or Regulation or by the Contract Documents; provided, that after the date of Notice of Substantial Completion/Notice of Completion, as applicable, the amount of said Performance Bond may be reduced to the amount set forth in the Supplementary General Conditions. The premiums upon all such bonds shall be paid by the Contractor. The Contractor shall promptly furnish such additional security as may be required by the District from time to time to protect its interest and those of persons supplying labor or materials in the execution of the work identified in this Contract.
- 5.1.2. The District will approve any Surety company which, at the time of execution of this Contract is listed in the latest published U.S. Treasury Department list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies."
- 5.1.3. If the Surety on any Bond furnished by the Contractor is declared as bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the work is located, the

Contractor shall within seven (7) working days thereafter substitute another Bond and Surety, which must be acceptable to and approved by, the District.

5.2. Insurance:

5.2.1. The Contractor shall purchase and maintain the insurance required under this Section. Such insurance shall include the specific coverages set forth herein and shall be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever is greater. All insurance shall be maintained continuously during the life of the Agreement up to the date of Notice of Substantial Completion/Notice of Completion, as applicable, pursuant to acceptance of the Work by the District. The Contractor's liabilities under this Agreement shall not be deemed limited in any way to the insurance coverage required.

5.2.2. The Contractor shall furnish the District with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least thirty (30) working days prior written notice has been given to the District by Certified Mail. All such insurance shall remain in effect until the date of Substantial Completion and at all times thereafter when the Contractor may be correcting, removing, or replacing defective work in accordance with Section 13.6, herein. In addition, the Insurance required herein (except for Worker's Compensation and Employer's Liability) shall name the District, the Engineer, and their officers, agents, and employees as "additional insured's" under the policies.

- **Worker's Compensation Insurance Requirements:** This insurance shall protect the Contractor against all claims under applicable state Worker's Compensation laws. The Contractor shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a Worker's Compensation law. This policy shall include an "all states" endorsement. The Contractor shall require each subcontractor similarly to provide Worker's Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Worker's Compensation Insurance. In case any class of employees is not protected under the Worker's Compensation statute, the Contractor shall provide and shall cause each subcontractor to provide adequate employer's liability insurance for the protection of each of its employees if not otherwise protected. The Contractor shall provide the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 with the Certificate of Coverage as described in Attachment "A".
- **Comprehensive General Liability:** This insurance shall be written in comprehensive form and shall protect the Contractor against all claims arising from injuries to persons other than its employees or damage to the property of the District or others arising out of any act or omission of the Contractor or its agents, employees, or subcontractors. The policy shall also include protection against claims insured by usual personal injury liability coverage, a "protective liability" endorsement to insure the contractual liability assumed by the Contractor under the indemnification provisions of the General Conditions. To the extent that the Contractor's work, or work under its direction, may require blasting, explosive conditions, or underground operations, the comprehensive general liability coverage shall contain no exclusions relative to blasting, explosion, collapse of or damage to buildings, or damage to underground structures.
- **Comprehensive Automobile Liability:** This insurance shall be written in comprehensive form and shall protect the Contractor against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles. Said insurance shall cover the operation onsite or offsite of all motor vehicles licensed for highway use whether they are owned, non-owned, or hired.
- **Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance:** The Contractor shall either require each of its subcontractors to procure and to maintain Subcontractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and or insure the activities of its subcontractors in the Contractor's own policy in like amount.

- 5.2.3. Policy Requirements: The insurance provided by the Contractor hereunder shall be (1) with companies licensed to do business in the state where the Project is located, (2) with companies with a Best's Financial Rating of XI or better, and (3) with companies with a Best's General Policy Policyholders Rating of not less than B, except that in case of Worker's Compensation Insurance, participation in the State Fund, where applicable, is acceptable.
- 5.2.4. Insurance policies required hereunder to have the District and Engineer named as additional insured shall, (1) include a provision that the policies are primary and do not participate with, nor exceed any other valid and collectible insurance, (2) include a waiver of subrogation against the District, its agents and employees, and (3) for Builders All Risk Insurance, provide for deductible amounts not exceeding 5 percent of the insurable values of the Work of the Contractor for the perils of all risks of physical loss or damage, including but not limited to fire and wind and associated perils, vandalism and malicious mischief, earthquake, and flood. In the event of an insured loss or damage, the Contractor agrees to pay to the District upon demand an amount equal to the deductible amount.
- 5.2.5. District May Insure for Contractor: In case of the breach of any provision of this Section the District may, at the District's option, take out and maintain at the expense of the Contractor, such insurance in the name of the Contractor, or subcontractor, as the District may deem proper and may deduct the cost of taking out and maintaining such insurance from any sums which may be found or become due to the Contractor under this Contract.

6. THE CONTRACTOR'S RESPONSIBILITIES

6.1. Supervision and Superintendence:

- 6.1.1. The Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the contract Documents. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but the Contractor shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the contract documents. The Contractor shall be responsible to see that the finished work complies accurately with the Contract Documents.
- 6.1.2. The Contractor shall designate in writing and keep on the work at all times during its process a competent, resident, technically qualified, English speaking superintendent, acceptable to the District, who shall not be replaced without written notice to the District and the Engineer except under extraordinary circumstances. The superintendent shall be the contractor's representative at the site and shall have authority to act on behalf of the Contractor in all matters. All communications given to the superintendent shall be as binding as if given to the Contractor. The Contractor shall issue all its communication to the District through the Engineer.
- 6.1.3. The sole activity and responsibility of the Contractor's Supervisor or Superintendent shall be the full-time superintendence of the work. The Superintendent shall not engage in any activity which detracts in any way from his ability to devote his complete attention to superintendence of the work nor from the mobility required to personally oversee all physical areas of work activity within the project. The Superintendent shall be present at the site of the work at all times while work is in progress. Failure to observe these requirements shall be considered as suspension of the work by the Contractor until such time as such Supervisor or Superintendent is again present at the site and/or able to devote full attention to superintendence of the project.
- 6.1.4. Each Subcontractor shall, before starting construction, designate in writing one person who shall have authority to act on behalf of the Subcontractor and who shall be present at the work site at all times while the Subcontractor's work is in progress. Failure to observe this requirement shall be considered as suspension of the work by the Subcontractor until such time as the designated person is present at the site of the work.

6.2. Labor, Materials, and Equipment:

- 6.2.1. The Contractor shall provide competent, suitably qualified personnel to survey and lay out the

work and perform construction as required by the Contract Documents. The Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the contract Documents, all Work at the site shall be performed during regular working hours, and the Contractor will not permit overtime work or the performance of work on Saturday, Sunday, or any legal holiday without the District's written consent given after prior written notice and approval by the Engineer. If the Contractor performs any work after regular working hours, or on Saturday, Sunday, or any legal holiday, it shall pay the District any additional cost incurred by the District as a result of such work.

- 6.2.2. Except as otherwise provided in this Section, the Contractor shall receive no additional compensation for overtime work, i.e., work in excess of eight (8) hours in any one calendar day or forty (40) hours in any one (1) calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the Engineer in writing. Additional compensation will be paid to the Contractor for overtime work only in the event that it is ordered by the Engineer, and the Change Order specifically authorizes the use of overtime work and then only to such extent as overtime wages are regularly being paid by the Contractor for overtime work of a similar nature in the same locality.
- 6.2.3. All costs of inspection and testing performed during overtime work by the Contractor which is allowed solely for the convenience of the Contractor shall be borne by the Contractor. The District shall have the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due the Contractor.
- 6.2.4. Unless otherwise specified in the Contract Documents, the Contractor shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities, and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the work.
- 6.2.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by the Engineer, the Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to the District, nor any of the District's consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provisions of Sections 9.9c or 9.9d.

6.3. Adjusting Progress Schedule:

The Contractor shall submit any adjustments in the progress schedule to the Engineer for acceptance in accordance with the provisions for "Contractor Submittals" in the General Requirements.

6.4. Substitutes or "or-Equal" Items:

The contractor shall submit proposed substitutes or "or-equal" items in accordance with the provisions for "Contractor Submittals" in the General Requirements.

6.5. SIGNAGE REQUIREMENTS

- 6.5.1. For other construction projects funded under this Contract, Contractor shall place temporary signage erected in a prominent location at the construction project site or along a major thoroughfare within the locality.
- 6.5.2. All signage required under this section shall contain the following:

"This project is funded by the General Land Office of the State of Texas to provide for mitigation activities to reduce disaster risks in communities impacted by Hurricane Harvey. The funds have been allocated by the United States Department of Housing and Urban Development through the Community Development Block Grant- Mitigation Program."

6.6. Concerning Subcontractors, Suppliers, and Other:

- 6.6.1. The Contractor shall be fully responsible to the District and for the acts and omissions of its subcontractors and their employees to the same extent as the Contractor is responsible for the acts and omissions of its own employees. Nothing contained in this Section shall create any contractual relationship between the District or the Engineer and any subcontractor, nor shall it relieve the Contractor of any liability or obligation under the prime Contract.
- 6.6.2. The Specifications and identifications of any drawings shall not control the Contractor in dividing the work among subcontractors or suppliers or in delineating the work to be performed by any specific trade.
- 6.6.3. **CHILD SUPPORT OBLIGATION**-Contractor represents and warrants that it will include the following clause in the award and contract documents for every sub-award and subcontract and will require sub-awardees and subcontractors to certify accordingly: "Under Section 231.006 of the Texas Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate. A bid for a contract paid by state funds must include the name and social security number of the individual or sole proprietor and each partner, shareholder, or owner with an ownership interest of at least 25 percent of the business entity submitting the bid or application."

6.7. Permits, License Fees, and Royalties:

- 6.7.1. Unless otherwise provided in the Supplementary General Conditions, the Contractor shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including the furnishing of insurance and bonds if required by such agencies. The enforcement of such requirements under this Contract shall not be made the basis of claims for additional compensation. The District shall assist the Contractor, when necessary, in obtaining such permits and licenses. The Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement.
- The Contractor shall pay all charges of utility owners for connections to the work,
- 6.7.2. The Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the work or the incorporation in the work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. The Contractor shall indemnify and hold harmless the District from and against all claims, damages, losses, and expenses (including attorney's fees and court and arbitration costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product, or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

6.8. Laws and Regulations:

The Contractor shall observe and comply with all federal, state, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the Work, the materials used in the work, or the conduct of the workers or employees. If any discrepancy or inconsistency should be discovered in this Contract in relation to any such law, ordinance, code, order, or regulation, the Contractor shall report the same in writing to the Engineer. The Contractor shall indemnify, defend, and hold harmless the District, the Engineer, and their officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by Contractor or its employees or subcontractors. Any particular law or regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the Contractor to comply with all other provisions of federal, state, and local laws and regulations. Where an individual state act on occupational safety and health standards has been approved by federal authority, then the provisions of said state act shall control.

6.9. Taxes:

The Texas legislature in 1991 in its first special session passed 1 H.B. 11 which amended the Texas Limited Sales Excise and Use Tax Act which requires a Contractor who is engaged in a capital improvements project for a city to pay tax on tangible personal property purchased under the contract. According to an August 19, 1991 letter from the State Comptroller's Tax Administration Division, the use of "Separated Contracts" will allow for tax free purchases of tangible personal property for the project. Separated Contracts are those that separate services costs from materials costs. This procedure may not be used for materials which do not become part of a finished project. (Example: equipment rentals). This legislation is effective for all contracts and bids entered into after August 14, 1991.

6.10. Use of Premises:

The Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to (1) the Project site, (2) the land and areas identified in and permitted by the Contract Documents, and (3) the other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements. The Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against the District by any such owner or occupant because of the performance of the Work, the Contractor shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. The Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold the District harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of architects, engineers, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly, or consequently out of any action, legal, or equitable brought by any such other party against the District to the extent based on a claim arising out of the Contractor's performance of the Work.

6.11. Safety and Protection:

- 6.11.1. The CONTRACTOR shall be sole responsible for the safety of himself, his employees and other persons, as well as for the protection of the safety of the improvements being erected and the property of himself or any other person, as a result of his operations hereunder. Engineering construction drawings and specifications as well as any additional information concerning the work to be performed passing from or through the ENGINEER shall not be interpreted as requiring or allowing CONTRACTOR to deviate from the plans and specifications, the intent of such drawings, specifications and any other such instructions being to define with particularity the agreement of the parties as to the work the CONTRACTOR is to perform. CONTRACTOR shall be fully and completely liable, at his own expense, for design, construction, installation and use, or non-use, of all items and methods incident to performance of the contract, and for all loss, damage or injury incident thereto, either to person or property, including, without limitation, the adequacy of all temporary supports, shoring, bracing, scaffolding, machinery or equipment, safety precautions or devices and similar items or devices used by him during construction.
- 6.11.2. The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to the following:
 - All employees on the project and other persons and organizations who may be affected thereby;
 - All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
 - Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of construction.
- 6.11.3. The Contractor shall comply with all applicable Laws and Regulations (whether referred to herein or not) of any public body having jurisdiction for the safety of persons or property or to protect

them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and utilities when execution of the work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- 6.11.4. The Contractor shall designate a responsible representative at the site whose duty and responsibility shall be the prevention of accidents. This person shall be the Contractor's superintendent or project manager unless otherwise designated in writing by the Contractor to the District.

6.12. Shop Drawings and Samples:

- 6.12.1. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the Contractor shall submit to the Engineer for review all Shop Drawings in accordance with the accepted schedule of Shop Drawing submittals specified in the General Requirements.
- 6.12.2. The Contractor shall also submit to the Engineer for review all samples in accordance with the accepted schedule of sample submittals specified in the General Requirements.
- 6.12.3. Before submittal of each shop drawing or sample, the Contractor shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each shop drawing or sample with other shop drawings and samples and with the requirements of the Work and the Contract Documents.
- 6.12.4. The Engineer's review and approval of shop drawings or samples shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Documents unless the Contractor has in writing called the Engineer's attention to each such variation at the time of submission and the Engineer has given written approval of each such variation; nor will any approval by the Engineer relieve the Contractor from responsibility for errors or omissions in the shop drawings or from responsibility for having complied with the provisions of Section 6.11c.
- 6.12.5. Where a shop drawing or sample is required by the Specifications, any related Work performed prior to the Engineer's review and approval of the pertinent submission will be the sole expense and responsibility of the Contractor.

6.13. Continuing the Work:

The Contractor shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with the District. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the Contractor and the District may otherwise agree in writing.

6.14. Indemnification:

The contractor shall indemnify, defend and hold harmless the District, their agents, officers, and employees from and against all claims and liabilities arising under or by reason of the contract or any performance of the work. This indemnity expressly extends to claims alleging negligence by Jefferson County Drainage District No. 6, its agents, officers or employees arising from actions taken or occurrences under this contract. Such indemnification by the contractor shall include but not be limited to the following:

- 6.14.1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the Contractor, its employees, or its agents in the performance of the Work, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the Contractor or its agents;
- 6.14.2. Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree, whether by the Contractor or its agents;
- 6.14.3. Liability or claims arising directly or indirectly from the use or manufacture by the Contractor, its agents, or the District in the performance of this Contract of any copyrighted or un-copyrighted

composition, secret process, patented or unpatented invention, Section, or appliance, unless otherwise specifically stipulated in this Contract;

- 6.14.4. Liability or claims resulting directly or indirectly from the breach of any warranties, whether express or implied, made to the District or any other parties by the Contractor or its agents;
- 6.14.5. Liabilities or claims arising directly or indirectly from the willful misconduct of the Contractor, its employees, or its agents; and,
- 6.14.6. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the Contractor.
- 6.14.7. Liabilities or claims of whatever kind or character, arising out of or in connection with the performance by the Contractor of those services contemplated by this Agreement, based upon allegations of negligent acts of Contractor, its officers, agents, employees, and expressly including allegations of negligence, acts or omissions of the District, the Engineer, their consultants, agents, officers or employees, when such allegations of negligence to the District or Engineer arise from the actions and Work undertaken by Contractor hereunder.
- 6.14.8. The Contractor shall reimburse the District, and the Engineer for all costs and expenses, (including but not limited to fees and charges of architects, engineers, attorneys, and other professionals and court costs) incurred by the District, and the Engineer in enforcing the provisions of this Section.
- 6.14.9. The indemnification obligation under this Section shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any such subcontractor or other person or organization under the workers' compensation act, disability benefit acts, or other employee benefit acts.

6.15. Contractor's Daily Reports:

The Contractor shall complete a daily report indicating manpower, major equipment, subcontractors, etc., involved in the performance of the work. The daily report shall be completed on forms prepared by the Contractor and acceptable to the Engineer, and shall be submitted to the Engineer at the conclusion of each work day.

6.16. Assignment of Contract:

The Contractor shall not assign, sublet, sell, transfer, or otherwise dispose of the Contract or any portion thereof or its right, title, or interest therein, or obligations there-under, without written consent of the District, except as imposed by law. If the Contractor violates this provision, the Contract may be terminated at the option of the District. In such event, the District shall be relieved of all liability and obligations to the Contractor and to its assignee or transferee, growing out of such termination.

7. OTHER WORK

7.1. Related Work at Site:

- 7.1.1. The District may perform other work related to the Project at the site by the District's own forces, have other work performed by utility owners, or let other direct contracts therefore which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the Contractor prior to starting any such other work.
- 7.1.2. The Contractor shall afford each utility owner and other contractor who is a party to such a direct contract (or the District, if the District is performing the additional work with the District's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. The Contractor shall do all cutting, fitting, and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. The Contractor shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of the Engineer and the others whose work will be affected.

- 7.1.3. If any part of the Contractor's Work depends, for proper execution or results, upon the work of any such other contractor or utility owner (or the District), the Contractor shall inspect and promptly report to the Engineer in writing any delays, defects, or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. The Contractor's failure to so report will constitute an acceptance of the other work as fit and proper for integration with the Contractor's Work except for latent or non-apparent defects and deficiencies in the other work.

7.2. Coordination:

If the District contracts with others for the performance of other work on the project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary General Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided, in the Supplementary General Conditions. Unless otherwise provided in the Supplementary General Conditions, neither the District nor the Engineer shall have any authority or responsibility in respect of such coordination.

8. THE DISTRICT'S RESPONSIBILITIES

8.1. Communications:

The District shall issue all its communications to the Contractor through the Engineer.

8.2. Payments:

The District shall make payments to the Contractor as provided in Sections 14.5 and 14.8.

8.3. Lands, Easements, and Surveys:

The District's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Sections 4.1 and 4.5. The District shall identify and make available to the Contractor copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by the Engineer in preparing the Drawings and Specifications.

8.4. Change Orders:

The District shall execute Change Orders as indicated in Section 10.1d.

8.5. Inspections and Tests:

The District's responsibility in respect of certain inspections, tests, and approvals is set forth in Section 13.3b.

8.6. Suspension of the Work:

In connection with the District's right to stop work or suspend work, see Sections 13.4 and 15.1. Sections 15.2 and 15.3 deal with the District's right to terminate services of the Contractor under certain circumstances.

9. THE ENGINEER'S STATUS DURING CONSTRUCTION

9.1. District's Representative:

The Engineer will be the District's representative during the construction period. The duties and responsibilities and the limitations of authority of the Engineer as the District's representative during construction are set forth in the Contract Documents.

9.2. Visits to Site:

The Engineer will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the Contract Documents. Project Representation:

The District or the Engineer will furnish an inspector to assist the District and the Engineer in observing the performance of the work.

9.3. Clarifications and Interpretations:

The Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as may be determined to be necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

9.4. Authorized Variations In Work:

The Engineer may authorize minor variations in the work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on the District, and also on the Contractor who shall perform the work involved promptly. If the Contractor believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, the Contractor may make a claim therefore as provided in Section 11 or Section 12.

9.5. Rejecting Defective Work:

The Engineer will have authority to disapprove or reject work which the Engineer believes to be defective, and will also have authority to require special inspection or testing of the work as provided in Section 13.3g, whether or not the work is fabricated, installed or completed.

9.6. Contractor Submittals, Change Orders, and Payments:

- 9.6.1. The Engineer will review all the Contractor submittals, including shop drawings, samples, substitutes, or "or equal" items, etc., in accordance with the procedures set forth in the General Requirements.
- 9.6.2. In connection with the Engineer's responsibilities as to Change Orders, see Sections 10, 11 and 12.
- 9.6.3. In connection with the Engineer's responsibilities with respect to Preparation of Progress Payment Schedules, see Section 14.

9.7. Decisions or Disputes:

- 9.7.1. The Engineer shall be the initial interpreter of the requirements of the Contract Documents and the judge of the acceptability of the work there-under. Claims, disputes, and other matters relating to the acceptability of the work; the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work; and those claims under Sections 11 and 12 in respect to changes in the Contract Price or the Contract Time will be referred initially to the Engineer in writing with a request for formal decision in accordance with this Section, which the Engineer will render in writing within 30 working days of receipt of the request. Written notice of each such claim, dispute, and other matter shall be delivered by the Contractor to the Engineer promptly (but in no event later than 30 working days) after the occurrence of the event giving rise thereto. Written supporting data shall be submitted to the Engineer within 60 working days after such occurrence unless the Engineer allows an additional period of time to ascertain more accurate data in support of the claim.
- 9.7.2. When functioning as arbiter and judge, the Engineer will not show partiality to the District or the Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by the Engineer with respect to any such claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Section 14.12) will be a condition precedent to any exercise by the District or the Contractor of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute, or other matter.

9.8. Limitations on the Engineer's Responsibilities:

- 9.8.1. Neither the Engineer's authority to act under this Section 9 or other provisions of the Contract Documents nor any decision made by the Engineer in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any Supplier, any surety for any of them, or for any other person or organization performing any of the Work. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the Engineer as to the Work, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the Work for compliance with the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Sections 9.9c or 9.9d, herein.
- 9.8.2. The Engineer will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, and the Engineer will not be responsible for the Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.
- 9.8.3. The Engineer will not be responsible for the acts or omissions of the Contractor nor of any Subcontractor, Supplier, or any other person or organization performing any of the Work.

10. CHANGES IN THE WORK

10.1. General:

- 10.1.1. Without invalidating the Agreement and without notice to any surety, the District may, at any time or from time to time, order additions, deletions, or revisions in the Work; these will be authorized by a Change Order issued by the Engineer.
- 10.1.2. The Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified and supplemented by a Change Order, except in the case of an emergency and except in the case of uncovering work as provided in Section 13.3.
- 10.1.3. The District and the Contractor shall execute appropriate Change Orders covering the following:
- Changes in the Work which are ordered by the District;
 - Changes required because of acceptance of defective work under Section 13.7;
 - Changes in the Contract Price or Contract Time which are agreed to by the parties;
 - Changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by the Engineer pursuant to Section 9.8; and
 - Any other changes agreed to by the parties.
- 10.1.4. If notice of any change required by the provisions of any Bond is to be given to a surety, the giving of any such notice will be the Contractor's responsibility, and the amount of each applicable bond shall be adjusted accordingly.

10.2. Allowable Quantity Variations:

- 10.2.1. In the event of an increase or decrease in a bid item quantity of a unit price contract, the total amount of work actually done or materials and equipment furnished shall be paid for according to the unit price established for such work under the Contract Documents, wherever such unit price has been established. If an adjustment in the Contract Price is made for changes which result in an increase or decrease in the quantity of any unit price bid item, the total adjustment will be limited to 20 percent.
- 10.2.2. In the event a part of the Work is to be entirely eliminated, and no lump sum or unit price is named in the Contract Documents to cover such eliminated work, the price of the eliminated work shall be agreed upon in writing by the District and the Contractor. If the District and the Contractor fail to agree upon the price of the eliminated work, said price shall be determined in accordance with the provisions of Section 11.

11. CHANGE OF CONTRACT PRICE

11.1. General

- 11.1.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to the Contractor for performing the Work. All duties, responsibilities, and obligations assigned to or undertaken by the Contractor shall be at the Contractor's expense without change in the Contract Price.
- 11.1.2. The Contract Price may only be changed by a Change Order. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to the Engineer promptly (but in no event later than 14 working days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim.
- 11.1.3. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:
 - Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
 - By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Section 11.4).

11.2. Cost of Work (Based on Time and Materials):

- 11.2.1. General: The term "cost of work" means the sum of all costs necessarily incurred and paid by the Contractor for labor, materials, and equipment in the proper performance of work. Except as otherwise may be agreed to in writing by the District, such costs shall be in amounts no higher than those prevailing in the locality of the Project.
- 11.2.2. Labor: The cost of labor used in performing work by the Contractor, a subcontractor, or other forces will be the sum of the following:
 - The actual wages paid plus any employer payments to, or on behalf of workers for fringe benefits including health and welfare, pension, vacation, and similar purposes. The cost of labor may include the wages paid to foremen when determined by the Engineer that the services of foremen do not constitute a part of the overhead allowance.
 - All payment imposed by state and federal laws including, but not limited to, compensation insurance, and social security payments.

At the beginning of the work and as later requested by the Engineer, the contractor shall furnish the Engineer proof of labor compensation rates being paid.

- 11.2.3. Materials: The cost of materials used in performing work will be the cost to the purchaser, whether Contractor or subcontractor, from the supplier thereof, except as the following are applicable:

- Trade discounts available to the purchaser shall be credited to the District notwithstanding the fact that such discounts may not have been taken by the Contractor.
- For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the Engineer. Markup, except for actual costs incurred in the handling of such materials, will not be allowed.
- Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources or the current wholesale price for such materials delivered to the work site, whichever price is lower.
- If in the opinion of the Engineer the cost of material is excessive, or the Contractor does not provide satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the work site less trade discount.
- The District reserves the right to furnish materials for the work and no claim shall be made by the Contractor for costs and profit on such materials.

11.3. Contractor's Fee:

- 11.3.1. Work ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the Engineer, plus allowances for overhead and profit. For change orders involving a combination of increases and decreases in the Work the actual necessary cost will be the arithmetic sum of the additive and deductive costs. The allowance for overhead and profit shall include full compensation for superintendence, bond and insurance premiums, taxes, office expense, and all other items of expense or cost not included in the total cost of labor, materials, or equipment provided for in Section 11.2 herein including extended overhead and home office overhead. The allowance for overhead and profit will be made in accordance with the following schedule:

ACTUAL NECESSARY COST	OVERHEAD AND PROFIT ALLOWANCE
Labor	15 percent
Materials	 15 percent
Equipment	 15 percent

- 11.3.2. It is understood that labor, materials, and equipment may be furnished by the Contractor or by the subcontractor on behalf of the Contractor. When all or any part of the work detailed in a Change Order is performed by a subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the subcontractor, to which the Contractor may add 15 percent of the subcontractor's total cost for the work in the Change Order. Regardless of the number of hierarchical tiers of subcontractors, the 15-percent increase above the subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only for each separate work transaction.

12. CHANGE OF CONTRACT TIME

12.1. General:

- 12.1.1. The Contract Time may only be changed by a Change Order. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party and to the Engineer promptly (but in no event later than 14 working days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim.
- 12.1.2. The Contract Time may be extended in an amount equal to time lost due to delays beyond the control of the Contractor. Such delays shall include acts of neglect by the District, or by acts of God or of the public enemy, fire, floods, epidemics, quarantine restrictions, strikes, labor disputes, sabotage, or freight embargoes.

12.1.3. All time limits stated in the Contract Documents are of the essence of the Agreement.

12.2. Extensions of Time for Delay Due to Inclement Weather:

- 12.2.1. Inclement weather is any weather condition or conditions resulting immediately there-from, causing the Contractor to suspend construction operations or preventing the Contractor from profitably utilizing at least 75 percent of the normal labor and equipment force engaged on the Work.
- 12.2.2. Should the Contractor prepare to begin work at the regular starting time at the beginning of any regular work shift on any day on which inclement weather, or the forecast by the local NOAA Weather Reporting Station of 30% or greater chance of inclement weather, or the conditions resulting from the weather, or the condition of the Work prevents work from beginning at the usual starting time, and the crew is dismissed as a result thereof, the Contractor will not be charged for a working day whether or not conditions change thereafter during said day and the major portion of the day could be considered to be suitable for such construction operations.
- 12.2.3. Any such regular work days not worked due to the circumstances set forth in subparagraphs 12.2.1 and 12.2.2 above will entitle the Contractor to an extension of time equal to the time lost only to the extent such time exceeds the usual, expected inclemency for the local area of the Work as established by a 10-year statistical average of such weather conditions as recorded by the National Oceanic and Atmospheric Administration. Section 12.1 of the General Conditions of these Contract Documents identifies the inclemency base established for this Project in accordance with the procedure set forth above.

13. WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.1. Warranty and Guarantee:

The Contractor warrants and guarantees to the District and the Engineer for a period of one year after final acceptance by the District, that all work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects known to the District or the Engineer shall be given to the Contractor. Neither the right to inspect, nor the presence of inspectors, the Engineer, consultants, or testing agencies hired by the District or the Engineer, nor their general review or approval shall relieve the Contractor from its obligations to perform the Work in accordance with the Contract Documents. All defective Work, whether or not in place, may be rejected, corrected, or accepted as provided in this Section 13.

13.2. Access to Work:

The Engineer and the Engineer's representatives, other representatives of the District, testing agencies, and governmental agencies with jurisdictional interests shall have access to the Work at reasonable times for their observation, inspections, and testing. The Contractor shall provide proper and safe conditions for such access. Such observation, inspections and testing shall not be construed as the basis for any claims of delay but shall be considered a normal and necessary part in the progress of the work.

13.3. Tests and Inspections:

- 13.3.1. The Contractor shall give the Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals, but in no event less than 24 hours' notice.
- 13.3.2. If Laws or Regulations of any public body having jurisdiction other than the District, require any Work (or part thereof) to specifically be inspected, tested, or approved, the Contractor shall pay all costs in connection therewith and furnish the Engineer the required certificates of inspection, testing or approval. The Contractor shall also be responsible for and shall pay all costs in connection with any inspection or testing required in the District's or the Engineer's acceptance of a Supplier of materials or equipment proposed as a substitution or "or equal" to be incorporated in the Work, or of materials or equipment submitted for approval prior to the Contractor's purchase thereof for incorporation in the Work. The cost of all inspections, tests, and approvals in addition to the above which are required by the Contract Documents shall be paid by the District (unless otherwise specified).
- 13.3.3. The Engineer will make, or have made, such inspections and tests as the Engineer deems necessary to

see that the work is being accomplished in accordance with the requirements of the Contract Documents. Unless otherwise specified in the Supplementary General Conditions, the cost of such inspection and testing will be borne by the District. In the event such inspections or tests reveal non-compliance with the requirements of the Contract Documents, the Contractor shall bear the cost of corrective measures deemed necessary by the Engineer, as well as the cost of subsequent re-inspection and re-testing. Neither observations by the Engineer nor inspections, tests, or approvals by others shall relieve the Contractor from the Contractor's obligation to perform the Work in accordance with the Contract Documents.

- 13.3.4. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to the District.
- 13.3.5. If any work (including the work of others) that is to be inspected, tested, or approved is covered without written concurrence of the Engineer, it shall, if requested by the Engineer, be uncovered for observation. Such uncovering shall be at the Contractor's expense unless the Contractor has given the Engineer timely notice of the Contractor's intention to perform such test or to cover the same and the Engineer has not acted with reasonable promptness in response to such notice.
- 13.3.6. If any work is covered contrary to the written request of the Engineer, it shall, if requested by the Engineer, be uncovered for the Engineer's observation and replaced at the Contractor's expense.
- 13.3.7. If the Engineer considers it necessary or advisable that covered work be observed by the Engineer or inspected or tested by others, the Contractor, at the Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing, as the Engineer may require, that portion of the Work in question and shall furnish all necessary labor, material, and equipment. If it is found that such work is defective, the Contractor shall bear all direct, indirect, and consequential costs of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including but not limited to fees and charges of engineers, architects, attorneys, and other professionals. However, if such work is not found to be defective, the Contractor shall be allowed an increase in the Contract Price for such uncovering, exposure, observation, inspection, testing, and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the Contractor may make a claim therefore as provided in Sections 11 and 12.

13.4. District May Stop the Work:

If the Work is defective, or the Contractor fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, the District may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the District to stop the Work shall not give rise to any duty on the part of the District to exercise this right for the benefit of the Contractor or any other party.

13.5. Correction or Removal of Defective Work:

If required by the Engineer, the Contractor shall promptly either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by the Engineer, the Contractor shall remove it from the site and replace it with non-defective Work. The Contractor shall bear all direct, indirect, and consequential costs of such correction or removal, including but not limited to fees and charges of architects, engineers, attorneys, and other professionals, made necessary thereby.

13.6. One Year Correction Period:

If within one year after the date of Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, the Contractor shall promptly, without cost to the District and in accordance with District's written instructions, either correct such defective Work, or, if it has been rejected by the District, remove it from the site and replace it with non-defective Work. If the Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the District may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement, including but not limited to fees and charges

of architects, engineers, attorneys and other professionals, shall be paid by the Contractor. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Contract Documents.

13.7. Acceptance of Defective Work:

If, instead of requiring correction or removal and replacement of defective Work, the District prefers to accept the Work, the District may do so. The Contractor shall bear all direct, indirect, and consequential costs attributable to the District's evaluation of and determination to accept such defective Work. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the District shall be entitled to an appropriate decrease in the Contract Price.

14. PAYMENTS TO THE CONTRACTOR AND COMPLETION

14.1. Unit Price Bid Schedule:

Progress payments of unit-priced work will be based upon the number of units completed.

14.2. Progress Payments:

- 14.2.1. Unless otherwise prescribed by law, on or before the 5th calendar day of each month, the Engineer shall prepare and submit to the District for review a Progress Payment Schedule covering measured portions of the Work completed as of the last calendar day of the preceding month, as reported in the inspector's daily reports with such supporting documentation as required by the Contract Documents.
- 14.2.2. The Net Payment due to the Contractor shall be the Contractor's Total Earnings to date from which will be deducted the amount of retainage specified in the Contract Documents; the total amount of all previous payments made to the Contractor; any liquidated damages as may become due, and; any special deductions in the Contract Price.
- 14.2.3. Monthly or partial payments made by the District to the Contractor are advanced for the purpose of assisting the contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the District. Such payments shall not constitute a waiver of the right of the District to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the District in all details.

14.3. Contractor's Warranty of Title:

The Contractor warrants and guarantees that title to all work, materials, and equipment covered by any application for payment, whether incorporated in the Project or not, will pass to the District no later than the time of final payment free and clear of all liens.

14.4. Review of Progress Payment Schedule:

- 14.4.1. The District will review the Progress Payment Schedule and either accepts it for payment, or within seven (7) working days, return it to the Engineer, noting in writing the exceptions taken to the Schedule as submitted. In the latter case, the Engineer shall make the corrections required and resubmit the Schedule to the District for processing.

14.5. Beneficial Use or Occupancy and Partial Utilization:

- 14.5.1. Partial Utilization: The District shall have the right to utilize or place into service any item of equipment or other usable portion of the work prior to completion of the work. Whenever the District plans to exercise said right, the Contractor will be notified in writing by the District fourteen (14) days in advance, identifying the specific portion or portions of the work to be so utilized or otherwise placed into service.
- 14.5.2. It shall be understood by the Contractor that until such written notification is issued, all responsibility for care and maintenance of all items or portions of the work to be partially utilized shall be borne by the Contractor. Upon issuance of said written notice of partial utilization, the District will accept responsibility for the protection and maintenance of all such items or portions of the work described in the written notice.
- 14.5.3. Beneficial Use or Occupancy: The District shall have the right, at its option and convenience, to occupy or otherwise make use of all or any part of the project premises at any time prior to substantial completion, fourteen (14) days in advance written notice to the Contractor. Beneficial occupancy or use shall be subject to the following conditions:
- The District shall use its best efforts to prevent occupancy from interfering with the conduct of the Contractor's remaining work;
 - The Contractor shall not be required to repair damage to the premises if the same was caused by, or pursuant to, the District's occupancy or use;
 - The one-year correction period for those portions of the premises occupied and equipment used by the District shall start as of the date of actual occupancy or use;
 - Occupancy or use shall not constitute acceptance by the District either of the completed work or any portion thereof, nor will it relieve the Contractor from full responsibility for correcting defective work or materials found before completion and acceptance of all the work during the period specified in Section 13.6;
 - Occupancy or use shall not be deemed to be the equivalent of filing a Notice of Substantial Completion/Notice of Completion or a Cessation of Labor;
 - There shall be no added cost to the District due to pre-completion occupancy or use.

14.6. Substantial Completion:

When the Contractor considers the Work ready for its intended use, the Contractor shall notify the District and the Engineer in writing that the Work is substantially complete and request that the Engineer schedule a Final Inspection. Within a reasonable time thereafter, the District, the Contractor, and the Engineer shall inspect the Work to determine the status of completion. If the District does not consider the Work to be substantially complete, it will request that the Engineer so notify the Contractor in writing, stating the reasons therefore. If the District considers the Work substantially complete, with only minor items of corrective work remaining, it will instruct the Engineer to prepare and deliver to the District for its execution and recordation six (6) copies of the Notice of Substantial Completion/Notice of Completion, signed by the Engineer and Contractor. As applicable, there shall be attached to the Notice a list of items (punch list) to be completed or corrected before the Final Progress Payment will be made. Upon execution and recordation of the Notice by the District, which shall fix the date of Substantial Completion, the District will furnish the Contractor with two (2) copies of the executed Notice with punch list attached as applicable. The Contractor shall immediately upon receipt of the executed Notice and attached punch list, begin such corrective work as is required by the District and indicated on the punch list. All corrective work must be completed by the Contractor to the satisfaction of the District within thirty (30) working days following the date of Substantial Completion as established according to the provisions of this Section 14.7. If, at the expiration of the 30-day correction period, outstanding items of corrective work remain, the District may, at its option, accept the work or, in response to extraordinary conditions and at the written request of the Contractor, grant one (1) thirty (30) calendar day extension of time for completion of all outstanding punch list items. If, at the expiration of the 30-day extension period

or if at the expiration of the original 30-day corrective work period an additional extension is not granted by the District and the District accepts the Work with items of corrective work outstanding, the Engineer is directed to deduct up to two (2) times the value of such outstanding items of work from the Final Progress Payment Schedule and the Contractor does hereby waive any and all claims to all monies withheld by the District to cover up to two (2) times the value of all uncorrected or incomplete items of the Work. The Engineer shall be the sole and final judge of the value of uncorrected and/or incomplete items of the work.

14.7. Final Progress Payment:

The Final Progress Payment shall comprise all billable items or the Work including billable items of corrective work completed through the end of the Final Progress Payment Period. The Final Progress Payment shall be based on the Final Progress Payment Schedule prepared by the Engineer and shall be calculated as follows: Final Progress Payment due shall equal the sum value of completed items of the Work plus the value of completed Change Order Work less 5% retainage, less Liquidated Damages (as applicable), less Special Reductions (as applicable), less an amount up to two (2) times the value of outstanding items of corrective work (as applicable) and less all previous payments.

14.8. Acceptance by the District and Final Payment:

At such time that the Contractor has completed all items of corrective work or, upon expiration of the corrective work period(s) in accordance with the provisions of Section 14.7, above, the Contractor shall deliver to the Engineer all documentation called for in these Contract Documents together with complete and legally effective releases or waivers (satisfactory to the District) of all claims arising out of or filed in connection with the Work by any vendor, supplier, rental agency, subcontractor or others having directly or indirectly supplied goods, services materials and/or equipment utilized for or incorporated in the construction of the Work. Additionally, and concurrent with the above, the Contractor shall deliver to the Engineer, schedules, guarantees, bonds, certificates of inspection, record documents and other documents, all as required by these Contract Documents. If, on the basis of the Engineer's reports and recommendations and the District's examination of the documentation and waivers of claims submitted by the Contractor, the District is satisfied that the Work has been completed and that the Contractor's obligations under the requirements of these Contract Documents have been fulfilled, the District will, within 15 working days after acceptance of Work by the District's governing body, make Final Payment to the Contractor. The amount of the Final Payment shall be calculated as follows: The Value of all completed items of the Work plus the value of completed Change Order Work, less Liquidated Damages (as applicable), less Special Reductions (as applicable), less outstanding claims (as applicable), less up to two (2) times the value of outstanding items of corrective work (as applicable), less total amounts previously paid. Any amount due to the District under Liquidated Damages shall be deducted from the final payment due to the Contractor.

14.9. Contractor's Continuing Obligation:

The Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any Progress or Final Payment by the Engineer, nor the issuance of a Notice of Substantial Completion/Notice of Completion, nor any payment by the District to the Contractor under the Contract Documents, nor any use or occupancy of the Work or any part thereof by the District, nor any act of acceptance by the District nor any failure to do so, nor any review and approval of a Shop Drawing or sample submittal, will constitute an acceptance of work not in accordance with the Contract Documents or a release of the Contractor's obligation to perform the Work in accordance with the Contract Documents.

14.10. Final Payment Terminates Liability of the District:

The acceptance by the Contractor of the Final Payment referred to in Section 14.9 herein shall be a release of the District and its agents from all claims of liability to the Contractor for anything done or furnished for, or relating to, the Work or for any act or neglect of the District or of any person relating to or affecting the Work, except demands made against the District for the remainder, if any, of the amounts kept or retained under the provisions of Section 14.9, herein; and excepting all pending, unresolved claims filed prior to the date of the Notice of Substantial Completion/Notice of Completion.

15. SUSPENSION OF WORK AND TERMINATION

15.1. Suspension of Work by District:

The District, acting through the Engineer, may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than 90 working days by notice in writing to the Contractor. The Contractor shall resume the Work on receipt from the Engineer of a Notice to Resume Work. The Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the Contractor makes an approved claim.

15.2. Termination of Agreement by District (For Cause):

15.2.1. In the event of default by the Contractor, the District may give 14 working days written notice to the Contractor of District's intent to terminate the Agreement and provide the Contractor an opportunity to remedy the conditions constituting the default. It shall be considered a default by the Contractor whenever the Contractor shall:

1. Declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors;
2. Fail to provide materials or workmanship meeting the requirements of the Contract Documents;
3. Disregard or violate provisions of the Contract Documents or Engineer's instructions;
4. Fail to perform the Work according to the approved Progress Schedule; or
5. Fail to provide a Full-Time qualified Superintendent or Project Manager, competent workers, or materials or equipment meeting the requirements of the Contract Documents.

If the Contractor fails to remedy the conditions constituting default within the time allowed, the District may issue the Notice of Termination.

15.2.2. In the event that the Agreement is terminated in accordance with any provision of Section 15.2.1, herein, the District shall have the right to take possession of the Work and may complete the Work by whatever method or means the District may select. The cost of completing the Work shall be deducted from the balance which would have been due the Contractor had the Agreement not been terminated and the Work completed in accordance with the Contract Documents. If such cost exceeds that balance which would have been due, the Contractor shall pay the excess amount to the District. If such cost is less than the balance which would have been due, the Contractor shall not have claim to the difference.

15.3. Termination of Agreement by the District (For Convenience):

The District may terminate the Agreement at any time if it is found that reasons beyond the control of either the District or the Contractor make it impossible or against the District's interests to complete the Work. In such a case, the Contractor shall have no claims against the District except: (1) for the value of the work performed up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated, which would have been needed in the work and which meet the requirements of the Contract Documents. The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the Engineer in accordance with the procedure prescribed for the preparation of the final Progress Payment Schedule and payment under Sections 14.8 and 14.9.

15.4. Termination of Agreement by Contractor:

The Contractor may terminate the Agreement upon fourteen (14) working days written notice to the District, whenever:

- 15.4.1. The Work has been suspended under the provisions of Section 15.1, herein, for more than ninety (90) working days through no fault or negligence of the Contractor, and Notice to Resume Work or to terminate the Agreement has not been received from the District within this time period; or
- 15.4.2. The District should fail to pay the Contractor any monies due in accordance with the terms of the Contract Documents and within sixty (60) working days after presentation to the District by the

Contractor of a request therefore, unless within said fourteen (14) calendar day period after receipt by District of Notification to Terminate, the District shall have remedied the condition upon which the payment delay was based.

In the event of such termination, the Contractor shall have no claim against the District except for those claims specifically enumerated in Section 15.3, herein, and as determined in accordance with the requirements of said Section.

16. MISCELLANEOUS

16.1. Giving Written Notice:

Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

16.2. Title to Materials Found on the Work:

The District shall have the right to retain title to all soils, stone, sand, gravel, and other materials developed and obtained from excavations and other operations connected with the Work. Unless otherwise specified in the Contract Documents, neither the Contractor nor any subcontractor shall have any right, title, or interest in or to any such materials. The Contractor will be permitted to use in the Work, without charge, any such materials which meet the requirements of the Contract Documents.

16.3. Right to Audit (by the District):

If the Contractor submits a claim to the District for additional compensation, the District shall have the right, as a condition to consider the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the Contractor's books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the Contractor's plants, or such parts thereof, as may have been engaged in the performance of the Work. The Contractor further agrees that the right to audit encompasses all subcontracts and is binding upon subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such representatives as the District deems desirable during the Contractor's normal business hours at the office of the Contractor. The Contractor shall make available to the District for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the District.

17. ASSIGNMENT OR NOVATION

17.1. The Contractor shall not assign nor transfer, whether by assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the District. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, Contractors, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

18. REQUESTS FOR SUPPLEMENTARY INFORMATION

18.1. It shall be the responsibility of the Contractor to make timely requests of the City/County for any additional information which should be furnished by the City/County under the terms of this Contract, and which is required in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to

these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provision of this section.

END OF SECTION

II. CONTRACTOR SUBMITTALS

1. GENERAL

- 1.1.** Wherever submittals are required hereunder, all such submittals by the Contractor shall be submitted to the Engineer.
- 1.2.** Within seven (7) working days after the date of commencement as stated in the Notice to Proceed, the Contractor shall submit the following items to the Engineer for review:
 - 1.2.1.** A Preliminary CPM Construction Schedule indicating the starting and completion dates of the various stages of the work.
 - 1.2.2.** A preliminary schedule of Shop Drawing, Sample and proposed Substitutes or "Or Equal" submittals.
 - 1.2.3.** A list of all permits and licenses the Contractor shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and required date for receipt of the permit.

2. SHOPDRAWING

- 2.1.** Wherever called for in the Contract Documents, or where required by the Engineer, the Contractor shall furnish to the Engineer for review, 3 copies of each submittal. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, operating instructions, catalog sheets, data sheets, and similar items. Said Shop Drawings shall be submitted to the Engineer at a time early enough to allow review of same by the Engineer, and to accommodate the rate of construction progress required under the Contract.
- 2.2.** Except as may otherwise be provided herein, the Engineer will return prints of each submittal to the Contractor with its comments noted thereon, within 14 working days following their receipt by the Engineer. The Contractor shall make a complete and acceptable submittal to the Engineer by the second submission of a submittal item. The District reserves the right to withhold monies due the Contractor to cover additional cost of the Engineer's review beyond the second submittal.
- 2.3.** If one copy of a submittal is returned to the Contractor marked "NO EXCEPTIONS TAKEN," formal revision and resubmission of said submittal will not be required.
- 2.4.** If one copy of the submittal is returned to the Contractor marked "AMEND-RESUBMIT," the Contractor shall revise said submittal and shall resubmit 3 copies of said revised submittal to the Engineer.
- 2.5.** If one copy of the submittal is returned to the Contractor marked "REJECTED-RESUBMIT," the Contractor shall revise said submittal and shall resubmit 3 copies of said revised submittal to the Engineer.
- 2.6.** Fabrication of an item may be commenced only after the Engineer has reviewed the pertinent submittals and returned copies to the Contractor marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis of claims for extra work.
- 2.7.** All Contractor submittals shall be carefully reviewed by an authorized representative of the Contractor, prior to submission to the Engineer. Each submittal shall be dated, signed, and certified by the Contractor, as being correct and in strict conformance with the Contract Documents. In the case of shop drawings, each sheet shall be so dated, signed, and certified. No consideration for review by the Engineer of any Contractor submittals will be made for any items which have not been so certified by the Contractor. All non-certified submittals will be returned to the Contractor without action taken by the Engineer, and any delays caused thereby shall be the total responsibility of the Contractor.
- 2.8.** The Engineer's review of Contractor submittals shall not relieve the contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any misfits due to any errors in Contractor submittals. The Contractor shall be responsible for the dimensions and the design of adequate connections and details.

3. CONTRACTOR'S SCHEDULES

- 3.1. The successful Bidder shall, within ten (10) working days of the date of the Notice of Award and prior to issuance of the Notice to Proceed, submit a detailed Critical Path Method (CPM) Construction Schedule, hereinafter called "Schedule". The Schedule shall follow the "Sequence of Work" which is listed in the Scope of Work section of these Contract Documents. The Schedule shall consist of the following:

A logic network CPM arrow or precedence diagram of sufficient detail to construct each segment of the project and to construct the total project.

- 3.1.1. A detailed activities list which includes the following information in tabular form:

- a. A listing of all submittal, production, procurement and construction management activities;
- b. The expected duration (in days) of each activity listed;
- c. The activities upon which the start of each activity depends;
- d. The resource requirements (manpower, material and equipment) for each activity; and
- e. An estimated dollar value of each activity such that the sum total value of all activities equals the total dollar value of the Bid.

- 3.2. The District will review with the Contractor the proposed CPM schedule submitted by the Contractor. The purpose of this review is to assure adequate planning for the proper and timely execution of the Work and to assist the District in appraising the suitability of the proposed network Schedule for construction of the project.

- 3.3. Upon acceptance by the District the Schedule will become the basis for monitoring and measuring the progress of the Work. To assure proper tracking of progress throughout the performance of the Work, the Contractor shall maintain and continuously update his detailed network Schedule. The Contractor shall, during the first week of each month and at other times as the District may request, furnish to the District an updated schedule which is clearly marked to show the actual percent completion of each activity as of the date of the Schedule update. The Contractor shall submit with the Schedule update, a narrative report of the progress made during the period covered by the Schedule update. This report shall outline accomplishments during the reporting period and shall include a discussion of problems encountered and of how those problems have been or will be dealt with. The narrative report shall also include a discussion of changes or other items encountered which, in the opinion of the Contractor, may cause problems to the future progress of the Work. The Contractor shall include in the report a plan of action for overcoming the potential problems stated.

- 3.4. The District retains the right to withhold progress payments until the Contractor's updated schedule has been accepted by the District.

- 3.5. During the course of the Work the Schedule may be revised by agreement of the District and the Contractor. Each revision of the Schedule shall supersede and replace all previous versions of the Schedule.

The revised Schedule shall include the following information:

- 3.5.1. Date of revision.
- 3.5.2. Identification of all changes made to the original schedule, including the incorporation of anticipated Change Orders.
- 3.5.3. Narrative explanation of the reasons for each change.

- 3.6. The Contractor may request Schedule revisions by submitting a revised Schedule in the form outlined above; however, if the District cannot agree to the suggested revisions, the Contractor shall make those adjustments as may be required to maintain the original Schedule.

- 3.7. Responsibility for the Contractor's Schedule(s) in all aspects, assumptions and implications, either known or unknown, made or assumed, by the Contractor in the preparation of his Schedule(s), is entirely that of the Contractor. Acceptance of the Contractor's schedule(s) by the District shall in no way make the District responsible for the execution or non-execution of the Contractor's schedule nor is the District responsible or liable in any way for any acts, errors, omissions or negligence of the Contractor or any sub-contractor or any of the Contractor's or sub-contractor's agents, assigns, servants or employees or any other person, firm or corporation performing or attempting to perform the Work.

4. PROPOSED SUBSTITUTES "OR EQUAL" ITEMS

- 4.1.** For convenience of designation in the Contract Documents, any material, product, or equipment to be incorporated in the Work may be designated under a brand or trade name or the name of a manufacturer and its catalog information. The use of any substitute material, product, or equipment which is equal in quality and utility and possesses the required characteristics for the purpose intended will be permitted, subject to the following requirements:
 - 4.1.1.** The burden of proof as to the quality and utility of any such substitute material, product, or equipment shall be upon the Contractor.
 - 4.1.2.** The Engineer will be the sole judge as to the quality and utility of any such substitute material, product, or equipment and its decision shall be final.
- 4.2.** Wherever in the Contract Documents the name or the name and address of a manufacturer or supplier is given for material, a product, or equipment, or if any other source of a material, product, or equipment is indicated therefore, such information is given for the convenience of the Contractor only, and no limit, restriction, or direction is indicated or intended thereby, nor is the accuracy or reliability of such information guaranteed. It shall be the responsibility of the Contractor to determine the accurate identity and location of any such manufacturer, supplier, or other source of any material, product, or equipment called for in the Contract Documents.
- 4.3.** The Contractor may offer any material, product, or equipment which it considers equal to those specified. Unless otherwise provided by law or authorized in writing by the Engineer, the substantiation of any proposed substitute or "or-equal" material, product, or equipment must be submitted within 30 working days after the execution of the Agreement. The Contractor, at its sole expense, shall furnish data concerning items it has offered as substitute or "or-equal" to those specified. The Contractor shall provide the data required by the Engineer to determine that the quality, strength, physical, chemical, or other characteristics, including durability, finish, efficiency, dimensions, service, and suitability are such that the substitute or "or-equal" item will fulfill its intended function.
- 4.4.** The Contractor's attention is further directed to the requirement that its failure to submit data substantiating a request for a substitution of an "or equal" item within said 30-day period shall be deemed to mean that the Contractor intends to furnish one of the specific brand or trade-named materials, products, or equipment specified in the Contract Documents and the Contractor does hereby waive all rights to offer or use substitute materials, products, or equipment in each such case. Wherever a proposed substitute material, product, or equipment has not been submitted within said 30-day period, or wherever the submission of a proposed substitute material, product, or equipment fails to meet the requirements of the Specifications and an acceptable resubmittal is not received by the Engineer within said 30-day period, the Contractor shall furnish only one of the materials, products, or equipment originally-named in the Contract Documents. Approval by the Engineer of a substitute item proposed by the Contractor shall not relieve Contractor of the responsibility for full compliance with the Contract Documents and for adequacy of the substituted item. The Contractor shall also be responsible for resultant changes and all additional costs which the substitution requires in its work, the work of its subcontractors and of other contractors and shall effect such changes without cost to District.

5. SAMPLES

- 5.1.** Unless otherwise specified, whenever in the Specifications samples are required, the Contractor shall submit not less than 3 samples of each such item or material to the Engineer for approval at no additional cost to the District.
- 5.2.** Samples, as required herein, shall be submitted for approval a minimum of 14 working days prior to ordering such material for delivery to the job-site, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the Work.
- 5.3.** All samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and manufacturer's names for identification and submittal to the Engineer for approval. Upon receiving approval of the Engineer, one set of the samples will be stamped and dated by the Engineer and returned to the Contractor, one set will be retained by the Engineer, and one set of samples shall remain at the job site until completion of the Work.
- 5.4.** B. Unless otherwise specified, all colors and textures of specified items will be selected by the Engineer from the manufacturer's standard colors and standard materials, products, or equipment lines.

6. SPARE PARTS LISTS

- 6.1.** The Contractor shall furnish to the Engineer 5 identical sets of spare parts information for all mechanical, electrical, and instrumentation equipment. The spare parts list shall include the current list price of each spare part.
- 6.2.** The spare parts list shall be limited to those spare parts which each manufacturer recommends be maintained by the District in inventory at the plant site. Each manufacturer or supplier shall indicate the name, address, and telephone number of its nearest outlet of spare parts to facilitate the District in ordering. The Contractor shall cross-reference all spare parts lists to the equipment numbers designated in the Contract Documents. The spare parts lists shall be bound in standard size, 3-ring, loose-leaf, vinyl plastic hard cover binders suitable for bookshelf storage.

7. RECORD DRAWINGS

- 7.1.** The Contractor shall keep and maintain, at the job site, one record set of Drawings. On these, it shall mark all project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the original Contract Drawings, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the Contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the Work as actually constructed. These master record drawings of the Contractor's representation of as-built conditions, including all revisions made necessary by addenda, change orders, and the like shall be maintained up-to-date during the progress of the Work.
- 7.2.** In the case of those drawings which depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the record drawings shall be updated by indicating those portions which are superseded by change order drawings or final shop drawings, and by including appropriate reference information describing the change orders by number and the shop drawings by manufacturer, drawing, and revision numbers.
- 7.3.** Record drawings shall be accessible to the Engineer at all times during the construction period and shall be delivered to the Engineer upon completion of the work.
- 7.4.** Requests for partial payments will not be approved if the record drawings are not kept current, and not until the completed record drawings, showing all variations between the Work as actually constructed and as originally shown on the Contract Drawings or other Contract Documents, have been inspected by the Engineer.
- 7.5.** Final payment will not be approved until the Contractor-prepared record drawings have been delivered to the Engineer. Said up-to-date, record drawings may be in the form of a set of prints with carefully plotted information overlaid in pencil.
- 7.6.** Upon substantial completion of the Work and prior to final acceptance, the Contractor shall complete and deliver a complete set of record drawings to the Engineer for transmittal to the District, conforming to the construction records of the Contractor. This set of drawings shall consist of corrected plans showing the reported location of the Work. The information submitted by the Contractor and incorporated by the Engineer into the Record Drawings will be assumed to be reliable, and the Engineer will not be responsible for the accuracy of such information, nor for any errors or omissions which may appear on the Record Drawings as a result.

END OF SECTION

III. REFERENCE STANDARDS AND ABBREVIATIONS

1. GENERAL

- 1.1.** Titles of Sections and Paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.
- 1.2.** Applicable Publications: Whenever in these specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the drawings shall be waived because of any provision of, or omission from, said standards or requirements.

2. REFERENCE CODES

- 2.1.** Without limiting the generality of other requirements of the specifications, all work specified herein shall conform to or exceed the requirements of all applicable codes and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of these Specifications nor the applicable codes.
- 2.2.** References herein to "Building Code" or "SSBC" shall mean the Southern Standard Building Code of the Southern Building Code Congress (SBCC). The latest edition of the code as approved and used by the local agency as of the date of award, as adopted by the agency having jurisdiction, shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- 2.3.** In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the Engineer for clarification and directions prior to ordering or providing any materials or labor. The Contractor shall bid the most stringent requirements.

3. REFERENCE STANDARD SPECIFICATIONS AND DRAWINGS

- 3.1.** Applicable Standard Specifications: The Contractor shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein; except, that whenever references to "Standard Specifications" are made, the provisions therein for measurement and payment shall not apply.
- 3.2.** References in the Contract Documents to "Standard Specifications" shall mean the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 Street Construction Standards and/or the Texas Department of Transportation (TxDOT) 2014 Standard Specifications for construction of highways, streets, and bridges, including all current supplements, addenda, and revisions thereof.
- 3.3.** Applicable Standard Drawings: References herein to "Standard Drawings" shall mean the Street Construction Standards of the JEFFERSON COUNTY DRAINAGE DISTRICT NO.6 which drawings are hereby incorporated in and made a part of these Contract Documents, by reference.

4. SAFETY STANDARDS

References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standard, (OSHA), Code of Federal Regulations (CFR), including all changes and amendments thereto.

5. ABBREVIATIONS AND ACRONYMS USED IN THE CONTRACT DOCUMENTS

Wherever in these Specifications references are made to the standards, specifications, or other published data of the various national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these specifications, the following acronyms or abbreviations which may appear in these specifications shall have the meanings indicated herein.

AAMA	Architectural Aluminum Manufacturer's Association
AASHTO	American Association of the State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AGC	Associated General Contractors
AI	The Asphalt Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
APWA	American Public Works Association
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
CBM	Certified Ballast Manufacturer's
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
ETL	Electrical Test Laboratories
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
NACE	National Association of Corrosion Engineers NBS
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
	National Bureau of Standards

IV. QUALITY CONTROL

1. SITE INVESTIGATION AND CONTROL

- 1.1.** The Contractor shall verify all dimensions in the field and shall check all field conditions continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the Work.
- 1.2.** The Contractor shall inspect related and appurtenant work and shall report in writing to the Engineer any conditions which will prevent proper completion of the Work. Any required removal, repair, or replacement caused by unsuitable conditions shall be done by the Contractor at its sole cost and expense.

2. INSPECTION OF THE WORK

- 2.1.** General: The Work shall be conducted under the general observation of the Engineer and shall be subject to inspection by representatives of the District to assure strict compliance with the requirements of the Contract Documents.
- 2.2.** The presence of the inspector(s), however, shall not relieve the Contractor of the responsibility for the proper execution of the Work in accordance with all requirements of the Contract Documents. Compliance is distinctly a duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the inspector(s).
- 2.3.** All materials and Sections furnished by the Contractor shall be subject to rigid inspection, and no material or Section shall be used in the Work until it has been inspected and accepted by the Engineer or the District.
- 2.4.** Inspection at Place of Manufacture: Unless otherwise specified, all products, materials, and equipment shall be subject to inspection by the Engineer at the place of manufacture.
- 2.5.** The presence of the Engineer at the place of manufacture, however, shall not relieve the Contractor of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents.

3. SAMPLING AND TESTING

- 3.1.** Unless otherwise specified, all sampling and testing shall be in accordance with the Methods prescribed in the current standards of the ASTM, applicable to the class and nature of the Section or materials considered; however, the District reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the Engineer, will insure the District that the quality of the workmanship is in full accord with the Contract Documents.
- 3.2.** Any waiver by the District of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bid to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver or any requirements of the Contract Document.
- 3.3.** Notwithstanding the existence of such waiver, and in addition to any testing and inspection performed by any other inspector on behalf of the District or any public agency having jurisdiction, the Engineer shall have the right to make independent investigations and tests, and failure of any portion of the Work to meet any of the requirements of the contract Documents, shall be reasonable cause for the Engineer to require the removal or correction and reconstruction of any such work in accordance with the General Conditions.

4. TIME OF INSPECTIONS AND TESTS

- 4.1.** Samples and test specimens required under the Contract Documents shall be furnished by the contractor and prepared for testing in ample time for the completion of the necessary tests and analyses before the subject materials or Sections are to be used. The Contractor shall furnish all required test specimens at its own expense. Except as otherwise provided in the contract Documents, performance of the required tests will be by the District; except that the cost of any test which shows unsatisfactory results shall be borne by the Contractor.

- 4.2. Whenever the Contractor is ready to backfill, bury, cast in concrete, hide, or otherwise cover or make inaccessible any work under the Contract, the Contractor shall notify the engineer not less than 24 hours in advance of beginning any such work of backfilling, burying, casting in concrete, hiding, covering, or making inaccessible any portion of the Work to be inspected, so that the required inspection can be scheduled and performed. Failure of the contractor to notify the engineer at least 24 hours in advance of any such inspections shall be reasonable cause for the Engineer to require sufficient delay in the Contractor's schedule to allow time for such inspections and any remedial or corrective work required, and all costs of such delays, including its effect upon other portions of the work shall be borne by the contractor.

V. PROTECTION OF EXISTING FACILITIES

1. GENERAL

- 1.1.** The Contractor shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.
- 1.2.** The Contractor shall verify the exact locations and depths of all utilities shown and the Contractor shall make exploratory excavations of all utilities that may interfere with the Work. All such exploratory excavations shall be performed as soon as practicable after award of contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the Contractor's work. When such exploratory excavations show the utility location as shown to be in error, the Contractor shall so notify the Engineer.
- 1.3.** The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

2. RIGHTS-OF-WAY

The Contractor shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the Contractor enter upon the rights-of-way involved until notified by the Engineer that the District has secured authority therefore from the proper party. After authority has been obtained, the Contractor shall give said party due notice of its intention to begin work, and shall give said party convenient access and every facility for removing, shoring, supporting, or otherwise protecting such pipeline, transmission line, ditch, fence, or structure, and for replacing same. When 2 or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the District shall determine the sequence and order of the Work. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the District to the Contractor so desiring, to the extent, amount, in the manner, and at the times permitted. No such decision as to the method or time of conducting the Work or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the Work in Section 15 of the General Conditions of the Contract.

3. PROTECTION OF STREET OR ROADWAY MARKERS

The Contractor shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced for easy and accurate restoration. It shall be the Contractor's responsibility to notify the proper representatives of the District of the time and location that work will be done. Such notification shall be sufficiently in advance of construction so that there will be no delay due to waiting for survey points to be satisfactorily referenced for restoration. All survey markers or points disturbed by the Contractor without proper authorization by the Engineer, will be accurately restored by the District at the Contractor's expense after all street or roadway resurfacing has been completed.

4. RESTORATION OF PAVEMENT

- 4.1.** General: All paved areas including asphaltic concrete beams cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.

- 4.2. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the Contractor shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.
- 4.3. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the Contractor shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- 4.4. Restoration of Sidewalks or Private Driveways: Wherever sidewalks or private roads have been removed for purposes of construction, the Contractor shall place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions before proceeding with the final restoration or, if no such period of time is so fixed, the Contractor shall maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

5. EXISTING UTILITIES AND IMPROVEMENTS

- 5.1. General: The Contractor shall protect all Underground Utilities and other improvements which may be impaired during construction operations. It shall be the Contractor's responsibility to coordinate with utility owners to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The Contractor shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
- 5.2. Utilities to be Moved: In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will be notified by the Contractor to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the Contractor shall notify the utility company a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
- 5.3. Owner's Right of Access: The right is reserved for the District and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.
- 5.4. Underground Utilities Shown or Indicated: Existing utility lines that are shown or the locations of which are made known to the Contractor prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired at the Contractor's expense.
- 5.5. Underground Utilities Not Shown or Indicated: In the event that the Contractor damages any existing utility lines that are not shown or the locations of which are not made known to the Contractor prior to excavation, a written report thereof shall be made immediately to the Engineer. Damage should also be immediately reported to the utility owner so that emergency repairs, if required, can be accomplished without delay. Payment for repairs to damaged utilities shall be the sole responsibility of the Contractor.
- 5.6. Maintaining in Service: All oil and gasoline pipelines, power, and telephone or other communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the Work shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the Engineer are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The Contractor shall be responsible for repair of all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

6. TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- 6.1.** General: The Contractor shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or the District. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the Contractor or a certified tree company under permit from the jurisdictional agency or the District and to the satisfaction of said agency and/or the District. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.
- 6.2.** Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material.
- 6.3.** Replacement: The Contractor shall immediately notify the jurisdictional agency and/or the District if any tree is damaged by the Contractor's operations. If, in the opinion of said agency or the District, the damage is such that replacement is necessary, the Contractor shall replace the tree at its own expense. The tree shall be of a like size and variety as the tree damaged, or, if of a smaller size, the Contractor shall pay to the owner of said tree a compensatory payment acceptable to the tree owner, subject to the approval of the jurisdictional agency or the District. The size of the trees shall be not less than 1-inch diameter nor less than 6 feet in height.

7. NOTIFICATION BY THE CONTRACTOR

Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way the Contractor shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than 2 days nor more than 7 days prior to excavation so that a representative of said owners or agencies can mark, on the ground, the location and routing of said facilities and may, if they so choose, be present during excavation and backfill.

VI. TEMPORARY UTILITIES

1. GENERAL

The Contractor shall provide plant and equipment that is adequate for the performance of the Work under this Contract within the time specified. All plant and equipment shall be kept in satisfactory operating condition, shall be capable of safely and efficiently performing the required work, and shall be subject to inspection and approval by the District's representative at any time within the duration of the Contract. All work hereunder shall conform to the applicable requirements of the OSHA Standards for Construction.

2. POWER AND LIGHTING

- 2.1. Power:** The Contractor shall provide all necessary power required for its operations under the Contract, and shall provide and maintain all temporary power lines required to perform the Work in a safe and satisfactory manner.
- 2.2. Construction Lighting:** All Work conducted at night or under conditions of deficient daylight shall be suitably lighted to insure proper Work and to afford adequate facilities for inspection and safe working conditions.
- 2.3. Approval of Electrical Connections:** All temporary connections for electricity shall be subject to approval of Jefferson County Drainage District No. 6, the Engineer and the power company representative, and shall be removed in like manner at the Contractor's expense prior to final acceptance of the Work.
- 2.4. Separation of Circuits:** Unless otherwise permitted by the Engineer, circuits separate from lighting circuits shall be used for all power purposes.
- 2.5. Construction Wiring:** All wiring for temporary electric light and power shall be properly installed and maintained and shall be securely fastened in place. All electrical facilities shall conform to the requirements of Subpart K of the OSHA Safety and Health Standards for Construction.

3. WATER SUPPLY

- 3.1. General:** The Contractor shall provide an adequate supply of water of a quality suitable for all domestic and construction purposes.
- 3.2.** The Contractor shall provide and operate all pumping facilities, pipelines, valves, hydrants, storage tanks, and all other equipment necessary for the adequate development and operation of the water supply system. Water used for domestic purposes shall be free of contamination and shall conform to the requirements of the State and local authorities for potable water. The Contractor shall be solely responsible for the adequate functioning of its water supply system and shall be solely liable for any claims arising from the use of same, including discharge of waste or water therefrom.
- 3.3. Potable Water:** All drinking water on the site during construction shall be furnished by the Contractor and shall be bottled water or water furnished in approved dispensers. Notices shall be posted conspicuously throughout the site warning the Contractor's personnel that piped water may be contaminated.
- 3.4. Water Connections:** The Contractor shall not make connection to, or draw water from, any fire hydrant or pipeline without first obtaining permission of the Beaumont Public Utilities Department. For each such connection to be made City personnel will attach to the fire hydrant or pipeline a valve and a meter through which all water to be used by the Contractor shall be drawn.
- 3.5. Removal of Water Connections:** Before final acceptance of the Work on the project, all temporary connections and piping installed at the request of the Contractor shall be entirely removed, and all affected improvements shall be restored by the Contractor to their original condition, or better, to the satisfaction of the Engineer and to the agency owning the affected utility.
- 3.6. Fire Protection:** The Contractor's fire protection program shall conform to the requirements of Subpart F of the OSHA Standards for Construction. Responsible persons shall be designated and instructed in the operation of such fire apparatus necessary to prevent or minimize the hazard of fire.

4. SANITATION

- 4.1.** Toilet Facilities: Fixed or portable chemical toilets shall be provided, at Contractor's expense, wherever needed for the use of its employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.
- 4.2.** Sanitary and Other Organic Wastes: The Contractor shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the Contractor or organic material wastes from any other source related to the Contractor's operations shall be disposed of away from the site in a manner satisfactory to the Engineer and in accordance with all laws and regulations pertaining thereto.

VII. TEMPORARY ENVIRONMENTAL CONTROL

1. EXPLOSIVES AND BLASTING

- 1.1.** The use of explosives on the Work will be subject to the approval of the Engineer. All operations involving the handling, storage, and use of explosives shall be conducted in accordance with the requirements of Subpart U of the OSHA Standards for Construction, and in accordance with all local laws and regulations.
- 1.2.** **Only skilled workers under experienced supervision shall be permitted to use explosives. The Contractor will be held responsible for and shall make good any damage caused by blasting or otherwise resulting from its possession or use of explosives on the work.**

2. DUST ABATEMENT

The Contractor shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity. The Contractor shall be responsible for any damage resulting from any dust originating from its operations. The dust abatement measures shall be continued until the Contractor is relieved of further responsibility by the Engineer.

3. RUBBISH CONTROL

During the progress of the Work, the Contractor shall keep the site of the Work and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The Contractor shall dispose of all rubbish and waste materials of any nature occurring at the Work site, and shall establish regular intervals of collection and disposal of such materials and waste. The Contractor shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.

4. CHEMICALS

All chemicals used during project construction or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer.

5. SOIL EROSION AND TRACKING CONTROL

- 5.1.** Throughout the entire course of construction of the Work as described in these Contract Documents, the Contractor shall comply with the following:
 - 5.1.1.** Loose dirt, mud, clay, rocks, construction materials and other debris deposited upon any public highway, street and sidewalk or private property as a result of any construction or demolition operations shall be immediately removed by the Contractor. Construction and demolition sites and all access/travel routes shall be kept clean and orderly at all times.
 - 5.1.2.** The prime Contractor or Developer of a construction or demolition site shall be responsible for maintaining the site as required by this section.

As pertains to these Contract Documents, the term "deposited", above, shall be construed to include dropping, tracking, silting, eroding or any other method of transport by which, as a result of this Work, any foreign material is placed intentionally, unintentionally, carelessly or otherwise on any public way. The removal of such materials shall be at the sole cost and responsibility of the Contractor.

- 5.2.** Drainage facilities, including storm drains, catch basins, manholes, lines and ditches, and including existing facilities and those being constructed, shall be protected during the construction of this work from the incursion of silt, rubble, lumber or other such construction or natural materials, on or adjacent to the site of the work, which may be washed, pushed, dropped or otherwise deposited in a drainage facility. Applicable provisions of Regulations of the U.S. Environmental Protection Agency (EPA), the Texas Natural Resource Conservation Commission (TNRCC) and other such agencies as may have interest in this area shall govern.

VIII. SUMMARY OF WORK

1. GENERAL

The Work to be performed under this Contract shall consist of furnishing all plant, tools, equipment, materials, supplies, and manufactured Sections and for furnishing all transportation and services, including fuel, power, water, and essential communications, and for the performance of all labor, work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be complete, and all work, materials, and services not expressly shown or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be performed, furnished, and installed by the Contractor as though originally so specified or shown, at no increase in cost to the District.

2. SCOPE OF WORK COVERED BY THESE CONTRACT DOCUMENTS

2.1. The Work of this Contract comprises the construction of:

Corley Diversion Project

2.2. The Work is located within Jefferson County, Texas.

3. BEGINNING AND COMPLETION OF THE WORK

Time is the essence of the Contract. In accordance with the provisions of Section 2 of the Agreement, the Contractor shall begin the Work on the date specified in the written Notice to Proceed from the District, and shall complete all of the Work included in the Contract within the time specified in said Notice. Time stated for completion shall include final cleanup of the premises.

4. CONTRACT METHOD

4.1. The Work, hereunder, will be constructed under a single unit-price contract.

4.2. The Contractor shall include the requirements of the General Conditions of this Contract as a part of all of its subcontract agreements.

5. ORDER OF THE WORK

The Work shall be carried on at such places on the project and also in such order of precedence as may be found necessary by the Engineer to expedite completion of the Project. After work has begun on any portion of a designated part of the Project, it shall be carried forward to its final completion as rapidly as practicable. The order and time to complete shall conform to the requirements of the approved Contractor's schedule as submitted under the provisions for "Contractor's Schedules" in Section entitled, "Contractor Submittals."

6. WORK BY OTHERS

6.1. Concurrent Work: The Contractor's attention is directed to the fact that work may be conducted at or adjacent to the site by the District and/or by other contractors during the performance of the Work under this contract. The Contractor shall conduct its operations so as to cause a minimum of interference with the Work of such other contractors, or the District, and shall cooperate fully with such contractors to provide continued safe access to their respective portions of the site, as required to perform their respective contracts or work.

6.2. Interference with Work on Utilities: The Contractor shall cooperate fully with all utility forces of the District or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the Work, and shall schedule the Work so as to minimize interference with said relocation, altering, or other rearranging of facilities.

7. WORK SEQUENCE

7.1. The Contractor's attention is directed to the fact that during the period of time identified for this contract, no interruption in infrastructure system can be accommodated, and the Contractor shall so schedule its construction operations that no interference with the operation of the system will occur during this critical period.

- 7.2. Access to the site is limited to the hours of 7:00 a.m. to 5:00 p.m. on normal work days, unless otherwise authorized by the Engineer.

8. BASE LINES AND GRADES

- 8.1. General: The Engineer will establish points of curvature, points of tangency, one bench mark near the beginning of project and center line offsets at the point of beginning of project and at the first point of curvature occurring thereafter. Any of the above controls which are disturbed during construction will be reset by the Contractor.
- 8.2. When required by these Contract Documents, the Contractor shall provide the services of a Professional Surveyor, registered with the State of Texas, to verify, layout and maintain all lines, grades and controls necessary for the successful and proper completion of the work, based on those controls established by the Engineer. Services shall include, at no extra cost to the District, those revisions to the original plans layout which the Engineer determines necessary to the successful and proper completion of the work. The services of a Registered Professional Surveyor shall be bid as a Pay Item within the standard base contract bid amount to be paid on a station to station basis concurrent with right-of-way preparation.

9. CONTRACTOR USE OF PROJECT SITE

The Contractor's use of the project site shall be limited to its construction operations, including on-site storage of materials, on-site fabrication facilities, and field offices.

10. DISTRICT USE OF THE PROJECT SITE

When the Contractor's work involves rehabilitation of or extension to the existing facilities, the District may utilize all or part of the existing site during the entire period of the construction for the conduct of the District's normal operations. The Contractor shall cooperate with the District and Engineer to minimize interference with the Contractor's operations and to facilitate the District's operations. In any event, the District shall be allowed access to the project site during the period of construction.

11. PARTIAL UTILIZATION OF THE WORK BY THE DISTRICT

- 11.1. The District will take partial utilization of the Work upon completion of the portion of the work. Partial utilization will involve the placing into service of completed section during the period when ordered by the Engineer.
- 11.2. The Contractor is hereby advised that the District will accept the responsibility for the maintenance and protection of the specific portion of the project so used. The Contractor shall retain full responsibility for satisfactory operation of the total project, however.

12. PROJECT MEETINGS

- 12.1. Mandatory Preconstruction Conference: Prior to the commencement of Work at the site, a mandatory preconstruction conference will be held at a mutually agreed time and place which shall be attended by the Contractor, its on-site superintendent, and its subcontractors as appropriate. Other attendees will include representatives of the Engineer and the District.
- 12.2. Unless previously submitted to the Engineer, the Contractor shall bring to the preconstruction conference one copy each of the CPM progress schedule and the Shop Drawing/Sample/Substitute or "Or Equal" submittal schedule.

IX. SITE ACCESS AND STORAGE

1. TRANSPORTATION FACILITIES

- 1.1.** General: The Contractor shall investigate the availability of sidings and shall make all arrangements with the railroad company for any siding or other facilities necessary for the delivery of materials to be used on the Work.
- 1.2.** Highway Limitations: The Contractor shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to and from the site of the Work. It shall be the Contractor's responsibility to construct and maintain any access or haul roads required for its construction operations.

2. CONTRACTOR'S WORK AND STORAGE AREA

The Contractor shall make its own arrangements for any required off-site storage or shop areas necessary for the proper execution of the Work.

3. TEMPORARY STREET USE

- 3.1.** Street Use: Nothing herein shall be construed to entitle the Contractor to the exclusive use of any public street, alleyway, or parking area during the performance of the Work hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas.
- 3.2.** No streets shall be closed to the public without first obtaining the permission of the Engineer and the proper governmental authority. Where excavation is being performed in primary streets or highways, one lane of traffic shall be kept open in each direction at all times unless otherwise provided in the Contract Documents or under the terms of public agency permits.
- 3.3.** Toe boards shall be provided to restrict movement of excavated material if required by the Engineer or the Agency having jurisdiction over the street or highway.
- 3.4.** Fire hydrants on or adjacent to the Work shall be kept accessible to fire-fighting equipment at all times.
- 3.5.** Temporary provisions shall be made by the Contractor to assure the continuous, safe use of sidewalks and the proper functioning of all gutters, sewers, inlets, and other drainage facilities.
- 3.6.** Wherever necessary or required for the convenience of the public or individual residents or business places at street or highway crossings, private driveways, or elsewhere, the Contractor shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the Contractor shall secure the written consent of the individuals or authorities concerned to omit such temporary bridges or steel plates, which written consent shall be delivered to the Engineer prior to beginning the excavation. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossings shall conform to the requirements of the authority having jurisdiction in each case, and the Contractor shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.
- 3.7.** Traffic Control: For the protection of traffic in public or private streets and ways, the Contractor shall provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of the latest version of "Texas Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations", published by the Texas Department of Transportation (TxDOT).
- 3.8.** The Contractor shall take all necessary precautions for the protection of the Work and the safety of the public. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The Contractor shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of Subpart G of the OSHA Safety and Health Standards.

4. TEMPORARY STREET CLOSURE

If closure of any street is required during construction, a formal application for a street closure shall be made to the authority having jurisdiction at least 7 working days prior to the required street closure in order for the agency having jurisdiction to determine the necessary signing and detour requirements to be provided by the Contractor.

X. MATERIALS AND EQUIPMENT

1. GENERAL

The word "Products", as used herein, is defined to include purchased items for incorporation into the Work, regardless of whether specifically purchased for the Project or taken from Contractor's stock of previously purchased products. The word "Materials" is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of work. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, etc.). Definitions in this paragraph are not intended to negate the meaning of other terms used in Contract Documents, including "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction", and similar terms, which are self-explanatory and have recognized meanings in the construction industry.

2. QUALITY ASSURANCE

- 2.1.** Source Limitations: To the greatest extent possible for each unit of work, the Contractor shall provide products, materials, or equipment of a singular generic kind from a single source.
- 2.2.** Compatibility of Options: Where more than one choice is available as options for Contractor's selection of a product, material, or equipment, the Contractor shall select an option which is compatible with other products, materials, or equipment already selected. Compatibility is a basic general requirement of product/material selections.

3. PRODUCT DELIVERY-STORAGE-HANDLING

The Contractor shall deliver, handle, and store products in accordance with manufacturer's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at site and overcrowding of construction spaces. In particular, the Contractor shall provide delivery/installation coordination to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

4. TRANSPORTATION AND HANDLING

- 4.1.** Products shall be transported by methods suitable to avoid product damage and shall be delivered in undamaged condition in manufacturers' unopened containers or packaging, dry.
- 4.2.** The Contractor shall provide equipment and personnel to handle products, materials, and equipment, including those provided by District, by methods to prevent soiling and damage.

The Contractor shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

5. STORAGE AND PROTECTION

- 5.1.** Products shall be stored in accordance with manufacturer's written instructions, with seals and labels intact and legible. Sensitive products shall be stored in weather-tight enclosures and temperature, and humidity ranges shall be maintained as required by manufacturer's written instructions.
- 5.2.** For exterior storage, fabricated products shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering with ventilation provided to avoid condensation.
- 5.3.** Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
- 5.4.** Storage shall be arranged to provide access for inspection. The Contractor shall periodically inspect to assure products are undamaged and are maintained under required conditions.
- 5.5.** Storage shall be arranged in a manner to provide access for inspection and maintenance of stored items.

6. ENCLOSED STORAGE

- 6.1.** Products subject to damage by the elements shall be stored in substantial, weather-tight enclosures. Temperature and humidity shall be maintained within ranges stated in manufacturers' written instructions.
- 6.2.** The Contractor shall provide humidity control and ventilation for sensitive products as required by manufacturer's written instructions.
- 6.3.** Unpacked and loose products shall be stored on shelves, in bins, or in neat groups of like items.

7. EXTERIOR STORAGE

- 7.1.** The Contractor shall provide substantial platforms, blocking, or skids to support fabricated products above ground and shall slope the storage area to provide drainage. Products shall be protected from soiling and staining.
- 7.2.** Products subject to discoloration or deterioration from exposure to the elements shall be covered with impervious sheet material. Ventilation shall be provided to avoid condensation.
- 7.3.** Loose granular materials shall be stored on clean, solid surfaces such as pavement, or on rigid sheet materials to prevent mixing with foreign matter.
- 7.4.** Surface drainage shall be provided to prevent erosion and ponding of water.
- 7.5.** The Contractor shall prevent mixing of refuse or chemically injurious materials or liquids.

XI. PROJECT CLOSEOUT

1. FINAL CLEANUP

The Contractor shall promptly remove from the vicinity of the completed work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the Work by the District will be withheld until the Contractor has satisfactorily complied with the foregoing requirements for final cleanup of the project site.

2. CLOSEOUT TIMETABLE

The Contractor shall establish dates for equipment testing, acceptance periods, and on-site instructional periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the District, the Engineer, and their authorized representatives and consultants sufficient time to schedule attendance at such activities.

3. FINAL SUBMITTALS

The Contractor, prior to requesting its final progress payment, shall submit the following items to the Engineer for transmittal to the District:

- 3.1.** Written guarantees or warranties, where required;
- 3.2.** Maintenance stock items, spare parts, special tools;
- 3.3.** Completed Record Drawings;
- 3.4.** Bonds for roofing, maintenance, etc., as required hereunder;
- 3.5.** Certificates of inspection and acceptance by local governing agencies having jurisdiction; and
- 3.6.** Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

4. COMPLETION OF THE WORK

- 4.1.** Completion of the Work, as the term is used in this Contract shall mean substantial completion of the Work. Substantial completion shall exist where there has been no willful departure from the terms of the Contract, and no omission in essential points, and the Contract has been honestly and faithfully performed in its material and substantial particulars, and the only variance consists of relatively unimportant omissions or defects, and the Work can be used or occupied for the purpose for which it was intended.
- 4.2.** The date of substantial completion of the Project shall be the date when the construction is sufficiently complete, in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the District can occupy or utilize the project for the use for which it was intended and the legislative body of the District has accepted the Project as evidenced by execution and recording of a Notice of Substantial Completion/Notice of Completion.

5. REMAINING PUNCH LIST ITEMS

- 5.1.** Upon attaining substantial completion as defined in Paragraph 1.04, above, and upon acceptance of the Work by the District, by agreement between the parties some small outstanding punch list items may remain to be completed by the Contractor. As provided in Section 14.7 of the General Conditions, the District shall have the right to retain an amount of money from the final progress payment due the Contractor, equal to 2 times the estimated value of such outstanding punch list items. The Contractor hereby agrees to complete all such outstanding punch list items within 30 working days following the date of the Notice of Substantial Completion.
- 5.2.** As provided in Section 14.7 of the General Conditions, failure of the Contractor to complete or correct all such outstanding punch list work to the satisfaction of the Engineer within 30 working days following acceptance and Notice of Substantial Completion, shall constitute a waiver by the Contractor of all rights to any and all claims it may have to all monies withheld by the District under the Contract to cover the value of such uncompleted or uncorrected items.

6.MAINTENANCEANDGUARANTY

- 6.1.** The Contractor shall comply with the maintenance and guarantee requirements contained in Section 13 of the General Conditions.
- 6.2.** Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the Contractor which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work.
- 6.3.** The Contractor shall make all repairs and replacements promptly upon receipt of written order from the District. If the Contractor fails to make such repairs or replacements promptly, the District reserves the right to do the work or to have the work done by others and the Contractor and its Surety shall be liable to the District for the cost thereof.

7. EXTENSION OF PERFORMANCE BOND

The Contractor shall provide a bond to guarantee performance of the provision contained in Paragraph entitled "Maintenance and Guarantee".

PART III – CONSTRUCTION SPECIFICATIONS

I. - CONSTRUCTION SPECIFICATIONS GENERAL NOTES AND SPECIFICATIONS

1. The Texas Standard Specifications 2024 will govern all specifications not directly addressed in this document.
2. Direct attention to comply with all ordinances and regulations of local municipal and county governments and the TCEQ (Texas Commission on Environmental Quality), which may be applicable on this project. **General Construction Permit** may be obtained online at <https://www.tceq.texas.gov/permitting/stormwater> through TCEQ. A Notice to Proceed will not be issued until all Permits are submitted to the Engineer for review. This will not be paid for directly and will be considered subsidiary to various bid items.
3. Any storm water permit and associated fees required for construction of this project shall be at the contractor's expense. Also, any temporary erosion, sediment and water control measures required shall be in accordance with the details shown in the plans, and all work and materials required will not be paid for directly but considered subsidiary to various bid items. Erosion control logs are to be utilized at every inlet within the affected area of construction and should remain in place throughout the duration of construction. Contractor shall submit SW3P plan prior to the start of construction. This will not be paid for directly and will be considered subsidiary to various bid items of the contract.
4. Procure all the necessary city and/or county permits and licenses before the start of this project. Grading Permit may be obtained at City of Beaumont Public Works Engineering Department. Operation hours are Monday to Friday 8:00AM to 5:00PM. This will not be paid for directly but shall be considered subsidiary to various bid items of the contract. Permits can be obtained through the City of Beaumont Online Permit Portal:

<https://cityworks.beaumonttexas.gov/OnlineApplications/template/login.aspx>

5. Before excavating near existing utilities, contact the utility companies or the utility coordinating committee for exact locations to prevent damage or interference with present facilities. Notify the utility coordinating committee and the Texas One Call System at the following numbers:

Texas One Call, toll-free 1-800-245-4545 or 1-800-344-8377

AT&T Communications	Entergy Distribution	CenterPoint Energy Entex
Beaumont, Texas 77701	North 11 th Street	6090 College Street
(409) 291-9415	Beaumont, Texas 77701	Beaumont, Texas 77707
Randall Jennings	(409) 782-0898	(409) 860-7114
	Paul Blackburn	Richard Hartstein
Spectrum	City of Beaumont	City of Beaumont
602 N. Hwy 69	City Utilities	Public Works-Engineering
Nederland, Texas 77627	(409) 785-3027	(409) 880-3725
(409) 217-1760	Bill Kemp	Amalia "Molly" Villarreal
Altoria Prince		

This action does not relieve the Contractor of the responsibilities under the terms of the contract or the plans and specifications. Damage caused by the Contractor's operations shall be repaired and restored to service in a timely manner at no expense to the District.

6. The approximate location of the known underground utility installations is as shown on the plans. Confirm the location of these utility lines and the exact location of any others which may exist. Assume full responsibility for notifying the utility involved in case of conflict or damage and he/she shall be responsible for damage that occurs due to his/her negligence.

Remove and dispose of abandoned lines encountered that interfere with the construction of this project. Consider this work to be subsidiary to the various bid items of the contract.

7. Allow City forces to enter this project to accomplish such work as shown in the plans (by others) and as may be deemed necessary by the Engineer.
8. Maintain for the duration of this project, those sections of existing and proposed travel ways and appurtenances which are to be constructed, reconstructed, modified, or remain in place under this project. Any portion of roadway and its appurtenances damaged by the contractor's forces shall be repaired by the contractor at his/her expense. This shall include but is not limited to mailboxes, storm pipes, MH tops, water valve tops, street signs, etc. Any portion of roadway damaged by others shall be repaired by the contractor by force account.
9. Place all equipment and vehicles not in operation a minimum of 10 feet from the travel way unless protected behind positive barrier. All damages caused by the Contractor shall be repaired at his/her expense. Protect all areas of the right of way which are not included in the actual limits of the proposed construction areas from destruction. Restore any damaged areas to original or better condition. No payment will be made for this work. City forces will maintain the existing section of streets and its appurtenances not a part of this project except those sections damaged by the contractor's forces shall be repaired by the contractor at his entire expense.
10. All truck traffic transporting materials to and from the project are to access and depart from the project site utilizing routes approved by the Engineer. Millings, sand, or other approved materials may be used on adjacent roadway surfaces to absorb and therefore minimize tracking of the materials applied during the course of construction. Materials used for absorption shall be maintained for the duration of the project. Upon completion of material applications, clean and dispose of absorption material in accordance with federal, state, and local regulations. This will not be paid for directly but shall be considered subsidiary to various bid items of the contract.
11. Assume ownership for all designated waste material and dispose of it at a place off of the right of way, as approved by the Engineer.
12. Take reasonable measures to avoid the death of any migratory birds, their young or their eggs.
13. Control the dust caused by construction operations. For sweeping the finished concrete pavement, use one of the following types of sweepers or equal:

Tricycle Type	Truck Type -4 Wheel
Wayne Series 900	M-B Cruiser II
Elgin White Wing	Wayne Model 945
Elgin Pelican	Mobile TE-3
Mobile TE-4	Murphy 4042

14. The contractor shall be responsible for all maintenance of the travel way and appurtenances within the barricades for the duration of the project. Ingress and egress to adjacent property shall be maintained by the contractor at all times.
15. The contractor is to have an independent lab to sample all concrete and ACP and make and test all beams and cylinders in accordance with the test methods provided for under the appropriate standard specifications for the various items. It is the responsibility of the Contractor to schedule testing with the independent lab at least 48 hours in advance. If the Contractor schedules an independent lab for testing and cancels services, the contractor will be responsible for any charges that occur for cancellation.
16. If overhead or underground power lines need to be de-energized, contact the electrical service provider to perform this work. Costs associated with de-energizing the power lines or other protective measures required are at no expense to the City. If working near power lines, comply with the appropriate sections of Texas State Law and Federal Regulations relating to the type of work involved.

17. Prior to final acceptance, all new and existing structures and extensions shall be cleaned and free of debris and dirt and all outfall channels unobstructed. This work will not be paid for directly but will be considered subsidiary to the various bid items of the contract.
18. Move existing signs, mailboxes, delineators, and any other similar obstructions that interfere with construction to temporary locations approved by the Engineer. Move them back to their permanent positions when the work progresses to the point where this is possible. Place the signpost back in accordance with the applicable standard sheets. This work will not be paid for directly but shall be considered subsidiary to various bid items of the contract.
19. Any obstructions that require permanent removal as deemed necessary by the Engineer shall be removed and disposed of by the Contractor. Permanently removed obstructions are the property of the Contractor unless otherwise specified. Remove any obstructions that interfere with construction to permanent locations or dispose of at the Contractor's expense and at the discretion of the Engineer. Dispose of removed materials or obstructions in accordance with federal, state, and local regulations. This work will not be paid for directly but shall be considered subsidiary to various bid items of the contract.
20. Maintain adequate drainage throughout the limits of the project during all construction phases.
21. Upon approval, vary the governing slopes shown on the typical sections as necessary.
22. Verify material quantities and dimensions prior to ordering materials.
23. The Contractor will establish the project control point, points, or tangency, PI's (points of intersection), point of curvature (PC, PI, and PT) and benchmarks at the beginning and end of the project on the plan view only. Contractor shall establish and maintain these points throughout construction. There will be no separate payment for this work, but it shall be considered subsidiary to various bid items of the contract.
24. When design details are not shown on the traffic control plans, provide signs and arrows conforming to the latest "Standard Highway Sign Designs for Texas" manual.
25. All materials, labor and incidentals required for the contractor to provide for traffic across the streets and for temporary ingress and egress to public and private property shall be furnished by the contractor at no additional cost to the District and shall be considered as incidental to the various bid items.
26. Any saw-cutting required for the project shall not be paid for directly but shall be considered subsidiary to various bid items.
27. All joints in concrete pavement shall be sawed and sealed with a Class 5 Joint Sealant or polyurethane self-leveling sealant.
28. The Contractor will notify the Engineer 48 hours in advance of completed work per site. The Engineer will inspect each site and submit a punch list per location to the Contractor as necessary. The Contractor will not demobilize from site until the Engineer has approved all work including punch list items.
29. Any work that is called for in the plans that is not included in a specific bid item shall be considered incidental to the appropriate bid items, with no additional cost to the owner.
30. De-watering activities and equipment shall be subsidiary to bid items.
31. All disturbed areas outside of the limits of construction shall be seeded to prevent erosion.
32. All elevations shown are based on navd 88 datum referenced to GEOID 12B.
33. The 2024 Texas Department of Transportation standard specifications shall govern all specifications not directly addressed in this document.
34. Contractor shall be responsible for protecting all public utilities in the construction of this project.
35. Before starting construction, contractor shall field verify location and elevation of existing facilities. The exact location of all public utilities must be determined by the contractor. It shall be the duty of the contractor to ascertain whether any additional facilities other than those shown on the plans may be present. Contractor shall notify the engineer immediately if a discrepancy and/or conflict is discovered.
36. Before starting construction, contractor shall contact all franchise utility companies and/or pipeline operators to have them locate existing utilities and/or pipeline facilities.

37. Before excavating near existing utilities and/or pipelines, contact the utility companies, pipeline operator and/or the utility coordinating committee for exact locations to prevent damage or interference with present facilities. Notify the utility coordinating committee and the Texas one call system: this action does not relieve the contractor of the responsibilities under the terms of the contract or the plans and specifications. Damage caused by the contractor's operations shall be repaired and restored to service in a timely manner at no expense to the owner.
38. Public or private property that is destroyed or removed by the contractor during the construction of the project shall be replaced to its original condition by the contractor.
39. The engineering has established horizontal and vertical control throughout the limits of the work. The contractor shall exercise all possible care to prevent destruction of surveying control points. If in the engineer's judgement, the contractor is negligent in the protection of such work, the engineer may charge the contractor for costs incurred in the replacement of lost or damaged survey work.
40. Any excess spoil that is not hauled off may be used as fill for ruts. Any fill utilized shall be placed and graded to facilitate drainage. Existing surface drainage shall not be impeded.
41. All disturbed areas outside the limits of construction shall be seeded to prevent erosion.
42. All proposed construction shall be performed within the right-of-way and/or easements of the City of Beaumont of Jefferson County Drainage District No. 6 unless otherwise approved.
43. All material such as trees, dirt, shrubs, roots, concrete, asphalt or other such debris removed during construction shall become the property of the contractor and shall be disposed of offsite by the contractor at contractor's expense.
44. All culverts and other drainage facilities shall be protected from damage during construction operations. Any damage caused as a result of contractor's negligence shall be replaced at contractor's expense.
45. The contractor shall inform utility and pipeline owners sufficiently in advance of the contractor's operations to enable such utility owners to reroute, provide temporary detours, or to make other adjustments to utility lines in order that the contractor may proceed with his work with a minimum amount of delay and expense. The contractor shall cooperate with all utility owners concerned in affecting any utility adjustments necessary and shall not hold the owner liable for any expenses due to delay or additional work because of conflicts.
46. Permits, fees and licenses necessary for the pursuit of the work shall be obtained and paid for by the contractor, including any such permits, fees or licenses required by TxDOT or railroads.
47. The work site shall be kept reasonably clean at all times. Surplus material shall be disposed of by the contractor.
48. Stockpiling or windrowing of the material along the roadside shall not be permitted.
49. Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work site. When used during periods of darkness, such barricades, warning signs and hazard markings shall be suitably illuminated. All traffic control devices and their placement shall be in accordance with the latest Texas manual on uniform traffic control devices.
50. Drainage shall not be permanently obstructed in the channel during the course of construction. In the event a temporary obstruction is required, properly sized equipment shall remain on site for removal of said obstruction in case of an immediate emergency or storm event.
51. The contractor shall provide a telephone number and other contact information to the city prior to construction. The contractor shall be on-call during construction 24-hours each day, seven days per week.
52. Contractor shall keep a minimum of one complete set of construction drawings on-site at all times.
53. Any work that is called for in the plans that is not included in a specific bid item shall be considered supplementary to the various bid items and will not be paid for directly.
54. Ingress and egress to the adjacent properties shall be maintained by the contractor at all times. De-watering activities and equipment shall be subsidiary to the various bid items.

II. General Notes and Specifications for Water and Sanitary Sewer Utilities Only:

1. Contractor may install proposed water & sewer lines by open cut or horizontal directional bore on grade methods at his option unless specifically noted on plans. Payment shall be as per unit price as shown in bid items. All horizontal directional bore water lines shall be C900-class 150 restrained joint PVC per item 813. All open cut water lines may be bell & spigot per item 810.
 - 1.1. C-900 Class 150 Restrained Joint PVC for pipe less than or equal to 12" Diameter Pipe.
 - 1.2. C-905 Class 165 Restrained Joint PVC for pipe greater than 14" Diameter Pipe.
2. Contractor is made aware that the owner may not have the ability to isolate existing water lines for tie-in or abandonment purpose. Contractor is to coordinate with the owner at least 48 hours prior to making any connections to existing water lines to allow for owner to determine procedure to isolate the necessary water lines. Representative of the city to be on site while all connections are made.
3. Contractor shall schedule tie-ins that will disturb water service to residents with the city. Contractor shall be required to hand out notices to the residents 24 hours prior to scheduled disturbances.
4. Contractor will be responsible for transferring water service lines from lines to be abandoned to proposed water lines.
5. Water and sewer service lines are not shown. The Contractor is to locate these lines in the field prior to construction.
6. Proposed water lines shall be a minimum of 4' bury to top of pipe.
7. Connecting all existing sanitary sewer lines to proposed manholes will not be paid for separately but will be incidentals necessary to complete the work.
8. All sanitary sewer lines are to be as follows unless otherwise noted:
SDR-26 PVC.
9. Existing sanitary sewer manholes or sanitary sewer pipe to be abandoned or plugged will not be paid for separately but will be incidentals necessary to complete the work.
10. Connecting all proposed sanitary sewer lines to existing or proposed manholes or junction boxes will not be paid for separately but will be incidentals necessary to complete the work.
11. Asphaltting of street cuts for sanitary sewer crossings will not be paid for directly but shall be considered subsidiary to appropriate bid items.
12. Contractor shall contact field supervisor 5 days prior to beginning construction.
13. Contractor shall provide 7 sack concrete for all street crossings as required to maintain traffic flow as directed by the engineer.
14. Contractor shall be responsible for restoration of all property corner markers disturbed during construction.
15. Contractor shall avoid disturbing all fences. Any fences disturbed shall be restored at the contractor's expense.
16. All utilities shown are for informational purposes and their exact location must be determined by the contractor prior to any construction.
17. Contractor shall install all existing and new water and sanitary sewer service lines up to the respective property lines on all selections of new water and sanitary sewer mains in accordance with the details in this contract. The contractor shall install sanitary sewer services lines using PVC schedule 40 (ASTM d1785) by open trenching, pipe bursting, static pipe bursting, or other method approved by the engineer. A cleanout shall be installed on each sanitary sewer service connection at the property line. Service connections on the same side of street as the sewer mains and service connections in alleys will be paid as "short side"

service connections. Service taps where the sanitary sewer main is on the opposite side of the street from service connection or main is under center of street (i.e., Service line runs under more than half of street) will be paid for as "long side" service connections. Service taps into manholes will be paid as either "short side" or "long side," depending on the location of the manhole with respect to the service connection.

18. Contractor to expose and verify location, size, and depth of all existing water lines at proposed connection locations prior to any construction.
19. All water line fittings to be ductile iron with mechanical joints (Mega lug type).
20. Thrust blocking to be used at all fittings per details.
21. All sanitary lines if deemed necessary by the engineer will need to be televised.
22. Contractor shall perform a pressure test on each segment of water and sanitary sewer lines in accordance with city of Beaumont specification. All sanitary lines if deemed necessary by the engineer will need to be televised. The contractor shall provide all necessary equipment for testing and the cost for testing shall be considered subsidiary to the various bid items on the contract. All testing shall be done by the Contractor at no cost to the City and shall be witnessed by the inspector Any segments of line not passing the required tests shall be promptly corrected.
23. Contractor shall provide an asbestos abatement plan outlining the construction procedures planned for this project specifically referencing the requirements of the EPA's national emissions standards for hazardous air pollutants standard (40 CFR part 61, and applicable sections), OSHA construction standard 1926.1101 along with any other national, state or local standards for exposing, removal, disposing and monitoring the class II work.
24. For 6" commercial driveways, any water line that runs underneath shall be backfilled with cement stabilized sand.
25. For 4" residential driveways, any water line that runs underneath shall be backfilled with cement stabilized sand.
26. Televising the existing sanitary sewer lines before removal or replacement will not be paid for directly but shall be considered subsidiary to various utility bid items.
27. Payment shall be made in accordance with the bid specifications and the bid tab.

III. GOVERNING CONSTRUCTION SPECIFICATIONS

The governing construction specifications applicable to this work are the Texas Department of Transportation (TXDOT) 2024 Standard Specifications for Construction of Highways, Streets and Bridges as adopted by the State of Texas.

These items which are listed below and which are contained in the TX DOT 2024 Standard Specifications are hereby adopted and made part of the Contract Documents to the same extent as if they were herein reproduced in full subject to such modifications, revisions or supplements as may appear in the section entitled Special Provisions in these Contract Documents to follow:

Item 100	Excavation
Item 132	Embankment
Item 247	Flexible Base
Item 340	Dense Graded Hot Mix Asphalt (Method)
Item 360	Concrete Pavement
Item 403	Temporary Special Shoring
Item 404	Driving Piles
Item 409	Prestressed Concrete Piling
Item 424	Precast Concrete Structures (Fabrication)
Item 432	Riprap
Item 462	Concrete Box Culverts and Storm Drains
Item 464	Reinforced Concrete Pipe
Item 465	Manholes and Inlets
Item 466	Headwalls and Wingwalls
Item 502	Barricades, Signs, and Traffic Handling
Item 506	Temporary Erosions, Sedimentation, and Environmental Controls
Item 530	Intersections
Item 531	Sidewalks

STANDARD SPECIFICATIONS:

Adopted by the City of Beaumont Water Utilities Department, Standard Specifications are incorporated into the Contract by reference.

Item 600	Underground Construction of Water and Sewer Pipes
Item 601	Clearing and Grubbing
Item 605	Steel Casing
Item 702	PVC Gravity Sewer Pipe and Fittings
Item 708	Fiberglass Manholes
Item 711	Seeding and Sodding
Item 712	Trench Safety Systems
Item 801	Ductile Iron Pipe and Fittings
Item 805	Valve Boxes and Risers
Item 808	Fire Hydrants
Item 809	Testing and Sterilization of Completed Lines
Item 810	Polyvinyl Chloride (PVC) Pressure Water Pipe
Item 811	Resilient Wedge Gate Valves Sizes 4" Thru 36"
Item 817	Cement Stabilized Sand

Item 1578	Control of Ground Water and Surface Water
Item 1731	Cutting and Patching
Item 2221	Removing Existing Pavements and Structures
Item 2317	Excavation and Backfill Material for Utilities
Item 2320	Utility Backfill Material
Item 2533	Acceptance Testing for Sanitary Sewers
Item 2951	Pavement Repair and Resurfacing

SPECIAL SPECIFICATIONS:

Special Specifications will supplement specifications applicable to the individual project, not covered by the Standard Specifications.

The following Technical Specifications prepared by Schaumburg & Polk, Inc. are provided at the end of this document.

<u>Item</u>	<u>Title</u>
98	Abandonment or Removal of Old Structures
100	Structural Excavation, Foundations, & Backfill
110	Existing Utilities
200	Structural Concrete
201	Reinforcement Steel
300	Structural Steel
400	Underground Piping Construction
407	Jacking and Boring Concrete Box

IV. ITEM 600 SPECIFICATIONS FOR UNDERGROUND CONSTRUCTION OF WATER AND SEWER PIPES

600.01 - Description

Underground construction of water and sewer pipes includes all preparation of site, clearing, grubbing, excavation, street surface removal, boring, tunneling, dewatering, sheeting, bracing, laying and joining of pipe, bedding, backfilling, installation of fittings and manholes, testing, and cleaning up of the site. The work concludes furnishing of all materials, equipment, tools, labor and all other incidentals to complete the construction. Item 600 may not be mistaken for the Street Construction Specifications for the Public Works Department, Engineering Division of the City of Beaumont.

600.02 - Sequence of Work

The CONTRACTOR shall make adequate planning and preparation before excavation starts. CONTRACTOR shall notify the Water Utilities Engineer before beginning work. They shall pursue the job in an orderly fashion. The construction shall start with mains and proceed to laterals. All appurtenances shall be constructed as soon as the pipe line they serve is constructed to their location. The construction of appurtenances may be postponed upon approval of the ENGINEER and determination that the circumstances were beyond the control of the CONTRACTOR. A sufficient space as determined by the ENGINEER, shall be provided for proper installation at a later time.

600.03 - Site of Work

The OWNER will furnish the site, easements, or any right of way considered necessary by the ENGINEER. If CONTRACTOR needs more working area, they shall make their own arrangements and indemnify the OWNER from any damages or claims.

600.04 - Protection of the Public

The CONTRACTOR shall make any provisions necessary to protect the public from inconveniences and dangers caused by the construction. Storage and stringing of the material, equipment and excavation shall be done in a manner to cause minimum obstruction and inconvenience to the traffic and the property owners along or adjacent to the construction site. Fire Hydrants, water meters, water valves, gas valves, manholes, catch basins, and boxes for telephone, signal, and alarms shall not be obstructed or covered.

The CONTRACTOR shall make bridges or other provisions and arrangements approved by the ENGINEER to give access to the public across streams, highways, streets, sidewalks, and driveways. When required CONTRACTOR is to construct temporary bridges. Their responsibility for accidents shall include the roadway approaches and the structures of such crossings. The OWNER reserves the right to remedy any neglect by the contractor about the public conveniences and safety which may come to its attention. After twenty-four hours notice in writing to the CONTRACTOR, except in cases of emergency, when they shall have the right to remedy any neglect without notice, and, in either case, the cost of such work done by the OWNER shall be deducted from monies due or because of the CONTRACTOR.

600.05 Handling of Traffic

The CONTRACTOR shall make provisions necessary to handle, direct, and divert the traffic. Notify the Public Works Department, Transportation Division of the City of Beaumont of any change in traffic flow at least forty-eight (48) hours in advance.

If diversion of traffic requires construction of a temporary roadway, the CONTRACTOR shall make all arrangements at their own cost and to the approval of the ENGINEER and the Public Works Department, Transportation Division. If a street needs closing, the department shall be informed forty-eight (48) hours before closing, and also after opening street to traffic. Adequate signs to divert the traffic shall be used as directed by the Public Works Department, Transportation Division.

The CONTRACTOR shall make every attempt to save traffic signs and also traffic boxes, cables and lights. If any of these appurtenances need to be removed or moved accidentally, the Public Works Department, Transportation Division shall be informed immediately.

600.06 - Barricades, Lights, and Guard (s)

Where the work is in or adjacent to any street, alley, or public place, the CONTRACTOR, at their own cost and expense, furnish and build such barricades, fences, lights and danger signals; shall provide such guard (s) and shall take such other precautionary measures for the protection of persons or property and of the work necessary. Barricades shall be recently painted in a color that will be visible at night. From sunset to sunrise the CONTRACTOR shall furnish and maintain adequate lights at each barricade. An enough barricade shall be built to keep vehicles from being driven on or into any work under construction. The CONTRACTOR shall furnish guard (s) in sufficient numbers to protect the work.

The CONTRACTOR shall be responsible for all damage to the work because of failure of barricades, signs, lights and guard (s) to protect it, and whenever evidence found of such damage, the ENGINEER may order the damage portion immediately removed and replaced by the CONTRACTOR at the CONTRACTOR'S cost and expense. The CONTRACTOR'S responsibility for the maintenance of barricades, signs and lights, and for providing guard (s), shall not cease until the project is accepted by the OWNER.

Barricades, signs, and handling of traffic shall be in agreement with the Manual on Uniform Traffic Control Devices as adopted by the Texas Highway Department, and as directed by the Public Works Department, Transportation Division of the City of Beaumont, all in agreement with these specifications. A copy of the manual is available for review without charge at the Traffic and Transportation in City Hall.

600.07 - Protection of Utilities

The locations of utilities are not shown on the plans. The CONTRACTOR shall inspect the route of the construction during the bidding period to check the location of such utilities, and possibility of any conflict. Whenever existing utilities present obstructions to grade and alignment of pipes or appurtenances, the CONTRACTOR will notify the ENGINEER, who without delay, will determine whenever existing improvements are to be relocated or grade and alignment of pipe to be changed. When necessary to move services, poles, guy wires, pipe lines, or other obstructions, the CONTRACTOR will make necessary arrangements with owner-operator of utilities. The OWNER will not be liable for damages because of changes made by the owner operator of the utility which hinders progress of work, nor will the OWNER be liable for cost incurred in relocating utilities service poles, services and appurtenances.

The CONTRACTOR shall make any provision necessary to protect all utilities, services, and appurtenances. They shall locate and inform the owner-operator of a utility at least forty-eight

(48) hours before progressing to such utility. It is the responsibility of the CONTRACTOR to provide and install all beam span supporting, bracing, shoring, and sheeting necessary to support all utilities crossed at their own expense.

600.08 - Protection of Private Property

The CONTRACTOR shall not enter upon private property for any purpose without having previously obtained permission from the OWNER. The CONTRACTOR shall be responsible for the preservation of, and shall use every precaution to prevent damage to all trees, shrubbery, plants, lawns, fences, culverts, bridges, pavement, driveways, sidewalks, buildings, and service lines in or adjacent to private property. If a private property owner has a complaint, the CONTRACTOR shall take immediate action to satisfy the property owner.

600.09 - Preparation of the Site and the Route

The CONTRACTOR shall make all preparation necessary before excavation starts. The construction site and or the route which the pipe will be laid in shall be cleared and grubbed before pipe laying. All trees, stumps, brush, roots, logs, rubbish and other objectionable material shall be removed and disposed of in a manner approved by the ENGINEER. Burning and or hauling of the material shall be executed in compliance with ordinances of the City of Beaumont, County of Jefferson, or any other governmental body.

If work is proceeding through a utility easement, care shall be taken to clear all the proposed easement as specified above.

CONTRACTOR shall prepare the site furthermore by establishing drainage along the route if necessary, filling up holes, and generally leveling the site and or the route. The purpose is to keep the surface water away from the trench for pipe. It will also benefit the CONTRACTOR since soil conditions will improve and therefore the progress of the pipe laying.

600.10 - Protection of Street and Drainage

The CONTRACTOR shall make all attempts to keep streets and drainage open. Streets should be kept as clean as possible and mud scraped often as required and dust watered down if asked by the City. Drainage ditches shall be kept open and if filled by the CONTRACTOR, they shall be reopened before the crew leaves the site at the end of a working day.

If in the opinion of the ENGINEER the street needs to be closed, the CONTRACTOR shall inform the Public Works Department, Transportation Division and the residents being affected at least forty-eight (48) hours in advance. Attempts should be made to give temporary access to the residents of the blocking being affected. CONTRACTOR should attempt to minimize the duration of street closing by proper planning of the work and arranging for all the required material, equipment, and personnel. However, since the safety of the public is more important than the inconveniences imposed on, the CONTRACTOR should keep a closed street unpassable to through traffic and not open it until it is safe for through traffic.

If sections of the original pavement or surface are removed by the CONTRACTOR, the trench shall be filled according to the provisions of "ITEM 600.19 and 20". Fill the top layer of the street with limestone temporarily until the street is ready for surface replacement in agreement with "ITEM 600.20 and 21", until the street is ready for final replacement of the surface, CONTRACTOR should keep the street passable for the local residents.

The Street Division of the City of Beaumont makes the final inspection of pavements, streets, shoulders, drainage ditches, and structures related to their department. CONTRACTOR shall correct any problem pointed out by this department.

600.11 - Temporary Sewer and Drainage Connections

If existing sewers have to be taken up or removed, the CONTRACTOR at his cost and expense, provide and maintain temporary outlets and connections for all private or public drains and sewers. The CONTRACTOR shall also take care of all sewage and drainage which will be received from these drains and sewers; and for that purpose they shall provide and maintain, at their own expense, adequate pumping facilities and temporary outlets or diversions. The CONTRACTOR, at their own expense, shall construct such trough, pipe or other structures necessary, and at all times prepare to dispose of drainage and sewage received from these temporary connections until the permanent connections built and maintained under the contract, except where specified or ordered to be abandoned by the ENGINEER. All water or sewage shall be disposed of satisfactorily so that no nuisance is created and so that the work under construction will be adequately protected. Under no circumstances shall sewage be diverted to a drainage ditch, street, or natural ground.

600.12 - Control of Grade and Alignment

It is the responsibility of the CONTRACTOR to provide centerline stakes and cuts at each stake and to protect such stakes and control the alignment and grade. The CONTRACTOR may use any device such as level, transit or laser beam instrument to control the pipe laying. If the pipe alignment and grade is incorrect, it shall be taken out.

600.13 - Trench Excavation

The ground shall be excavated by the open trench method to the required depth, width, line and grade as given by the ENGINEER. The trench walls shall be vertical to a point not less than 12 inches above the top of the pipe. For all pipes the sides of the trench below the top of the pipe shall be less than 6 inches nor more than 8 inches from the side of the pipe for sizes 12 inches and less, and the pipe outside diameter plus 24 inches maximum trench width for pipe sizes 15 inches and larger. If the trench is excavated below the proper grade, it shall be refilled to grade with selected backfill material and thoroughly rammed without extra compensation, unless the extra excavation was ordered by the ENGINEER. In case of a cave-in and if the trench width is larger than the maximum allowed, selected backfill material shall be placed on sides of the pipe up to the undisturbed wall and compacted.

In sewer construction, use 3" of washed sand for final grading/bedding. In sewer and water construction, bell holes must be excavated before pipe placement.

600.14 - Locating Intersecting Pipes

The CONTRACTOR shall make attempts to locate intersecting lines ahead of pipe laying. They shall locate and excavate in advance service lines, sewers, and water lines which will be tied into the system under construction. Any pipe line or gas line, underground power lines, fiberoptic and telephone cables shall be located with proper notification.

600.15 - Sheeting and Bracing

The CONTRACTOR shall provide sheeting and bracing necessary for the protection of the work and employees. In the event the soil conditions are such that the CONTRACTOR should desire to leave such sheeting in place, they shall secure the permission of the ENGINEER to do so. Any cost of such sheeting and bracing shall be included in the unit price of laying pipe.

600.16 - De-watering

Under no circumstances shall the surface water be allowed to flow in the trench. When ground water exists in the trench, the CONTRACTOR shall make attempts to drain it away from pipe laying area or pump it out of the trench. If quicksand or water sand conditions appear in the trench bottom, the CONTRACTOR shall undercut the trench and replace it with granular material at no extra cost to the OWNER, and with the ENGINEER'S approval. City reserves the right to require the CONTRACTOR to use adequate dewatering and sheeting and bracing if the CONTRACTOR was not installing the pipe properly in unstable soil.

600.17 - Pipe Handling

The CONTRACTOR shall unload, store, and replace pipe according to the specifications of the pipe manufacturer. Care shall be taken not to damage the pipe by impaction or point loading. If using PVC or Truss pipe the pipe shall be kept in the shipping bundle until the day that it will be installed.

600.18 - Pipe Placement

The pipe shall be laid straight to the exact alignment and grade as given by the ENGINEER. No variation from the given alignment and grade will be permitted except to avoid existing underground mains, and then only upon the written permission of the ENGINEER. It is important to locate such mains in advance for possible conflict.

All pipe shall be laid with the spigot end or tongue end downstream entering the bell or groove to full depth. Care shall be taken in placing pipe to prevent any bedding material being dragged into or left in the annular space for sealing of the joints.

The pipe shall be examined for defects, cut to correct lengths, and the interior surface and the bell and spigot thoroughly cleaned of all foreign material. The ENGINEER reserves the right to reject any joint of pipe which has not completely complied with the provisions of these specifications. Any unsatisfactory joint shall be replaced without cost to the OWNER.

600.19 - Jointing and Backfilling

Jointing and backfilling depends on the pipe material. Under each item for a given material, jointing and backfilling provisions are specified.

As soon as jointing is completed, backfilling shall start. The trench shall be absolutely backfilled before the working day ends. Backfill material above the required 6 or 12 inch select backfill depends on the location of the line in relation to type of street or pavement.

- (a) Portland Cement Concrete Pavement and Flexible Base Asphalt Surfaces with curb and gutter, the trench shall be filled to the bottom of the pavement with a dry mixture of clean sand and one and one-half (1½) sacks of cement to the cu. yd., thoroughly tamped. This requirement shall apply to both trenches running along, parallel and under the pavement and in trenches crossing the pavement.
- (b) Flexible Base Asphalt Surfaces without Curb and Gutter in trench crossing flexible base surfaces with bituminous topping of any type or condition, the trench shall be filled to the bottom of the pavement surface with a dry mixture of clean sand and one and one-half (1½) sacks of cement to the cu. yd. thoroughly tamped. This requirement shall apply in trenches crossing this type of pavement surface; however, in trench running under and parallel to this type of surface the requirement shall be the same as that specified for dirt streets in (c) below.

- (c) Dirt Streets - The trench shall be backfilled with selected excavation of loose fine earth by either of two methods of backfill procedure, water tamping or power tamping. In using water tamping, the balance of the trench above the 6" height above the top of pipe shall be filled with the loose fine material in even layers not exceeding eighteen (18") inches in thickness of loose material and immediately flooded to complete saturation and left undisturbed for three (3) days.

The trench shall then be refilled and flooded again using poles to insure penetration of water to the full depth of the trench. This flooding shall continue until there is no further settlement. The top ten (10") inches of the trench shall be backfilled as per standard detail. Power tamping will be permitted only where the trench and backfill material are dry enough to permit satisfactory compaction. Backfill shall be placed in the trench in layers not exceeding twelve (12") inches in thickness.

On completion of the tamping, all excavated material shall be substantially replaced in the trench deducting the space occupied by the pipe and bedding. Compaction in all levels from six (6") inches above the top of the pipe to grade shall be not less than 90% of the Maximum density value as determined by the "Standard Laboratory Method for Compaction and Density of Soil", "AASHTO Designation T-99". The top six (6") inches of the trench shall be backfilled with gravel or insitu materials with no fines as per standard detail. The above procedure for dirt streets shall apply in trenches running in, parallel to and running across the normally maintained portion of the road or street right-of-way.

Whenever the trench is not in a street but in an easement or plant area which is not traveled, the backfill procedure shall be the same as for a dirt street, except for the top six (6") inches, refer to standard detail.

Whenever the trench is within a street right-of-way in which there is concrete or flexible base asphalt pavement but the trench is not in the paved portion of the right-of-way, the procedure shall be the same as for the dirt street, except that the shell in the top six (6") inches of the trench shall be placed only in driveway crossings, roadway shoulders and other areas where there will be light traffic. Where shell is omitted, the ground shall be restored to its original condition by the replacement of grass or any other improvement which existed before the construction.

In general, pipe shall be placed in a trench free of clods of dirt and bedded with a bedding material or natural ground free of any large clods to damage the pipe or its position. The material around the pipe up to the spring line shall be packed to 90% density

600.20 Removal and Replacement of Street Surfaces

The provisions of this item are same as those of Item 121.15 of the Street Construction Specifications for the Public Works Department, Engineering Division of the City of Beaumont.

This work shall comprise the cutting and replacement of pavement where such is necessary for the installation of pipe lines or appurtenances under the contract. The work shall include the furnishing of all labor, materials, tools and equipment and doing all work of whatever nature including the hauling and disposal of surplus materials necessary for the removal and later replacement of pavement in agreement with the plans and specifications.

Whenever pipe line construction occurs in any street, regardless of type of pavement, the contractor will make every effort to provide ingress and egress to residents living along said streets.

No separate items for pavement for removal and replacement of concrete, asphaltic, shell or gravel, streets shall be listed. The cost of this work shall be included in the unit cost per foot of pipe line.

- (a) Concrete Pavement: Concrete pavement shall include streets with a concrete slab, concrete base with topping, and asphaltic pavements with curb and gutter.

The CONTRACTOR shall not use equipment to cut trenches in existing pavements which will strike a heavier blow than is usual with a hand pavement breaker operated from an air compressor. The edges of the cut shall be trimmed to leave a vertical face of sound, unfractured, pavement.

The pavement shall be removed to a distance not less than twelve (12") inches back from a firm bank of the trench excavation.

All concrete for pavement replacement shall meet the requirements for concrete pavements as set out by the OWNER. Replacement of pavement shall be made as per Public Works Department, Engineering Division standard details as shown in the plans.

All replacement pavement shall be finished in a neat and workmanlike manner and protected and cured as its nature may require.

- (b) Streets other than Concrete pavement: Street pavements other than concrete and asphaltic pavements with curb and gutter may be removed with the excavation to the extent of the excavation. After backfilling the trench as specified elsewhere herein, the CONTRACTOR shall replace the pavement to its original condition.
- (c) Street surfacing: P. C. Concrete or asphaltic pavement, shall be replaced within 72 hours after completion of trench backfilling or be patched with three inches (3") of temporary asphalt and maintained until permanent replacement is made.

600.21 - Crossings of Driveways, Sidewalks, and Parking Areas

In backfilling the trenches which cross under driveways of any type (concrete, bituminous, shell and dirt), and under concrete sidewalks, the procedure shall be the same as that specified in Item 600.19 Paragraph (a) for concrete pavement which specifies a dry mixture of clean sand and one and one-half (1½) sack of cement to cubic yard thoroughly tamped. Such backfill shall also conform to provisions of the Public Works Department, Engineering Division Street Construction

Specifications of the City of Beaumont.

The CONTRACTOR shall restore driveways and their culverts to their original condition as soon as possible. They shall inform citizens which will be affected by this work before start of work.

600.22 - Highway Crossings

Crossings of highways shall be done according to the requirements set forth by the Texas Highway Department as explained in the permit. The ENGINEER shall provide the City of Beaumont Water Utilities Department with plan and profile drawings of the proposed construction. The City of Beaumont Water Utilities Department will acquire the permit. It is the responsibility of the CONTRACTOR to familiarize himself with the requirements.

The CONTRACTOR shall notify the maintenance superintendent of the Texas Highway Department at least 48 hours before any work starts. Adequate signs, flares, barricades and flagmen shall be used according to the State Highway Standards. Highway shall be restored to its original condition.

600.23 - Railroad Crossings

Crossings of the railroads shall be done according to the requirements set by the Railroad Company as explained in the permit. The CONTRACTOR and/or ENGINEER will acquire the permit. The completed permit shall be submitted to the City of Beaumont Water Utilities Department prior to construction. It is the responsibility of the CONTRACTOR to familiarize himself with the requirements.

The CONTRACTOR shall notify railroad roadmaster before crossing railroad at least 48 hours before any work starts. CONTRACTOR shall pay all costs connected with the furnishing by the railroad of foreman and/or crews for the supervision of work done by the railroad.

600.24 - Drainage Ditch Crossings

Crossings of drainage ditches and canals shall be done according to the requirements set by the authority in charge of the ditch as explained in the permit. The CONTRACTOR and/or ENGINEER will acquire the permit. The completed permit shall be submitted to the City of Beaumont Water Utilities Department prior to construction. It is the responsibility of the CONTRACTOR to familiarize himself with the requirements.

The CONTRACTOR shall notify the authority in charge before crossing ditch or canal at least 48 hours before any work starts. Adequate protection shall be taken to establish drainage back before the working day ends. The CONTRACTOR shall be responsible for any damages caused by the stoppage of drainage. CONTRACTOR shall restore the ditch or canal to its original shape and density as soon as possible.

600.25 - Pipe Line Crossings

It is the responsibility of the CONTRACTOR to locate all pipelines to be crossed, contact the owner of the pipeline, and make arrangements for crossing such lines. It is best to locate such lines a few hundred feet ahead of pipe laying operation, in order to make revisions in grade or alignment, if they are necessary and approved by the ENGINEER.

600.26 - Excess Excavation

Excess excavation shall be hauled and placed on properties designated by the OWNER. If OWNER does not have any use for the excess dirt, the CONTRACTOR at his cost is to make arrangements to dispose of the excess excavation in a manner approved by the ENGINEER.

Those portions of excavated fine quality soil may be used in the trench above the 6 or 12 inch select backfill. Such portions may also be used on the construction site if they are spread properly as directed by the ENGINEER.

600.27 - Plugging Ends

Before leaving the work for the night, or at any time, the end of the pipeline shall be securely closed with a water tight plug at the entire cost and expense of the CONTRACTOR.

600.28 - Tunneling, Boring, and Casing

Requirements for tunneling, boring, and casing depends on the permit issuing agency involved. However, the Water Utilities Department of the City of Beaumont should concur with the requirement set.

In general, casings shall have a uniform invert to be accepted for maintenance by the City of Beaumont. Furthermore, size of the casing shall be at least 6 inches larger than the outside diameter of the bell of the pipe.

Whenever a water line or sewer line is too shallow and pipe material is not adequate to withstand the traffic load at street crossings, casing or a rigid pipe such as ductile iron shall be used. An asphalt coated corrugated metal pipe may be used as a casing pipe under streets.

600.29 - Protective Coating

All bolts shall receive a protective coating of an asphaltic compound or shall be wrapped with a sand and cement (2 sack cement per 1 cubic yard of sand mixture).

600.30 - Spacing of Sanitary Sewers and Water Lines

A. Water Lines

Water lines shall be laid as per Texas Commission on Environmental Quality Control (TCEQ) regulations that will be determined on a case-by-case basis because of physical conditions, precautions shall be taken in securing absolute and permanent tightness of water pipe joints. No water pipe joint shall exist within nine feet (9') of the crossover point.

B. Sanitary Sewer Lines

Sanitary sewer lines shall be laid as per Texas Commission on Environmental Quality Control (TCEQ) regulations that will be determined on a case-by-case basis. Where this requirement cannot meet physical conditions, precautions shall be taken in securing absolute and permanent tightness of the sewer line joints.

600.31 - Testing and Acceptance

All water lines shall be flushed, sterilized and pressure tested according to the provisions of Section 809 before acceptance for maintenance by the Water Utilities Department of the City of Beaumont.

600.32 - Clean up

The CONTRACTOR shall remove from site of work, and from public and private property, all temporary structures, rubbish, waste material including all excess excavated materials, and all trees removed. The completed clean up shall not be greater than 1,000 feet behind pipe laying operation, however, this distance shall be reduced in residential areas. Not more than one block can be disrupted for construction. Clean up and testing may be done at the same time but clean up shall not be delayed on the account of testing. Pipe laying operation will be suspended temporarily if completed clean up is farther behind than 1,000 feet.

600.33 - Agency Requirements to be Met

All water and sewer lines installed in City of Beaumont shall meet the requirements of the Texas Commission on Environmental Quality Control (TCEQ).

600.34 - Measurement

Pipe will be measured by the linear foot of pipe complete in place. Such measurements will be made between the ends of the pipe barrel along the center axis as installed. Also consisting of all materials, labor, excavation, backfilling, testing, inspection, and other incidentals necessary to the complete installation.

End Of Section

V. ITEM 601- SPECIFICATIONS FOR CLEARING AND GRUBBING

Description

Clearing and grubbing shall consist of the removal and disposal of trees, stumps, brush, roots, vegetation, logs, rubbish and other objectionable matter.

Construction Methods

The entire street or drainage right-of-way and other specified areas shall be cleaned except such trees and brush as may be designated by the Engineer for preservation. Trees and brush designated to be left in place shall be carefully trimmed as directed and shall be protected from scarring, barking or other injuries during construction operations.

When directed by the Engineer, this item shall receive priority and shall be completed throughout the project.

Areas required for water and sanitary sewer construction shall be cleared and grubbed and roots and stumps must be removed to a depth of at least two (2) feet below the existing ground surface. All holes remaining after clearing and grubbing shall be backfilled and tamped as directed by the Engineer.

All cleared and grubbed material shall become the property of the Contractor and shall be disposed of at the Contractor's expense.

Measurement and Payment

When specifically included as a Bid Item, Clearing and Grubbing performed as specified herein, will be measured by the acre of surface area as measured on the ground within the limits designated on the plans. All work performed satisfactorily as specified and measured as herein provided shall be paid for at the unit price bid for "Clearing and Grubbing" which price shall be full compensation for furnishing all labor, materials, equipment, tools, supplies and incidentals necessary to perform the work as specified.

When not included as a Bid Item, Clearing and Grubbing will not be paid for directly but will be considered subsidiary to pay items.

End of Section

VI. ITEM 605 STEEL CASING

605.01 - GENERAL

This specification shall govern for underground construction using casing pipes in the excavation. The work shall be accomplished in accordance with these specifications and the requirements of Technical Specification Item 600, as they apply.

605.02 - MATERIALS

The carrier or casing pipe shall be of the type and strength as specified in these specifications, as follows:

A. Steel Casing Pipe

Steel casing used for underground construction shall be new and unused steel pipe of the size and thickness as shown on the plans and specifications. The exterior of the casing pipe shall have a minimum of 20 mil. DFT of cold tar epoxy (three coats) applied after surface preparation meeting SSPC - SP10-85 to a near-white condition, using an abrasive blast material. During installation operations, care shall be taken to protect the epoxy coating and to repair any damaged areas. The Contractor shall mechanically brush and repaint all welded joints or damaged areas. During the installation operation using a quick cure coal tar epoxy paint and allow the newly painted areas to dry to touch prior to placing the casing pipe into the excavation. The proposed carrier pipe with bell/spigot joints shall have spacers to center the pipe consisting of RACI casing spacers as manufactured by Public Works Marketing, Inc. or prior approved equal. Both ends of the casing shall be sealed water tight after inserting the carrier pipe, with rubber end seals.

B. Exposed Steel Casing Pipe

Steel casing used for creek crossing construction shall be new and unused steel pipe of the size and thickness shown on the plans and in the specifications. The exterior of the casing pipe surface preparation shall be SSPC-SP10 near-white blast cleaned and primed with Tnemec Series 66 Hi-Build Epoxoline consisting of a minimum dry film thickness of 4.0 mils, or an approved equal. Finish coat shall be Tnemec Series 69 Hi-Build Epoxoline II consisting of a minimum dry film thickness of 8.0 mils, or approved equal. The color of the finish coat shall be "Tank White". The proposed carrier pipe with bell/spigot joints shall have spacers to center the pipe consisting of RACI casing spacers as manufactured by Public Works Marketing, Inc. or prior approved equal. Both ends of the casing shall be sealed water tight after inserting the carrier pipe, with rubber end seals.

605.03 - MEASUREMENT

The casing will be measured by the linear foot of casing in placing. Such measurements will be made between the ends of the casing along the center axis as installed.

END OF SECTION

VII. ITEM 702 SPECIFICATIONS FOR PVC GRAVITY SEWER PIPE AND FITTINGS

702.01 – Special Requirement

The work includes all PVC (Poly Vinyl Chloride) Gravity Sewer pipe installed at locations and grades shown on plans and consisting of all excavation, backfilling, testing, and the furnishing of all materials, equipment, tools, labor, and incidentals for complete construction of the sewer line.

702.02 – Pipe and Fittings

All PVC (Poly Vinyl Chloride) sewer pipe and fittings installed under these specifications and intended as a gravity sewer line shall be manufactured to the dimensions and minimum design criteria as set forth in “Type PSM (Poly Vinyl Chloride) (PVC) Sewer Pipe and Fittings”, ASTM Designation D-3034, except as herein stated. Pipe shall have a minimum SDR of 26.

Joints used in installing PVC sewer pipe shall be of the bell and spigot confined rubber gasket type with joining in agreement with the manufacturer’s recommendations.

Pipe shall be installed in compliance with Item 600 of these specifications, manufacturer’s specifications, and ASTM Standard D-2321-72 for “Underground Installation of Flexible Thermoplastic Sewer Pipe” or latest revision thereof.

Pipe shall be kept in the bundle as shipped from the plant until the day it is installed. A deflection test may be required if deflection is apparent.

702.03 – Inspection and Testing

Upon request, the CONTRACTOR shall furnish the OWNER with a certified copy of test results showing that pipe supplier’s material meets the requirements of this specification and those set forth in ASTM D-3034

The finished gravity sewer line shall pass the test in agreement with the procedure outlined in Item 02533. If any section of line fails to pass the above test, the CONTRACTOR, at his own expense, shall locate and repair all defects and retest until the line passes the prescribed test.

702.04 – Method of Payment

Payment shall be by linear foot of pipe, complete in place, measured in agreement with Item

600.34 and consisting of all materials, labor, excavation, backfilling, testing, inspection, and other incidentals necessary to complete construction.

End of Section

VIII. ITEM 708 MANHOLES

1.00 GENERAL

1.01 SCOPE

The work included in this section of the Specifications shall consist of providing fiberglass manholes, cast-iron rims, covers, and stainless steel rain stoppers where indicated on the Plans.

1.02 QUALITY ASSURANCE

- A. Comply with the latest edition of the following standards:
 - 1. ASTM C270, Type M Mortar.
 - 2. ASTM D3753, Glass Fiber-Reinforced Polyester Manholes.

1.03 SUBMITTALS

Submit the following information in accordance with the requirements of Section 01300: Contractor's Submittal.

- A. Record Data
Submit record data of detailed drawings showing dimensions, materials, thicknesses of materials, manufacturer's installation instructions, accessories, fittings, hardware, anchorages, schedule of components, and other pertinent data.
- B. Certificate of Adequacy of Design.

2.00 PRODUCTS

2.01 MORTAR

Comply with Mortar for Unit Masonry, ASTM C270, for Type M mortar. The cement material used in the preparation of the mortar shall be Portland cement, Type I, normal, or Type II, moderate sulfate resistant.

2.02 CAST IRON FRAMES AND COVERS

Frames and slotted covers shall be furnished and installed in accordance with the details on the Plans and shall be East Jordan Iron Works V-1418-2 with City of Beaumont logo or approved equivalent, unless otherwise shown on the drawings.

2.03 FIBERGLASS MANHOLES

- A. Fiberglass manholes shall conform to all ASTM standards governing plastic laminations and the latest Glass Fiber-Reinforced Polyester Manholes, ASTM Designation D3753, with supplementary details or additions as set forth in these specifications.
- B. The barrel and cone shall each be produced in a continuous manufacturing process which ensures continuous reinforcement and uniform strength and composition. The cone section, if produced separately, shall be affixed to the barrel section at the factory with a reinforced glass-resin joint resulting in a one-piece unit. Field-made joints shall not be acceptable.
- C. C. The manhole shall be a circular cylinder with a minimum internal diameter of four feet.
The cone of the manhole shall have a bearing surface wide enough to facilitate the placement of concrete adjustment rings. The ring and cover shall not be placed directly on the manhole.
- D. Provide and install concrete grade rings to bring the cast iron frames to grade. Grade rings shall be 2 inches by 8 inches with an inside diameter of 24 inches.

E. Where PVC piping is connected to manholes, provide and install PVC sleeves with rubber gaskets and an abrasive silica outer coating. Sleeve shall be as manufactured by GPK products, Inc., of Fargo, North Dakota, or approved equivalent. Sleeve shall be firmly grouted into manhole opening in accordance with manufacturer's instructions.

F. Any manhole shall be rejected for failure to conform with any of the requirements of these specifications.

Any manhole found to be defective or damaged resulting from improper handling or installation shall be removed and replaced at no additional expense to the OWNER. Patching shall not be acceptable.

2.04 **MANHOLE INSERT**

A. Manhole inserts shall be furnished and installed at each manhole and shall be a stainless steel Preco Sewer Guard ME C-4 watertight manhole insert or equivalent.

B. The manhole insert shall be stainless steel and each of its components, the valve bodies, the valve plugs, the valve springs, and the gasket shall be manufactured of plastic, stainless steel, or other corrosion proof material.

C. Each insert shall contain a gasket manufactured of Grade RE-41 black closed cell neoprene and meet the requirements of ASTM D-1056-73T. The gasket shall have a pressure sensitive adhesive on one side and be placed on the underside of the insert rim by the manufacturer.

D. Each insert shall have a gas relief valve and a vacuum relief valve each designed to release at a pressure differential equivalent to approximately ½ psi and approximately 2.25 psi, respectively. The valve body shall be manufactured of specially formulated plastic polymers and the valve plug shall be neoprene confined within a stainless steel spring.

E. The manhole insert shall be manufactured and finished to fit upon the manhole frame rim upon which the manhole cover rests.

F. The manhole frame shall be cleaned of all dirt/debris before placing the insert upon the rim.

G. The insert lip with gasket shall be placed in contact with 360 degrees of manhole frame rim to retard water seepage between the insert and the manhole frame.

H. After the manhole insert has been installed on the manhole frame rim, note that the insert does not come in contact with the cover upon its removal or replacement (flipping).

I. After installation of the watertight manhole insert, the seal shall be water tested and shall not allow more than 1-gallon of inflow during a period of 24 hours.

3.00 **EXECUTION**

3.01 **INSTALLATION**

A. Manhole Base:

1. Inverts shall be built of concrete or half-sections of pipe (unless otherwise shown on the Plans) and shall be true and troweled to a smooth, hard finish. The invert depth shall be equal to one-half of the diameter of the largest pipe connected to the manhole, and shall be sloped at 1:1 between the inlet and outlet pipe flowlines. The top of the poured manhole invert outside of the flow channel shall be steeply-sloped to prevent solids deposition.

2. Concrete and reinforcing steel for the manhole base shall be placed in accordance with the details on the Plans and the applicable provisions of these Specifications.

3. Fiberglass manholes shall be installed in accordance with the manufacturer's recommendation and with supplementary details, addition or exception as directed by the OWNER and/or shown on the Plans. A minimum of 8 holes 5/8-inch in diameter shall be drilled around the periphery of the manholes, 2 inches from the bottom for use in securing the manhole to the concrete base.
 4. All concrete used in the construction of fiberglass manhole bases shall have a minimum concrete alkalinity of 70 percent calcium carbonate equivalency in the final concrete product. Alkalinity shall be tested in accordance with methodology set forth in Concrete Pipe Handbook, published by the American Concrete Pipe Association, or equivalent industrial standards, with test results provided to the ENGINEER for record data.
- B. Provide an adequate connection where the pipe connects to the manhole such that infiltration and exfiltration are prevented from occurring at the connection. When required, manhole adaptors shall be used. If the manhole base is concrete and cast-in-place around the pipe, an adapter gasket shall then be installed such that the gasket will serve as a watertight seal (water stop) between the pipe and concrete. If the manhole base has a pipe fabricated integrally with the manhole, then a manufacturer's recommended adaptor shall then be used to connect the pipe to the manhole pipe. If a "boot type" flexible connection is used, a minimum of two stainless steel straps shall then be used to secure the flexible connector to the pipe.
- C. Frames and covers shall be furnished and installed as required and indicated on the Plans.
- D. Use no more than 4 grade rings per manhole. Ring hold down bolts shall pass through rings into the top of the cone.
- E. Where piping is connected to a manhole, CONTRACTOR shall provide a resilient connector in accordance with ASTM C-923 and the specifications and drawings. Where resilient connectors cannot be made at manhole connections, CONTRACTOR shall ensure that the pipe on each side of the manhole does not extend further than six (6) feet from the outside of the manhole wall or base, and the concrete cradle extends to within one (1) foot of the end of the pipe.
- F. Where main sewer (lowest line) passes straight through manhole or degree of deflection of main sewer is less than 5 degrees, and no other line or stub-out is shown entering manhole below centerline of main sewer, lay sewer continuous through manhole. After manhole wall sections have been completed above top of sewer, break out and remove top half of barrel of sewer pipe that was previously laid through manhole. Use barrel of sewer pipe that was previously laid through manhole. Use concrete with 1-inch mortar topping and shape floor.

Where main sewer (lowest line) alignment deflects greater than 5 degrees at manhole or where another sewer or stub-out enters at or below centerline of main sewer, terminate main sewer pipe laying in such a manner that ends of pipe are 2 inches inside of manhole wall.

End of Section

IX. ITEM 711 SEEDING AND SODDING

SEEDING

1. **Description.** This item shall govern for preparing ground, providing for sowing of seeds mulching with straw, hay, or cellulose fiber and other management practices along and across such areas as are designated on the plans and in accordance with these specifications.
2. **Materials.** All seed must meet the requirements of the Texas Seed Law including the labeling requirements for showing pure live seed (PLS = purity x germination), name and type of seed. Seed furnished shall be of the previous season's crop and the date of analysis shown on each bag shall be within nine months of the time of use on the project. Each variety of seed shall be furnished and delivered in separate bags or containers. A sample of each variety of seed shall be furnished for analysis and testing when directed by the Engineer. The amount of seed planted per acre shall be of the type specified below.

<u>Common Name</u>	<u>Scientific Name</u>
Bermuda and giant Bermuda grass (Hulled or Unhulled)	Cynodon dactylon
Annual Rye	Lolium multiflorum
German Foxtail Millet	Setaria italica

3. **Planting Season.** Planting dates, seed mixtures and application rates shall conform to the following table:

<u>Application Rate</u>		
<u>Planting Date</u>	<u>Type(s)</u>	<u>(Lbs. per Acre PLS)</u>
April 1 - September 30	Bermuda and Giant	20
	Bermuda grass (Hulled)	
	Millet	40
October 1 - March 31	Hulled Bermuda	20
	Unhulled Bermuda	20
	Annual Rye grass	40

4. **Fertilizer.** All fertilizers used shall be delivered in bags or containers clearly labeled showing the analysis. The fertilizer is subject to testing in accordance with the Texas Fertilizer Law. A pelleted or granulated fertilizer shall be used with an analysis of 13-13-13- or having the analysis shown on the plans. The figures in the analysis represent the percent of nitrogen, phosphoric acid, and potash nutrients respectively as determined by the methods of the Association of Official Agricultural Chemists.

In the event it is necessary to substitute a fertilizer of a different analysis, it shall be pelleted or granulated fertilizer with a lower concentration, but the total amount of nutrients furnished and applied per acre shall equal or exceed that specified for each nutrient.

Pelleted or granulated fertilizer shall be applied uniformly over the area specified to be fertilized and in the manner directed for the particular item of work. The fertilizer shall be dry and in good physical condition. Fertilizer that is powdered or caked will be rejected. Distribution of fertilizer for the particular item of work shall meet the approval of the Engineer.

Unless otherwise indicated in the plans or specifications, fertilizer shall be applied uniformly at the average rate of 600 pounds per acre for all types of "Seeding."

5. **Sprinkle Irrigation.** Sprinkle Irrigation shall consist of the authorized application of water on those portions of the right-of-way as shown on plans or as directed by the Water Utilities Engineer, and as herein specified.

Water shall be furnished by the Contractor and shall be clean and free of industrial wastes and other substances harmful to the growth of grass.

This work will be done only at such time as approved by the Water Utilities Engineer and in sufficient frequency to allow optimum germination. The Contractor shall furnish and operate approved sprinklers which will insure the distribution of water in a uniform and controllable rate of application.

6. **Straw Mulch.** Straw mulch shall be oat, wheat or rice straw. Hay mulch shall be prairie grass, Bermuda grass or other hay as approved by the engineer. The mulch shall be free of Johnson grass or other noxious weeds and foreign materials. It shall be kept in a dry condition and shall not be molded or rotted.

7. **Cellulose Fiber Mulch.** Cellulose fiber mulch shall be a natural cellulose fiber mulch produced from grinding clean, whole wood chips, or fiber produced from ground newsprint with a labeled ash content not to exceed 7 percent. The mulch shall be designed for use in conventional mechanical planting, hydraulic planting of seed or hydraulic mulching of grass seed, either alone or with fertilizers and other additives. The mulch shall be such, that when applied, the material shall form a strong, moisture-retaining mat without the need of an asphalt binder. Application rate for mulch in HYDRO MULCH SEEDING shall be 2000 lbs./acre.

8. **Soil Stabilizer/Tacking Agent.** Soil stabilizer for hydro-mulch seeding shall be of a commercially available type approved by the Engineer and shall be applied at a rate of 40 lbs./acre unless otherwise specified.

9. **Construction Methods.** After the designated areas have been completed to the lines, grades and cross sections shown on the plans, and as provided for in other items of this contract, seeding shall be performed in accordance with the requirements hereinafter described. All areas to be seeded shall be cultivated to a depth of at least four inches (4"), unless otherwise directed by the Engineer. The seedbed shall be cultivated sufficiently to reduce the soil to a state of good tilth when the soil particles on the surface are small enough and lie closely enough together to prevent the seed from being covered too deep for optimum germination. Cultivation of the seedbed will not be required in loose sand where depth of sand is four inches (4") or more.

The cross-section previously established shall be maintained throughout the process of cultivation and any necessary reshaping shall be done prior to any planting of seed.

The following are four methods of seeding which may be specified in the plans:

10. **Straw or Hay Mulch Seeding.** The seed or seed mixture in the quantity specified shall be uniformly distributed over the areas shown on plans or where directed by the Engineer. If the sowing of seed is by hand, rather than by mechanical methods, the seed shall be sown in two directions at right angles to each other. If mechanical equipment is used, all varieties of seed as well as fertilizer may be distributed at the same time, provided that each component is uniformly applied at the specified rate. When seed and fertilizer are to be distributed as a water slurry, the mixture shall be applied to the area to be seeded within 30 minutes after all components are placed in the equipment. Upon completion of planting of seed, straw or hay mulch shall be spread uniformly over the seeded area at the rate of approximately 1½ to 21 tons of hay or 2 to 2½ tons of straw per acre. A mulching machine approved by the Engineer shall be equipped to inject a tacking agent into the straw or hay uniformly as it leaves the equipment at a rate of 0.05 to 0.10 gallon of tacking agent per square yard of mulched area. If the straw or hay and tacking agent are placed by hand, then the rate of application for the tacking agent shall be approximately 0.15 gallon per square yard.

11. **Cellulose Fiber Mulch Seeding.** The seed or seed mixture, in the quantity specified, and fertilizer, shall be uniformly distributed over the areas shown on the plans or where directed. If the sowing of seed is by hand, rather than by mechanical methods, the seed shall be sown in two directions at right angles to each other. If mechanical equipment is used, all varieties of seed as well as fertilizer may be distributed at the same time, provided that each component is uniformly applied at the specified rate. When seed and fertilizer are to be distributed as a water slurry, the mixture shall be applied to the area to be seeded within 30 minutes after all components are placed in the equipment. After planting, the planted area shall be rolled with a corrugated roller of the "Cultipacker" type. All rolling of the slope areas shall be on the contour. Upon completion of planting and cultipacking of the seed, cellulose fiber mulch shall be spread uniformly over the area at the rate of 2000 lbs. per acre given in dry weight of mulch per acre. A mulching machine, approved by the Engineer, shall be equipped to eject the thoroughly wet mulch material at a uniform rate to provide the mulch coverage specified.
12. **Hydro Mulch Seeding.** The seed or seed mixture, in the quantity specified, shall be mixed in an approved mixer/distributor with fertilizer and cellulose fiber mulch at the specified rates. Mixing and distributing shall be in such a manner so that thoroughly wet mulch material will be distributed at a uniform rate to provide the coverages specified. Soil stabilizer/tacking agent shall be added to the mixture at the specified rates.
13. **Broadcast Seeding.** The seed or seed mixture in the quantity specified shall be uniformly distributed over the areas shown on plans or where directed by the Engineer. If the sowing of seed is by hand, rather than by mechanical methods, the seed shall be sown in two directions at right angles to each other. If mechanical equipment is used, all varieties of seed as well as fertilizer may be distributed at the same time, provided that each component is uniformly applied at the specified rate. When seed and fertilizer are to be distributed as a water slurry, the mixture shall be applied to the area to be seeded within 30 minutes after all components are placed in the equipment. After planting, the planted area shall be rolled with a corrugated roller of the "Cultipacker" type. All rolling of the slope areas shall be on the contour.
14. **Required Coverage.** Germination and establishment of a good stand of Bermuda grass will be required in order to qualify any Seeding as "Acceptable Work." Substantial bare spots and ruts designed by the Engineer will be reseeded and fertilized as required to achieve germination. Isolated bare spots measuring 2 feet in diameter or less will be considered as acceptable work. These requirements will be adhered to assuming normal weather conditions. In the event of abnormal flooding conditions, these requirements will be applied to areas above measured highwater marks.

SODDING

The Contractor shall be responsible for restoration of all disturbed areas. Sod shall consist of St. Augustine grass. Prior to planting the St. Augustine grass, the Contractor shall prepare the disturbed area by removing all building materials such as concrete rubble, wood, bricks, etc. The planting area shall have straight edges, then be rough graded, and covered with top soil or sand. The contractor shall then apply starter fertilizer that is high in phosphate and mix it with the top soil prior to planting the sod. The Contractor shall completely (100% coverage) sod all disturbed areas. Once the sod is in place, the Contractor shall water within 30 minutes of installation and then water daily for approximately two (2) weeks.

End of Section

X. ITEM 712 TRENCH SAFETY SYSTEMS

712.01- General

1. **Description:**

The Contractor shall comply with the minimum requirements of this specification. Maintenance and inspection of any shoring and related equipment shall be the responsibility of the Contractor. Owner and/or Engineer reserve the right to require the Contractor to remove, repair and/or replace any portions of the shoring system deemed unsafe but the final responsibility for worker's safety remains with the Contractor.

The Contractor shall determine the safety system needed for the project within the minimum requirements of this specification. The Contractor shall submit to the Owner's Engineer a certified submittal from a Registered professional Engineer from the State of Texas that the Contractor's Trench Safety System meets the minimum requirements of this specification, and shall make adjustments as required by the Owner and/or Engineer to meet minimum requirements at Contractor's expense. Approval of a trench safety system by the Owner and/or Engineer shall not relieve the Contractor of his responsibility to provide a safe working place for his employees. The Contractor agrees to hold harmless and defend the Owner and/or Engineer against any claim resulting from failure of the trench system or lack of one.

2. **Regulatory Requirements:**

- A. Conform to applicable Occupational Safety and Health Administration (OSHA) Standards as contained in 29 CFR, Part 1926, Subpart P - Excavations (as may be amended) including OSHA "Proposed Rules: Excavations. Federal Register, Vol. 52, No. 72 Wednesday, April 15, 1987, pages 12325-12339." The sections that are made part of these specifications by reference include Sections 1926.652 and 1926.653.
- B. The Contractor's Trench Safety System shall be designed by "a registered professional engineer" or "a qualified person or a qualified engineer," such a person shall be a Professional Engineer registered in the State of Texas.
- C. The Contractor's "Engineer" shall develop a specific trench safety system design for the project in general compliance to the requirements set forth by House Bills 662 and 665 of the 70th Legislature, and in accordance with Part 1926.652(c)(4) of OSHA "Proposed Rules."

3. **Definitions:**

- A. Angle of Repose: The greatest angle above the horizontal plane at which a material will lie without sliding.
- B. Bank: A mass of soil rising above a digging level.
- C. Braces: The horizontal members of the shoring system whose ends bear against the uprights or stringers.
- D. Excavation: Any man-made cavity or depression in the earth's surface, including its sides, walls, or faces, formed by earth removal and producing unsupported earth

conditions by reasons of the excavation. If installed forms or similar structures reduce the depth-to-width relationship, an excavation may become a trench.

- E. Hard Compact Soil: All earth materials not classified as running or unstable.
- F. Kickouts: Accidental release or failure of a shore or brace.
- G. Sheet Pile: A pile, or sheeting, that form one of a continuous interlocking line, or a row of timber, concrete, or steel piles, driven in close contact to provide a tight wall to resist the lateral pressure of water, adjacent earth, or other materials.
- H. Sides, Walls, Faces: The vertical or inclined earth surfaces formed as a result of excavation work.
- I. Slope: The angle with the horizontal at which a particular earth material will stand indefinitely without movement.
- J. Stringers Wales: The horizontal members of a shoring system whose sides bear against the uprights or earth.
- K. Trench: A narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 feet.
- L. Trench Jack: Screw or hydraulic type jacks used as cross bracing in a trench shoring system.
- M. Trench Shield: A shoring system composed of steel plates and bracing, welded or bolted together, which support the walls or a trench from the ground level to the trench bottom and which can be moved along as work progresses.
- N. Unstable Soil: Earth material, other than running, that because of its nature or the influence of related conditions, cannot be depended upon to remain in place without extra support such as would be furnished by a system of shoring.
- O. Uprights: The vertical members of a shoring system.

712.02 - CONSTRUCTION MATERIALS AND MAINTENANCE

1. Materials used for sheeting, sheet piling, cribbing, bracing, shoring, and underpinning shall be in good, serviceable condition, and timbers shall be sound, free from large or loose knots, and of proper dimensions as called for in the latest revision of OSHA Construction Standards, Subpart P, "Table P-2 - Trench Shoring - Minimum Requirements," of which is made a part of these specifications. All materials which are found to be defective in any way shall be immediately removed from the job site. It shall be the responsibility of the Contractor to regularly check all trench safety equipment for soundness and adequacy.
2. Steel trench shields shall be constructed of steel plate sides, welded to a steel framework. All shields shall be constructed in order to provide protection equivalent to or greater than sheeting or shoring required for the trench. The Contractor shall provide written certification from the manufacturer's engineer to the Owner's Engineer of adequacy before using any trench shield. Adjustable jacks may be used in order to adjust the shield to varying trench widths. An access ladder shall be provided at the midpoint. Pipe or flat steel runners or wheels shall be installed under the side walls for ease of movement of the shield during trenching operations. Substantial lifting eyes and/or rings shall be welded at proper points for moving of the shield. For adaptability to deep and shallow trenches, the shield may be made with top and bottom sections. When the sides of the trench extend above the top of the shield, a reinforced roof with hatches shall be provided. Forced ventilation shall be provided for fully-enclosed shields.
3. All maintenance of the trench safety equipment shall be the sole responsibility of the Contractor.

712.03 - IMPLEMENTATION

Within fifteen (15) days after the Contract is awarded and prior to beginning any construction, the Contractor shall submit a written plan for a Trench Safety System specifically for construction of trench excavation, together with the general safety program required by OSHA standards governing the presence and activities of individuals in and around trench excavations. Failure to submit a Trench Safety System submittals required may result in forfeiture of the bid bond. The Trench Safety System submittal shall be all inclusive of specific requirements required by OSHA and Owner's Engineer.

The Contractor shall provide a trench safety system for all trench excavations which exceed a depth of five feet (5'). The Trench Safety System shall conform to the Occupational Safety and Health Administration (OSHA) standards, latest revision, the same of which is made a part of these specifications, along with the following additions and revisions. The types of trench safety systems currently allowed include shoring, bracing, solid shoring, sloping of the ground, and trench shields. The Contractor may submit an alternative method of trench safety, but may not implement until a sealed submittal by a Registered Professional Engineer from the State of Texas is approved by the Owner's Engineer. Should the Contractor decide to slope the sides of the trench, he shall have the angle of repose of the soil determined by an approved independent soil testing lab. At a minimum, the Contractor's design for sloping of the trench sides shall conform to the last revision of OSHA Construction Standards, Subpart P, "Table P-1 - Approximate Angle of Repose for Sloping of Sides of Excavations," which is made a part of these specifications. Soil core samples taken to a depth of at least the depth of the trench plus four feet shall be taken a minimum of every 700 feet. A minimum of two copies of the results of the lab tests shall be provided to the Engineer. The cost of the tests shall be included in the unit price bid for the trench safety system.

1. Each Contractor shall be responsible and liable for his own Trench Safety System, including self inspections, whether or not a project representative is present on the job site. The Contractor shall install additional safety equipment if requested to do so by the engineer. The Engineer's decision shall be final. The cost of additional trench safety equipment required shall be the responsibility of the contractor.
2. Before beginning any excavation, the Contractor shall make an inspection of the job site. He shall pay special attention to the type of soil or soils in which he will be working, any adjacent roads, highways, railroads, and any previous excavations. All underground installations shall be located, including utility lines, pipelines, etc., before any excavation begins.

The Contractor shall provide a trench safety system in every trench. The trench safety system shall be installed in a true horizontal position, be spaced vertically and shall be secured to prevent sliding, falling, or kickouts. The trench safety system shall be effective to the bottom of the excavation. All trenches shall be provided with an adequate means of exit at all times with spacings of 25 feet or less.

These means of exit shall be anchored in place in order to aid in the event a quick exit is necessary. During trench excavation, the excavated material shall be placed a minimum of two feet (2') away from the edge of the trench.

3. The Contractor shall make an inspection of all trench excavations. He shall check for any evidence of cave-ins, slides, etc. If any change in soil conditions or failure of the trench is found, the Contractor shall remedy such. All water shall be diverted by suitable means to prevent the entrance of same into any excavation. No water shall be allowed to accumulate in any excavation and shall be removed as soon as possible.

712.04 - INDEMNIFICATION

1. The Contractor shall indemnify and hold harmless the Owner, and the Owner's employees, agent and Engineer, from any and all damages, cost (including without limitation, legal fees, court costs, and investigation costs), judgments, or claims by anyone for injury or death of persons resulting from the collapse or failure of trenches constructed under this contract. These specifications for the trench safety system in no way relieve the Contractor of his responsibilities and liability to ensure the safety of the workers or any other party from the hazards of the construction operations.

2. The Trench safety system plan by the Contractor's Engineer should cover the situations that may be encountered during construction. It should be recognized that information contained in the required Geotechnical report is based on the data obtained from the soil borings and conditions along the line route may differ from those found at the soil boring locations. It is the Contractor's responsibility to detect varying conditions which may be hazardous and take appropriate action.
3. The Contractor is responsible for determining the appropriate trench safety systems necessary for specific locations based on actual subsurface conditions encountered during construction. The Owner and Owner's Engineer shall be held harmless from any claim or liability for injury or loss that results from failure on the part of the Contractor to implement the Trench Safety System plan properly or to make necessary changes to the trench safety systems necessitated by conditions encountered during construction.

712.05 - MEASUREMENT AND PAYMENT

The specified trench safety system will be measured by the linear foot along the centerline of the pipe, including manholes/inlets, in accordance with the specifications. Payment for the trench safety system, measured by prescribed above, will be made at the unit price bid per linear foot.

Payment shall be full compensation, in accordance with the pay item set in the bid for the trench safety system, including but not limited to all benching, sloping, hauling, shoring, sheeting, excess excavations, dewatering, sheet piling, bracing, trench shields, and all other incidentals necessary to provide the trench safety system as specified in the approved Trench Safety System plan.

End of Section

XI. ITEM 801- SPECIFICATIONS FOR DUCTILE IRON PIPE & FITTINGS

801.01 - General

These Specifications cover the furnishing and the installing of ductile iron pipe and ductile iron fittings, including taps, connections, and appurtenances as required for a functional system as indicated herein.

- (a) All ductile iron pipe furnished under the Specifications shall be manufactured by either of the following processes:
 - 1. Nominal sizes 4-inch through 24-inch centrifugally cast in Metal Molds and Sand Lined Molds in conformity with AWWA Standard Specifications C151/A21.51-96 except as may be herein modified.
- (b) All ductile iron pipe furnished under the specifications shall be in agreement with AWW Standard Specifications C150/A21.50-96 and C151/A21.51-96.
- (c) All pipe shall be AWWA Class 150 standard weight and wall thickness for installation in flatbottom trenches with tamped backfill of four (4) foot cover. Joints shall be flange, mechanical joint, or of the push-on type as specified and furnished in nominal 16 or 18 foot lengths. Rubber gasket joints shall conform with American Standards' Association Specification C111/A21.11-95.
- (d) All pipe shall be furnished with standard outside coatings consisting of coal tar. Inside surface of nominal pipe sizes 4-inch through 48-inch shall be Cement Mortar lined to standard thickness and sealed in conformity with AWWA Standard Specifications C104/A21.4-95.
- (e) All pipe shall be acceptable, without penalty, to the Texas Fire Insurance Commission for use in Water Works Distribution Systems.

The plans show size, approximate location and arrangement for all piping and responsibility for exact "make-up" rests with the CONTRACTOR.

801.02 - Fittings

- (a) All fittings shall be short body ductile iron designed and manufactured in conformance with "AWWA Standard Specifications" C110/A21.10-98 revision thereto.
- (b) Fittings shall be furnished with the type of joint and end combinations as well as pressure class specified. Mechanical joint fittings shall be furnished complete with glands, gaskets and bolts. All bolts shall be coated according to provisions of Item 600, Section 600.29.

Push-on fittings shall be furnished complete with joint gaskets and lubricant. Flange joint fittings shall be furnished complete with gasket and bolts.

All mechanical joint pipe and fittings shall be supplied with ductile iron T-Head bolts with hexagonal nuts and shall comply with ASTM A536 ANSI-AWWA standard specification C-111/A21.11-95.

All fittings shall be furnished with standard outside coatings consisting of coal tar. Fittings shall be cement mortar lined and sealed in conformity with AWWA Specification C104/A21.4-95.

801.03- Hammer Test

All pipe shall be inspected for defects and rung with a light hammer to detect possible cracks while suspended and before lowering. Any defective, damaged or unsound pipe shall be rejected.

801.04- Laying Ductile Iron Pipe

The laying of the pipe and the making of the joints shall be in agreement with AWWA Standard Specification C600-99 or the latest revisions thereof. Pipe shall be "poly" wrapped in agreement with AWWA Specification C105/A21.5-99.

801.04- Concrete Blocking

Concrete having a compressive strength of not less than 1,500 psi shall be used as a cradle or blocking where shown on the Plans or where directed by the ENGINEER. Bends, crosses with one opening plugged, and all tees shall be blocked with reinforced concrete as a thrust blocking. Blocking shall be placed between solid ground and the fitting to be anchored to the size and shape as shown on the Plans or as directed by the ENGINEER.

801.06- Cutting Pipe

Plans show size, approximate location and arrangement for piping. Responsibility for furnishing and installing exact lengths of various sized pipes for exact "make-up" rests with the CONTRACTOR.

Pipe cutting for insertion of valves, fittings, or closure pieces shall be done in a neat and workmanlike manner with no damage to pipe.

801.07- Method of Measurement

All pipe shall be measured by the linear foot along the centerline of pipe completed in place. The length of reducer shall be included with pipe of same size as the larger end of the reducer. It shall be noted that deductions will be made from the pipe measurement for all specials, fittings, valves, and any other appurtenances which appear in the Proposal as a bid item.

End of Section

XII. ITEM 805- SPECIFICATIONS FOR VALVE BOXES AND RISERS

VALVE BOX

Valve box complete with water lid 24"

Min. - 36" Max.

Extension 5¼" Shaft Tyler Pipe

#562-S

Valve box complete with water lid 16"

Length

5¼" Shaft Tyler Pipe #562-S Valve box

complete with water lid 10" Length

5¼" Shaft Tyler Pipe #461-S

RISERS

6" C-900 pipe for Shaft between Valve box and Valve equipment

End of Section

XIII. ITEM 808- SPECIFICATIONS FOR FIRE HYDRANTS

808.01 - Special Requirement

Fire hydrants furnished as part of water system extension or improvements shall be same type and brand as fire hydrants purchased by the City's Water Utilities Department under annual contract.

Terms of the annual contract require the Supply Company to furnish fire hydrants to contractors at a cost no greater than the City's contract price. The annual contract will be renewed each January. Contact the Water Utilities Office at (409) 866-0062 for the type of hydrant being used.

808.02 - Specification

Fire hydrants shall conform to requirements and test of AWWA Standard for Dry Barrel Fire Hydrant – C502-94 or latest revision thereof, as they pertain to the design, component materials, construction and manufacture, except as modified or supplemented below:

- Operating nuts on hydrants must be bronze, non-rising, pentagonal in shape, open counterclockwise, and measure 1-1/2" from point to flat.
- Hold-down nut on hydrants must incorporate an integral resilient weather seal and be e-coated epoxy.
- The lubrication chamber must be provided sealed top and bottom with "O" rings and filled with lubricant which shall be food grade grease. The design shall be such that the thrust collar and the threaded operating parts are automatically lubricated each time the hydrant is cycled. There must be not less than two (2) "O" rings separating the lubrications reservoir from the waterway and that portion of the stem contracting these "O" rings shall be sleeved with bronze. An anti-friction device must be in place above the thrust collar to further minimize operating torque.
- The bonnet on each hydrant must be attached to the upper barrel by not less than six (6) bolts and nuts, with an inserted flat rubber gasket as a pressure seal. The bonnet must incorporate a flat surface in the bottom to provide for an integral stop nut attached to the hydrant rod to limit the open travel.
- Hydrants must be "three-way", having two (2) 2-1/2" hose nozzles and one (1) pumper nozzle, measuring 4-1/2" I.D. with 4-491 City of Beaumont threads.
 - Nozzles must attach clockwise into hydrant barrel utilizing a breach-lock design with clockwise rotation into hydrant barrel utilizing "O" ring pressure seals.
 - A suitable nozzle lock must be in place to prevent inadvertent nozzle removal. Lock shall use a ductile iron threaded retainer ring that threads onto the nozzle and mates against the nozzle outlet and is "O" ring sealed.
 - "Traffic model" having upper and lower barrels joined approximately 3-1/2-inches above the ground line by a separated and breakable "swivel" flange providing 360-degree rotation of upper barrel for proper nozzle facing. This flange must employ no less than eight (8) bolts.
 - Stem must be two-piece, 1" x 1" square (excluding threaded or machined areas) and must be connected by a breakable stem coupling that is e-coated epoxy near the ground line flange. Screws, pins, bolts, or fasteners used in conjunction with the stem coupling must be stainless steel.
- Hydrant barrel casting must be ductile iron and e-coat epoxy primed, and painted silver with polyurethane top coat. The inside diameter of the hydrant barrel shall be six and one-eighth inches (6-1/8").
- Main valves must be compression type closing with the pressure and must not be less than five and one-quarter inch (5-1/4") diameter. Composition of the main valve must be molded rubber of EPDM having a durometer hardness of 95 +/- 5 and must not be less than 1-inch thick. Valve assembly shall consist of three parts: valve top, hydrant valve rubber, valve bottom. Valve top and bottom shall be C550 FBE epoxy and interlock to prevent unthreading of the assembly. The valve assembly shall be locked to the lower rod using a stainless steel clevis pin.
- Hydrants must be equipped with a spring to give positive shut off to the drain lever with a maximum of three complete turns of the operating nut. Hydrant must have throttling capability without causing damage to the drain mechanism. Hydrant shall employ a stop nut to restrict travel of the stem. Upper and lower plates to be epoxy coated per AWWA C-550. All assembly bolts shall be of the same

dimension for ease in repair.

- Seat ring and drain must be bronze meeting ASTM B-62 and work in conjunction to form an all-bronze drain way. Two (2) internal drains and four (4) external drain openings are required. Seat ring seals must be “O” rings. The 6-inch shoe connection must be specified (flanged, A/C, M.J., etc.) and must be of ductile iron and AWWA C550 fusion bonded epoxy.
- Each fire hydrant shall have a working pressure rating of 250 PSIG and tested at not less than 500 PSIG.
- Upon request, supplier must furnish flow data, indicating friction loss in pounds per square inch (PSI) at the flow of 1,000 gallons per minute (GPM) from the pumper nozzle, such friction loss must not exceed 3 PSI.
- Hydrants shall have a manufacturer’s published warranty against defects in material or workmanship for a period of ten (10) years from date of manufacture.
- The manufacturing facility for the hydrant must have current ISO 9001 certification.
- The barrel joint shall be designed so that the hydrant shut-off valve will remain closed and reasonably tight against leakage if an impact accident resulting in damage or breaking of the hydrant above or near ground level. The joint shall be provided with a breakable bolt flange or breakable coupling.
- All necessary bolts, glands, and gaskets for complete installation of each hydrant shall be supplied with each hydrant and shall conform to AWWA Standard Specification C111.72. They shall be shipped and stored in such a manner to prevent rusting or other damage before installation. All bolts installed below ground shall be 304 stainless steel.
- Hydrants shall be American Flow 5-1/4” B-84-B or pre-approved equal

808.03 - Installation

Fire hydrants shall be connected to the main by means of a swivel (anchor) tee, mechanical joint gate valve with valve box, and a variable length Fire Hydrant Gradelok anchoring device.

Where Gradelok cannot be used concrete having a compressive strength of not less than 1,500 psi shall be used, as a cradle or blocking as shown on the plans, or where directed by the ENGINEER. Blocking shall be placed between solid undisturbed ground and the fire hydrant elbow (inlet shoe).

Bury depth is variable, depending on depth of main. Runout pipe to be horizontal. Ground line flange to be set 3" above ground.

808.04 - Salvage

Fire Hydrants which have been abandoned and/or replaced shall remain the property of the City. Deliver salvaged items to 1350 Langham Road, Beaumont, Texas.

End of Section

XIV. ITEM 809 SPECIFICATIONS FOR TESTING AND STERILIZATION OF COMPLETED LINE

809.01 - Procedure

Flushing, checking, chlorinating, sampling and testing of the completed line shall be done in the following sequence:

1. Flush line properly through valve or other opening at dead end. Area of opening should be no less than 1/4 area of pipe being flushed and not less than 2".
2. Chlorinate line. Pressure drop and flow should be away from point of chlorination and should be toward dead end (open) of line, not toward City connection. Chlorination shall be in agreement with AWWA Specification C651-99.
3. Make specified pressure test using City water through a direct connection to pump suction, using water hoses approved for "drinking" water to the standards set by the City of Beaumont and AWWA.
4. Make bacteriological test before and after pressure test.
5. Installation, disinfection, and testing shall meet the requirements of the "Rules and Regulations for Public Water Systems" adopted by the Texas State Department of Health, September 9, 1973.

If a line failure occurs where a joint or portion of a joint of pipe is replaced, that section of line should be isolated by closing adjacent line valves and the open line kept free of foreign matter. Make repairs and use HTH liberally, then flushed out at the nearest hydrant.

In extreme cases of failure, the CONTRACTOR may be required to repeat the entire chlorination procedure.

City personnel only may open and close existing valves.

809.02 - Pressure Testing

After pipe is laid and backfilled as specified, all newly laid pipe shall be subject to a hydrostatic pressure equal to 120% of the class of pipe unless otherwise noted on specification of pipe material, but shall not be less than 180 pounds per square inch. Water for testing shall be furnished by the City at the nearest convenient connection approved by the Water Utilities Engineer of the Water Utilities Department. The duration of each pressure test shall be two (2) hours.

809.03 - Pressure Test Procedure

The CONTRACTOR, after back-filling or partial back-filling all newly laid pipe, shall slowly fill the lines with water expelling all air. The CONTRACTOR shall use all available outlets to accomplish this, such as hydrants, air relief valves and taps when specified. Should additional taps be needed to vent air from high points in the line, the same shall be installed by and at the expense of the CONTRACTOR. The CONTRACTOR shall install certified gauges on the line tested at spacing not to exceed 2000 feet and at the end of the test section.

The water under pressure (10 to 50 psi), shall be allowed to stand for not less than 24 hours to allow for absorption before applying a pressure test.

During this period, the bulkheads, valves, and connections shall be examined for leaks.

A test pressure of not less than 180 psi shall be applied to valve or bulkhead sections by a dedicated hydrostatic test pump, 300 psi liquid filled guage, and water meter.

The CONTRACTOR shall furnish, install and operate at their own expense the necessary connections, pumps, meters and gauges in filling the line and making the test. The water necessary to maintain the test pressure shall be measured through a meter or other means satisfactory to the ENGINEER. If using "other means", an authorization letter by the City of Beaumont Water Utilities Engineer is required to be onsite during the test.

809.04 - Permissible Leakage

No pipe installation will be accepted until or unless the leakage in the foregoing test is less than the following values (based on nominal diameters, a 24-hour day, and 150 psi pressure):

- (a) Ductile Iron Pipe: 24 gallons/(inch diameter--mile--day) for 18 foot length joints of pipe, evaluated on a basis of 150 psi.
- (b) Reinforced Concrete Pressure Water Pipe, Steel Cylinder Type, Prestressed or Pretension: 35 gallons/(inch diameter--mile--day).
- (c) Polyvinyl Chloride (PVC) C-900 Pipe: 24 gallons/(inch-- diameter--day).
- (d) For other pressures the ratio of the square roots of pressures shall be used in determining allowable leakages.
- (e) The leakage shall be considered the amount of water entering the pipe line during the test, less the measured leakage through valves or bulkheads.

809.05 - Sterilization

When repairs made to existing mains or when new main extensions are provided, they must be disinfected by the CONTRACTOR using such amount of chlorine or chlorine compounds to fill the repaired or new mains and appurtenances with water containing 50 ppm chlorine. After the water containing this amount of chlorine which is greater than that normally present in drinking water has been in contact with the pipe and appurtenances at least 24 hours, the water shall be replaced with water to be transported normally and samples of water from the new or repaired main submitted to laboratories for bacteriological examination to be sure that the disinfection procedure was effective.

End of Section

XV. ITEM 810- SPECIFICATIONS FOR POLYVINYL CHLORIDE (PVC) PRESSURE WATER PIPE

810.01 - General

- (a) Pipe sizes 4 inches through 12 inches shall conform to American Water Works Association Standard C900-97 or the latest revision thereof, for pipe of class 150 with cast iron outside diameter.
- (b) Pipe sizes 14 inches through 24 inches shall conform to American Water Works Association Standard C905-97 or the latest revision thereof, for pipe of class 165 with cast iron outside diameter.
- (c) Unless contrary to these specifications, the CONTRACTOR shall handle, haul, and store pipe and other materials in agreement with the manufacturer's recommendations.
- (d) All pipes must be acceptable, without penalty, to the Texas Fire Insurance Department for use in Water Works Distribution Systems.
- (e) Gasket shall be glued or held in place with a retainer ring.

810.02 - Manufacturer's Certificate

The manufacturer shall supply the City of Beaumont with an affidavit that the materials supplied for this contract comply with all applicable requirements of AWWA C900-97 or C905-97 standards.

810.03 - Fittings

- (a) All fittings for polyvinyl chloride pressure water pipes shall be gray iron or ductile iron design and manufactured in conformance with AWWA Standard Specifications C110/a21.10-98 revisions thereto.
- (b) Fittings shall be furnished with type of joint and end combinations and pressure class specified. Mechanical joint fittings shall be furnished complete with glands, gaskets and bolts. Flange joint fittings shall be in agreement with AWWA Standard Specification C111/A21.11-95.
- (c) All fittings shall be furnished with standard outside coatings consisting of coal tar or asphalt base bituminous materials. Fittings shall be cement mortar lined to standard thickness and sealed in conformity with AWWA Standard Specification C104/A21.4-95.

810.04 - Trench

- (a) Minimum width of trench shall be outside diameter of pipe plus twelve (12") inches. Maximum width of trench shall be outside diameter of pipe plus twenty-four (24") inches. Depth of cover shall be three (3') feet over the top of the pipe, unless otherwise authorized by the Water Utilities Engineer. In places where lines cross roadway ditches or drainage ditches in open excavation, the cover shall meet the requirements of the crossing's Owner from top of pipe to flow of ditch.
- (b) Preparation of trench bottom. The trench bottom should be constructed to provide a firm, stable, and uniform support for the full length of the pipe. Bell holes should be provided at each joint to permit proper assembly and pipe support. Any part of the trench bottom below grade should be backfilled to grade and should be compacted as required to provide firm pipe support.

810.05 - Laying of PVC Pipe

- (a) Laying of pipe. To prevent damage, proper implements, tools, and equipment shall be used for placement of pipe in the trench. Under no circumstances drop pipe or accessories into the trench. All foreign matter or dirt shall be removed from the pipe interior. Pipe joints should be assembled with care. When pipe laying is not in progress, open ends of installed pipe shall be closed to prevent entrance of trench water, dirt, foreign matter, or small animals into the line.

- (b) Pipe embedment. PVC pipe shall be installed with proper bedding providing uniform longitudinal support under the pipe. Backfill material shall be worked under the sides of the pipe to provide satisfactory haunching. Initial backfill material shall be placed to a minimum depth of 12 inches over the top of the pipe. All pipe embedment material shall be selected and placed carefully, avoiding stones (over 1/2 inch in size) and debris.
- (c) Final backfill. After placement and compaction of pipe embedment materials, the balance of backfill materials may be machine placed. The material should contain no large stones or rocks, or debris. Proper compaction procedures should be exercised to provide required densities.

810.06 - Concrete Blocking

Concrete having a compressive strength of not less than 1500 pounds per square inch shall be used as a cradle or blocking as per manufacturer's recommendations. Bends, crosses with one opening plugged, and all tees shall be placed between solid ground and fitting to be anchored to the size and shape as per manufacturer's recommendations. Gate valves shall be anchored as per manufacturer's recommendations.

810.07 - Service Connections

Make service connections in accordance with AWWA Manual M23 "PVC Pipe - Design and Installation" and the instructions from the Manufacturer. Use a service clamp or saddle to connect 2" and smaller services to PVC pipe sizes 4" - 12". Use a ductile iron Tapped tee to connect 3" service connections.

810.08 - Method of Measurement

All pipe shall be measured by the linear foot along centerline of the pipe complete in place. The length of reducer shall be included with pipe of the same size as the larger end of the reducer. It shall be noted here that deductions will be made from pipe measurements for all specials, fittings, valves and other appurtenances which appear in the Proposal as a bid item.

End of Section

XVI. ITEM 811- SPECIFICATIONS FOR RESILIENT WEDGE GATE VALVES 4" THRU 66

811.01 – General Description

Gate valves shall conform strictly to American Water Works Association Standard Specifications requirements for Resilient Wedge Gate Valves for Ordinary Water Works Service C515-01, including changes and additions specifically stated in these specifications. Valves shall have an unobstructed waterway equal to or greater than the full nominal diameter of the valve.

811.02 – Testing and Operating Procedures

All gate valve parts shall be designed to withstand safely and without permanent deformation both stresses resulting from an internal test pressure of 500 psi and combined stresses resulting from full internal pressure of 250 psi for valves sized up to and including 66 inches.

Further, the valve body and the internal parts of all valves shall be so constructed to develop full strength of the valve to the point of failure, in moving the valve gates in either direction across their seats from the point of opening to their full-closed position under full service pressure without rupture or permanent deformation of any other part.

The gate valve shall be subjected to a 500 psi hydrostatic seat and shell test which shall be applied between the gates. All joints and castings shall be completely water-tight. No casting shall show any suggestion of permanent distortion.

The resilient wedge mechanism shall provide zero leakage at the rated water working pressure when installed with the line flow in either direction

811.03 – Valve Construction

- (a) Valves shall open left with fixed non-rising stem.
- (b) Operating nut is to be 2 inch square.
- (c) For Valve Sizes from 4" thru 24", the Stem shall be made of bronze (ASTM B-763, Alloy 867) with tensile strength of not less than 80,000 psi, a yield strength greater than 32,000 psi, and an elongation of not less than 15 percent. The stem shall not be designed to break above the stuffing box from excess torque.
- (d) For Valve Sizes from 30" to 66", the Stem shall be made of bronze (ASTM B-862) with tensile strength of not less than 90,000 psi, a yield strength greater than 40,000 psi, and an elongation of not less than 18 percent.
- (e) All valves are manufactured with mechanical joints.
- (f) The body and bonnet shall be cast from a high-grade ductile iron which conforms to all requirements of ASTM 536-6545-12, or latest revision thereof.
- (g) All ferrous surfaces inside and outside shall have a fusion-bonded epoxy coating in accordance with AWWA C-550 or latest revision thereof.
- (h) The wedge shall be ductile iron fully encapsulated with EPDM rubber, symmetrical in design and shall seat equally well with flow in either direction. The wedge to stem design shall employ the use of an independent stem nut. An integral stem nut design is not allowed. The independent stem nut shall be inserted into the stem nut slot of the wedge in one direction only and shall be enclosed by three (3) surrounding sides.

- (i) Packing shall be double "O" ring construction, with two above and one below the thrust collar except for 24" valves and larger where one above and one below the thrust collar are required. "O" rings set in a cartridge shall not be allowed. Valve stem should have one stainless steel friction washer above and one below the stem collar to provide lower torques. The manufacturer shall supply certified reports stating the materials used in the gate valve conform to this specification and the latest AWWA C515-01 specification.

811.04 – Basis of Payment

Payment for valves in place shall be for size listed in bid item of the proposal and shall include the valve, concrete support, cast iron adjustable valve box and cover, reinforced concrete slab around valve box including all materials, labor, tools, equipment, and supervision necessary to install, sterilize, test, and make the valve ready for operation.

End of Section

XVII. ITEM 817- SPECIFICATIONS FOR CEMENT STABILIZED SAND

The following specifications are intended to describe sand cement 1 1/2 sack, and sand cement 2 sack.

1. Soil shall consist of sandy loam material free from vegetation or other objectionable materials.
2. Cement shall be Type 1 of a standard brand of Portland Cement and shall conform to the requirements of ASTM Designation: C150 and Texas Department of Transportation standards.
3. Mixing of materials shall be uniform.
4. Materials are subject to an independent testing laboratory batch design test.

End of Section

XVIII. ITEM 01578 CONTROL OF GROUND WATER AND SURFACE WATER

PART I GENERAL

1.01 SECTION INCLUDES

- A. Dewatering, depressurizing, draining, and maintaining trenches, shaft excavations, structural excavations, and foundation beds in a stable condition, and controlling ground water conditions for tunnel excavations.
- B. Protecting work against surface runoff and rising flood waters.
- C. Disposing of removed water.

1.02 METHOD OF PAYMENT

- A. No separate payment will be made for control of ground water and surface water. Include the cost to control ground water and surface water in unit price for work requiring such controls.

1.03 REFERENCES

- A. ASTM D 698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-lb (2.49 kg) Rammer and 12-inch (304.8 mm) Drop.
- B. Federal Regulations, 29 CFR Part 1926, Standards-Excavation, Occupational Safety and Health Administration (OSHA).
- C. Federal Register 40 CFR (Vol. 55, No. 222) Part 122, EPA Administered Permit Programs (NPDES), Para. 122.26(b)(14) Storm Water Discharge.

1.04 DEFINITIONS

- A. Ground water control includes both dewatering and depressurization of water-bearing soil layers.
 - 1. Dewatering includes lowering the water table and intercepting seepage which would otherwise emerge from slopes or bottoms of excavations, or into tunnels and shafts, and disposing of removed water. The intent of dewatering is to increase stability of tunnel excavations and excavated slopes; prevent dislocation of material from slopes or bottoms of excavations; reduce lateral loads on sheeting and bracing; improve excavating and hauling characteristics of excavated material; prevent failure or heaving of the bottom of excavations; and to provide suitable conditions for placement of backfill materials and construction of structures and other installations.
 - 2. Depressurization includes reduction in piezometric pressure within strata not controlled by dewatering alone, as required to prevent failure or heaving of excavation bottom or instability of tunnel excavations.
- B. Excavation drainage includes keeping excavations free of surface and seepage water.
- C. Surface drainage includes use of temporary drainage ditches and dikes and installation of temporary culverts and sump pumps with discharge lines as required to protect the work from any source of surface water.
- D. Equipment and instrumentation for monitoring and control of ground water control system includes piezometers and monitoring wells, and devices, such as flow meters, for observing and recording flow rates.

1.05 PERFORMANCE REQUIREMENTS

- A. Conduct subsurface investigations to identify groundwater conditions and to provide parameters for design, installation, and operation of groundwater control systems.
- B. Design a ground water control system, compatible with requirements of Federal Regulations 29 CFR Part 1926 and Item 712 - Trench Safety Systems, to produce the following results:
 - 1. Effectively reduce the hydrostatic pressure affecting:
 - (a) Excavations.
 - (b) Tunnel excavation, face stability or seepage into tunnels.
 - 2. Develop a substantially dry and stable subgrade for subsequent construction operations.
 - 3. Preclude damage to adjacent properties, buildings, structures, utilities, installed facilities, and other work.
 - 4. Prevent the loss of fines, seepage, boils, quick condition, or softening of the foundation strata.
 - 5. Maintain stability of sides and bottom of excavations.
- C. Provide ground water control systems may include single-stage or multiple-stage well point systems, ejector and ejector-type systems, deep wells, or combinations of these equipment types.
- D. Provide drainage of seepage water and surface water, as well as water from any other source entering the excavation. Excavation drainage may include placement of drainage materials, such as crushed stone and filter fabric, together with sump pumping.
- E. Provide ditches, berms, pumps and other methods necessary to divert and drain surface water from excavation and other work areas.
- F. Locate ground water control and drainage systems so as not to interfere with utilities, construction operations, adjacent properties, or adjacent water wells.
- G. Assume sole responsibility for ground water control systems and for any loss or damage resulting from partial or complete failure of protective measures and any settlement or resultant damage caused by the ground water control operations. Modify ground water control systems or operations if they cause or threaten to cause damage to new construction, existing site improvements, adjacent property, or adjacent water wells, or affect potentially contaminated areas. Repair damage caused by ground water control systems or resulting from failure of the system to protect property as required.
- H. Provide an adequate number of piezometers installed at the proper locations and depths as required to provide meaningful observations of the conditions affecting the excavation, adjacent structures, and water wells.
- I. Provide environmental monitoring wells installed at the proper locations and depths as required to provide adequate observations of hydrostatic conditions and possible contaminant transport from contamination sources into the work area or into the ground water control system.
- J. Decommission piezometers and monitoring wells installed during design phase studies and left for Contractors monitoring and use.

1.06 SUBMITTALS

- A. Submittals shall conform to requirements of Section 01300 - Contractor Submittals.
- B. Submit a Ground Water and Surface Water Control Plan for review by the Water Utilities Engineer prior to start of any field work. The Plan shall be signed by a Professional Engineer registered in the State of Texas. Submit a plan to include the following:
 - 1. Results of subsurface investigation and description of the extent and characteristics of water bearing layers subject to ground water control.
 - 2. Names of equipment suppliers and installation subcontractors.
 - 3. A description of proposed ground water control systems indicating arrangement, location, depth and capacities of system components, installation details and criteria, and operation and maintenance procedures.
 - 4. A description of proposed monitoring and control system indicating depths and locations of piezometers and monitoring wells, monitoring installation details and criteria, type of equipment and instrumentation with pertinent data and characteristics.
 - 5. A description of proposed filters including types, sizes, capacities and manufacturer's application recommendations.
 - 6. Design calculations demonstrating adequacy of proposed systems for intended applications. Define potential area of influence of ground water control operation near contaminated areas.
 - 7. Operating requirements, including piezometric control elevations for dewatering and depressurization.
 - 8. Excavation drainage methods including typical drainage layers, sump pump application and other necessary means.
 - 9. Surface water control and drainage installations.
 - 10. Proposed methods and locations for disposing of removed water.
- C. Submit the following records upon completed initial installation:
 - 1. Installation and development reports for well points, educators, and deep wells.
 - 2. Installation reports and baseline readings for piezometers and monitoring wells.
 - 3. Baseline analytical test data of water from monitoring wells.
 - 4. Initial flow rates.
- D. Submit the following records on a weekly basis during operations:
 - 1. Records of flow rates and piezometric elevations obtained during monitoring of dewatering and depressurization. Refer to Paragraph 3.02, Requirements for eductor, well points, or deep wells.
 - 2. Maintenance records for ground water control installations, piezometers, and monitoring wells.
- E. Submit the following records at the end of work. Decommissioning (abandonment) reports for monitoring wells and piezometers installed by others during the design phase and left for Contractor's monitoring and use.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Comply with requirements of agencies having jurisdiction.
- B. Comply with Texas Natural Commission on Environmental Quality regulations and Texas Water Well Drillers Association for development, drilling, and abandonment of wells used in dewatering system.
- C. Obtain permit from EPA under the National Pollutant Discharge Elimination System (NPDES), for storm water discharge from construction sites.
- D. Obtain all necessary permits from agencies with control over the use of groundwater and matters affecting well installation, water discharge, and use of existing storm drains and natural water sources. Because the review and permitting process may be lengthy, take early action to pursue and submit for the required approvals.
- E. Monitor ground water discharge for contamination while performing pumping in the vicinity of potentially contaminated sites.

PART 2 PRODUCTS

2.01 EQUIPMENT AND MATERIALS

- A. Equipment and materials are at the option of Contractor as necessary to achieve desired results for dewatering. Selected equipment and materials are subject to review of the Water Utilities Engineer through submittals required in Paragraph 1.06, Submittals.
- B. Eductors, well points, or deep wells, where used must be furnished, installed and operated by an experienced contractor regularly engaged in ground water control system design, installation, and operation.
- C. All equipment must be in good repair and operating order.
- D. Sufficient standby equipment and materials shall be kept available to ensure continuous operation, where required.

PART 3 EXECUTION

3.01 GROUND WATER CONTROL

- A. Perform a subsurface investigation by borings as necessary to identify water bearing layers, piezometric pressures, and soil parameters for design and installation of ground water control systems. Perform pump tests, if necessary to determine the draw down characteristics of the water bearing layers. The results shall be presented in the Ground Water and Surface Water Control Plan (See Paragraph 1.06,B).
- B. Provide labor, material, equipment, techniques and methods to lower, control and handle ground water in a manner compatible with construction methods and site conditions. Monitor effectiveness of the installed system and its effect on adjacent property.
- C. Install, operate, and maintain ground water control systems in accordance with the Ground Water and Surface Water Control Plan. Notify the Water Utilities Engineer in writing of any changes made to accommodate field conditions and changes to the Work. Provide revised drawings and calculations with such notification.
- D. Provide for continuous system operation, including nights, weekends, and holidays. Arrange for appropriate backup if electrical power is primary energy source for dewatering system.
- E. Monitor operations to verify that the system lowers ground water piezometric levels at a rate required to maintain a dry excavation resulting in a stable subgrade for prosecution of subsequent operations.
- F. Where hydrostatic pressures in confined water bearing layers exist below excavation, depressurize those zones to eliminate risk of uplift or other instability of excavation or installed works. Allowable piezometric elevations shall be designed in the Ground Water and Surface Water Control Plan.
- G. Remove ground water control installations
 - 1. Remove pumping system components and piping when ground water control is no longer required.
 - 2. Remove piezometers, including piezometers installed during the design phase investigations and left for Contractor's use, upon completion of testing, in accordance with Section 02533 – Acceptance
 - 3. Testing of Sanitary Sewers.
 - 4. Remove monitoring wells when directed by the Water Utilities Engineer.
 - 5. Grout abandoned well and piezometer holes. Fill piping that is not removed with cement-bentonite grout or cement-sand grout.
- H. During backfilling, dewatering may be reduced to maintain water level a minimum of 5 feet below prevailing level of backfill. However, do not allow that water level to result in uplift pressures in excess of 80 percent of downward pressure produced by weight of structure or backfill in place. Do not allow water levels to rise into cement stabilized sand until at least 48 hours after placement.

- I. Provide a uniform diameter for each pipe drain run constructed for dewatering. Remove pipe drain when it has served its purpose. If removal of pipe is impractical, provide grout connections at 50-foot intervals and fill pipe with cement-bentonite grout or cement-sand grout when pipe is removed from service.
- J. Extent of construction ground water control for structures with a permanent perforated underground drainage system may be reduced, such as for units designed to withstand hydrostatic uplift pressure. Provide a means of draining the affected portion of underground system, including standby equipment. Maintain drainage system during operations and remove it when no longer required.
- K. Remove system upon completion of construction or when dewatering and control of surface or ground water is no longer required.
- L. Compact backfill to not less than 95 percent of the maximum dry density in accordance with ASTM D 698.

3.02 REQUIREMENTS FOR EDUCTOR, WELL POINTS, OR DEEP WELLS

- A. For aboveground piping in ground water control system, include a 12-inch minimum length of clear, transparent piping between every eductor well or well point and discharge header so that discharge from each installation can be visually monitored.
- B. Installation sufficient piezometers or monitoring wells to show that all trench or shaft excavations in water bearing materials are pre-drained prior to excavation. Provide separate piezometers for monitoring of dewatering and for monitoring of depressurization. Install piezometers and monitoring wells for tunneling as appropriate for Contractor's selected method of work.
- C. Install piezometers or monitoring wells not less than one week in advance of beginning the associated excavation.
- D. Dewatering may be omitted for portions of underdrains or other excavations, but only where auger borings and piezometers or monitoring wells show that soil is pre-drained by an existing system such that the criteria of the ground water control plan are satisfied.
- E. Replace installations that produce noticeable amounts of sediments after development.
- F. Provide additional ground water control installations, or change the methods, in the event that the installations according to the ground water control plan does not provide satisfactory results based on the performance criteria defined by the plan and by the specification. Submit a revised plan according to Paragraph 1.06B.

3.03 EXCAVATION DRAINAGE

- A. Contractor may use excavation drainage methods if necessary to achieve well drained conditions. The excavation drainage may consist of a layer of crushed stone and filter fabric, and sump pumping in combination with sufficient wells for ground water control to maintain stable excavation and backfill conditions.

3.04 MAINTENANCE AND OBSERVATION

- A. Conduct daily maintenance and observation of piezometers or monitoring wells while the ground water control installations or excavation drainage are operating in an area or seepage into tunnel is occurring. Keep system in good condition.
- B. Replace damaged and destroyed piezometers or monitoring wells with new piezometers or wells as necessary to meet observation schedule.
- C. Cut off piezometers or monitoring wells in excavation areas where piping is exposed, only as necessary to perform observation as excavation proceeds. Continue to maintain and make observations, as specified.
- D. Remove and grout piezometers inside or outside the excavation area when ground water control operations are complete. Remove and grout monitoring wells when directed by the Water Utilities Engineer.

3.05 MONITORING AND RECORDING

- A. Monitor and record average flow rate of operation for each deep well, or for each wellpoint or eductor header used in dewatering system. Also monitor and record water level and ground water recovery. These records shall be obtained daily until steady conditions are achieved, and twice weekly thereafter.
- B. Observe and record elevation of water level daily as long as ground water control system is in operation, and weekly thereafter until the Work is completed or piezometers or wells are removed, except when the Water Utilities Engineer determines that more frequent monitoring and recording are required. Comply with the Water Utilities Engineer's direction for increased monitoring and recording and take measures as necessary to ensure effective dewatering for intended purpose.

3.06 SURFACE WATER CONTROL

- A. Intercept surface water and divert it away from excavations through use of dikes, ditches, curb walls, pipes, sumps or other approved means. The requirement includes temporary works required to protect adjoining properties from surface drainage caused by construction operations.
- B. Divert surface water and seepage water into sumps and pump it into drainage channels or storm drains, when approved by agencies having jurisdiction. Provide settling basins when required by such agencies.

End of Section

XIX. ITEM 01731- SPECIFICATION FOR CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cutting, patching and fitting of the Work or Work under construction and to existing facilities and to accommodate the coordination installation or connection of Work with existing facilities, or to uncover work for access, inspection or testing and related submittals

1.02 CUTTING AND PATCHING

- A. Perform activities to avoid interference with facility operations and the Work of others in accordance with Section 1100 - General Conditions.
- B. Execute cutting and patching, including excavation, backfill and fitting to:
 - 1. Remove and replace defective Work or Work not conforming to the Drawings and Specifications.
 - 2. Take samples of installed Work as required for testing.
 - 3. Remove construction required to provide for specified alteration or addition to existing work.
 - 4. Uncover Work to provide for inspection or reinspection of covered Work by the Water Utilities Engineer or regulatory agencies having jurisdiction.
 - 5. Connect any Work that was not accomplished in the proper sequence to completed Work.
 - 6. Remove or relocate existing utilities and pipes which obstruct Work to which connections must be made.
 - 7. Make connections or alterations to existing or new facilities.
 - 8. Provide openings, channels, chases and flues, if any, and do cutting, patching and finishing.
- C. Restore existing work to a state equal to or better than that prior to cutting and patching. Restore new Work to standards of these Specifications.
- D. Support, anchor, attach, match, trim and seal materials to the Work of others. Unless otherwise specified, furnish and install sleeves, inserts, hangers, required for the execution of the Work.
- E. Provide shoring, bracing and support as required to maintain structural integrity and protect adjacent Work from damage during cutting and patching. Before cutting beams or other structural member, anchors, lintels or other supports, request written instruction from the Water Utilities Engineer. Follow such instructions, as applicable.

1.03 SUBMITTALS

- A. Submit written notice to the Water Utilities Engineer requesting consent to proceed prior to cutting which may affect structural integrity or design function, City operations, or work of another contractor.

- B. Include the following in submittal:
 - 1. Identification of project
 - 2. Description of affected Work.
 - 3. Necessity for cutting
 - 4. Effect on other work and on structural integrity.
 - 5. Include description of proposed Work:
 - a. Scope of cutting and patching.
 - b. Contractor, subcontractor or trade to execute Work.
 - c. Products proposed to be used.
 - d. Extent of refinishing.
 - e. Schedule of operations.
 - 6. Alternatives to cutting and patching, if any.
- C. Should conditions of Work or schedule indicate change of materials or methods, submit a written recommendation to the Water Utilities Engineer including:
 - 1. Conditions indicating change.
 - 2. Recommendations for alternative materials or methods.
 - 3. Submittals as required for substitutions.
- D. Submit written notice to the Water Utilities Engineer designating time Work will be uncovered for observation. Do not begin cutting or patching operations until authorized by the Water Utilities Engineer

1.04 CONNECTIONS TO EXISTING FACILITIES

- A. Perform construction necessary to complete connections and tie-ins to existing facilities. Keep all existing facilities in continuous operation unless otherwise specifically permitted in these Specifications or approved by the Water Utilities Engineer.
- B. Coordinate with the Water Utilities Engineer, interruption of service requiring connection into existing facilities. Bypassing of wastewater or sludge to waterways is not permitted. Provide temporary pumping facilities to handle wastewater, if necessary. Use temporary bulkheads (e.g., inflatable plugs) to minimize disruption. Provide temporary power supply and piping to facilitate construction where necessary.
- C. Submit a detailed schedule of proposed connections, including shut-downs and tie-ins. Include in the submittal the proposed time and date as well as the anticipated duration of the Work. Submit the detailed schedule coordinated with the construction schedule.
 - 1. Provide specific time and date information to the Water Utilities Engineer 48 hours in advance of proposed Work.
- D. Procedures and Operations:
 - 1. The Contractor shall operate existing pumps, valves and gates required for sequencing procedures under the supervision of the Water Utilities Engineer. Do not operate any valve, gate or other item of equipment without the knowledge of the Water Utilities Engineer.

2. Insofar as possible, equipment shall be tested and in operating condition before final tie-ins are made to connect equipment to the existing facility.
3. Carefully coordinate Work and schedules. Provide written notice to the Water Utilities Engineer at least 48 hours before shutdowns or bypasses are required.

PART 2
PART 3

PRODUCTS - Not Used
EXECUTION - Not Used

End of Section

XX. ITEM 02221- REMOVING EXISTING PAVEMENTS AND STRUCTURES

REMOVING EXISTING PAVEMENTS AND STRUCTURES

Part I General

1.01 SECTION INCLUDES

- A. Removing concrete paving, asphaltic concrete pavement, and base courses.
- B. Removing concrete curbs, concrete curbs and gutters, sidewalks and driveways.
- C. Removing pipe culverts and sewers.
- D. Removing existing inlets and manholes.
- E. Removing miscellaneous structures of concrete or masonry.

1.02 MEASUREMENT AND PAYMENT

- A. Unit Prices.
 - 1. No separate payment will be made for removing existing pavement or structures under this Section. Include cost in unit price for different bid items.

1.03 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for disposal of debris.
- B. Coordinate removal work with utility companies.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 PREPARATION

- A. Obtain advance approval from Water Utilities Engineer for dimensions and limits of removal work.
- B. Identify known utilities below grade. Stake and flag locations.

3.02 PROTECTION

- A. Protect the following from damage or displacement.
 - 1. Adjacent public and private property.
 - 2. Trees, plants, and other landscape features designated to remain.
 - 3. Utilities designated to remain.
 - 4. Pavement and utility structures designated to remain.
 - 5. Bench marks, monuments, and existing structures designated to remain.

3.03 REMOVALS

- A. Remove pavements and structures by methods that will not damage underground utilities. Do not use a drop hammer near existing underground utilities.
- B. Minimize amount of earth loaded during removal operations.

- C. Where existing pavement is to remain, make straight saw cuts in existing pavement to provide clean breaks prior to removal. Do not break concrete pavement or base with drop hammer unless concrete or base has been saw cut to a minimum depth of 2 inches.
- D. Where street and driveway saw cut locations coincide or fall within 3 feet of existing construction or expansion joints, break out to existing joint.
- E. Remove sidewalks and curbs to nearest existing dummy, expansion, or construction joint.
- F. Where existing end of pipe culvert or end of sewer is to remain, install an 8-inch-thick masonry plug in pipe end prior to backfill.

3.04 **BACKFILL**

- A. Backfill of removal areas shall be in accordance with requirements of Item 2317 - Specifications for Excavation and Backfill For Utilities.

3.05 **DISPOSAL**

- A. Manhole frames and covers, will remain City property, and shall be delivered to 1350 Langham Road, Beaumont, Texas.
- B. Methods of the removal of site debris resulting from work under this section shall be approved by the Water Utilities Engineer.

End of Section

XXI. ITEM 02317- SPECIFICATIONS FOR EXCAVATION AND BACKFILL FOR UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

Excavation, trenching, foundation, embedment, and backfill for installation of utilities, including manholes and other pipeline structures.

1.02 MEASUREMENT AND PAYMENT

Unit Prices.

No additional payment will be made for trench excavation, embedment and backfill under this Section. Include cost in the unit price for installed underground piping, sewer, conduit, or duct work.

No separate or additional payment will be made for surface water control, ground water control, or for excavation drainage. Include in the unit price for the installed piping, sewer, conduit, or bed work.

1.03 DEFINITIONS

Pipe Foundation: Suitable and stable native soils that are exposed at the trench subgrade after excavation to depth of bottom of the bedding as shown on the Drawings, or foundation backfill material placed and compacted in over-excavations.

Pipe Bedding: The portion of trench backfill that extends vertically from top of foundation up to a level line at bottom of pipe, and horizontally from one trench sidewall to opposite sidewall.

Haunching: The 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.

Initial Backfill: The portion of trench backfill that extends vertically from springline of pipe (top of haunching) up to a level line 12 inches above top of pipe, and horizontally from one trench sidewall to opposite sidewall.

Pipe Embedment: The portion of trench backfill that consists of bedding, haunching and initial backfill.

Trench Zone: The 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.

Unsuitable Material: Unsuitable soil materials are the following:

Materials that are classified as ML, CL-ML, MH, PT, OH, and OL according to ASTM D 248.

Materials that cannot be compacted to required density due to either gradation, plasticity, or moisture content.

Materials that contain large clods, aggregates, stones greater than 4 inches in any dimension, debris, vegetation, waste or any other deleterious materials.

Materials that are contaminated with hydrocarbons or other chemical contaminants.

Suitable Material: Suitable soil materials are those meeting specification requirements. Unsuitable soils meeting specification requirements for suitable soils after treatment with lime or cement are considered suitable, unless otherwise indicated.

Backfill: Suitable material meeting specified quality requirements, placed and compacted under controlled conditions.

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.

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 a part of excavation drainage. Excavation Drainage: Removal of surface and seepage water in trench by sump pumping and using a drainage layer, as defined in ASTM D 2321, placed on the foundation beneath pipe bedding or thickened bedding layer of Class I material.

Trench Conditions are defined with regard to the 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.

Dry Stable Trench: Stable and substantially dry trench conditions exist in pipe embedment zone as a result of typically dry soils or achieved by ground water control (dewatering or depressurization) for trenches extending below ground water level.

Stable Trench with Seepage: Stable trench in which ground water seepage is controlled by excavation drainage.

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.

Stable Wet Trench Sandy Soils: Excavation drainage is provided in the embedment zone in combination with ground water control in predominately sandy or silty soils.

Unstable Trench: Unstable trench conditions exist in the pipe embedment zone if ground water inflow or high- water content causes soil disturbances, such as sloughing, sliding, boiling, heaving or loss of density.

Sub trench: Sub trench is a 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 a sub trench depends upon trench stability and safety as determined by the Contractor.

Trench Dam: A placement of low permeability material in pipe embedment zone or foundation to prohibit ground water flow along the trench.

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 backfill material.

Foundation Backfill Materials: Natural soil or manufactured aggregate of controlled gradation, and geotextile filter fabrics as required, to control drainage and material separation. Foundation backfill material is placed and compacted as backfill to provide stable support for bedding. Foundation backfill materials may include concrete seal slabs.

Trench Safety Systems include both protective systems and shoring systems as defined in Item 712 - Trench Safety Systems.

Trench Shield (Trench Box): A portable worker safety structure moved along the trench as work proceeds, used as a protective system and designed to withstand forces imposed on it by cave-in, thereby protecting persons within the trench. Trench shields may be stacked if so designed or placed in a series depending on depth and length of excavation to be protected.

Shoring System: A structure that supports sides of an excavation to maintain stable soil conditions and prevent cave-ins, or to prevent movement of the ground affecting adjacent installations or improvements.

Special Shoring: A shoring system meeting special shoring as specified in Paragraph 1.08, Special Shoring Design Requirements, for locations identified on the Drawings.

1.04 **REFERENCES**

ASTM C 12 - Standard Practice for Installing Vitrified Clay Pipe Lines.

ASTM D 558 - Test Methods for Moisture-Density Relations of Soil Cement Mixtures. ASTM D 698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures U 5.5-lb (2.49-kg) Rammer and 12-in., (304.8-mm) Drop.

ASTM D 156 - Test Method for Density in Place by the Sand-Cone Method.

ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications.

ASTM D 2478 - Classification of Soils for Engineering Purposes.

ASTM D 2922 - Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

ASTM D 3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

ASTM D 4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

TxDOT Tex-101-E - Preparation of Soil and Flexible Base Materials for Testing. TxDOT Tex-110-E - Determination of Particle Size Analysis of Soils.

Federal Regulations, 29 CFR Part 1926, Standard-Excavation, Occupational Safety and Health Administration (OSHA).

1.05 **SCHEDULING**

Schedule work so that pipe embedment can be completed on the same day that acceptable foundation been achieved for each section of pipe installation, manhole, or other structures.

1.06 **SUBMITTALS**

Conform to Section 01300 - Contractor Submittals.

Submit a written description for information only of the planned typical method of excavation, backfill placement and compaction, including:

- Sequence of work and coordination of activities. Selected trench widths.

- Procedures for foundation and embedment placement, and compaction.

- Procedure for use of trench boxes and other premanufactured systems while assuring specified compaction against undisturbed soil.

- Procedure for installation of Special Shoring at locations identified on the Drawings.

Submit a ground and surface water control plan in accordance with requirements in this Item and Item 01578 - Control of Ground Water and Surface Water.

Submit backfill material sources and product quality information in accordance with requirements of Item 02320 - Utility Backfill Materials.

Submit a trench excavation safety program in accordance with requirements of Item 712 - Trench Safety System. Include designs for special shoring meeting the requirements defined in Paragraph 1.08, Special Shoring Design Requirements.

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.

1.07 TESTS

Testing and analysis of backfill materials for soil classification and compaction during construction will be performed by an independent laboratory provided by the City.

Perform backfill material source qualification testing in accordance with requirements of Item 02320 - Utility Backfill Materials.

1.08 SPECIAL SHORING DESIGN REQUIREMENTS

Have special designed or selected by the Contractor's Professional Engineer to provide support for the sides of the 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 the Contractor's Professional Engineer to meet the project site requirements based on the manufacturer's standard design.

PART 2 PRODUCTS

2.01 EQUIPMENT

Perform excavation with hydraulic excavator or other equipment suitable for achieving the requirements of this Section.

Use only hand-operated tamping equipment until a minimum cover of 12 inches is obtained over pipe, conduits, and ducts. Do not use heavy compacting equipment until adequate cover is attained to prevent damage to pipes, conduits, or ducts.

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.

Use special shoring systems where required which may consist of braced sheeting, braced soldier piles and lagging, slide rail systems, meeting requirements as specified in Paragraph 1.09, Shoring Design Requirements.

2.02 MATERIAL CLASSIFICATIONS

Embedment and Trench Zone Backfill Materials: Conform to classifications and product descriptions of Item 02320 - Utility Backfill Materials.

Concrete Backfill: Conform to requirements for Class B concrete.

Concrete for Trench Dams: Concrete backfill or 3 sack premixed (bag) concrete. Timber Shoring Left in Place: Untreated oak.

PART 3 EXECUTION

3.01 STANDARD PRACTICE

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 the standard practice and the requirements of this Section, this Section governs.

Install rigid pipe to conform with standard practice described in ASTM C 12, and as described in this Section. Where an apparent conflict occurs between the standard practice and the requirements of this Section, this Section governs.

3.02 **PREPARATION**

Establish traffic control to conform with requirements of the Special Provisions Section. Maintain barricades and warning lights for streets and intersections affected by the Work, and is considered hazardous to traffic movements.

Perform work to conform with applicable safety standards and regulations. Employ a trench safety system as specified in Item 712 - Trench Safety Systems.

Immediately notify the agency or company owning any existing utility line which is damaged, broken, or disturbed. Obtain approval from the Water Utilities Engineer and agency for any repairs or relocations, either temporary or permanent.

Remove existing pavements and structures, including sidewalks and driveways, to conform with requirements of Item 02221 - Removing Existing Pavements and Structures, as applicable.

Install and operate necessary dewatering and surface water control measures to conform with Item 01578 - Control of Ground Water and Surface Water.

Maintain permanent benchmarks, monumentation, and other reference points. Unless otherwise directed in writing, replace those which are damaged or destroyed.

3.03 **PROTECTION**

Protect trees, shrubs, lawns, existing structures, and other permanent objects outside of grading limits and within the grading limits as designated on the Drawings.

Protect and support above-grade and below-grade utilities which are to remain.

Restore damaged permanent facilities to pre-construction conditions unless replacement or abandonment of facilities are indicated on the Drawings.

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, recompact, and pave those areas at no additional cost to City.

3.04 **EXCAVATION**

Except as otherwise specified or shown on the Drawings, install underground utilities in open cut trenches with vertical sides.

Perform excavation work so that pipe, conduit, and ducts can be installed to depths and alignments shown on the Drawings. Avoid disturbing surrounding ground and existing facilities and improvements.

Determine trench excavation widths using the following schedule as related to pipe outside diameter (O.D.). Maximum trench width shall be the minimum trench width plus 24 inches.

Nominal <u>Pipe Size, Inches</u>	Minimum Trench <u>Width, Inches</u>
Less than 18	O.D. + 18
18 to 30	O.D. + 24
Greater than 30	O.D. + 36

Use sufficient trench width or benches above the embedment zone for installation of well point headers or manifolds and pumps where depth of trench makes it uneconomical or impractical to pump from the surface elevation. Provide sufficient space between shoring cross braces to permit equipment operations and handling of forms, pipe, embedment and backfill, and other materials.

Upon discovery of unknown utilities, badly deteriorated utilities not designated for removal, or concealed conditions, discontinue work at that location. Notify the Water Utilities Engineer and obtain instructions before proceeding.

Shoring of Trench Walls.

Install Special Shoring in advance of trench excavation or simultaneously with the trench excavation, so that the soils within the full height of the trench excavation walls will remain laterally supported at all times.

For all types of shoring, support trench walls in the pipe embedment zone throughout the installation. Provide trench wall supports sufficiently tight to prevent washing the trench wall soil out from behind the trench wall support.

Unless otherwise directed by the Water Utilities Engineer, leave sheeting driven into or below the pipe embedment zone in place to preclude loss of support of foundation and embedment materials. Leave rangers, walers, and braces in place as long as required to support sheeting, which has been cut off, and the trench wall in the vicinity of the pipe zone.

Employ special methods for maintaining the 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.

If sheeting or other shoring is used below top of the pipe embedment zone, do not disturb pipe foundation and embedment materials by subsequent removal. Maximum thickness of removable sheeting extending into the embedment zone shall be the equivalent of a 1-inchthick steel plate. Fill voids left on removal of supports with compacted backfill material.

Use of Trench Shields. When a trench shield (trench box) is used as a worker safety device, the following requirements apply:

Make trench excavations of sufficient width to allow shield to be lifted or pulled freely, without damage to the trench sidewalls.

Move trench shields so that pipe, and backfill materials, after placement and compaction, are not damaged nor disturbed, nor the degree of compaction reduced.

When required, place spread, and compact pipe foundation and bedding materials beneath the shield. For backfill above bedding, lift the shield as each layer of backfill is placed and spread. Place and compact backfill materials against undisturbed trench walls and foundation.

Maintain trench shield in position to allow sampling and testing to be performed in a safe manner.

3.05 HANDLING EXCAVATED MATERIALS

Use only excavated materials which are suitable as defined in this Section and conforming with Item 02320 - Utility Backfill Materials. Place material suitable for backfilling in stockpiles at a distance from the trench to prevent slides or cave-ins.

When required, provide additional backfill material conforming with requirements of Item 02320 - Utility Backfill Materials.

Do not place stockpiles of excess excavated materials on streets and adjacent properties. Protect excess stockpiles for use on site.

3.06 GROUND WATER CONTROL

Implement ground water control according to Item 01578 - Control of Ground Water and Surface Water. Provide a stable trench to allow installation in accordance with the Specifications.

3.07 TRENCH FOUNDATION

Excavate bottom of trench to uniform grade to achieve stable trench conditions and satisfactory compaction of foundation or bedding materials.

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

Immediately prior to placement of embedment materials, the bottoms and sidewalls of trenches shall be free of loose, sloughing, caving, or otherwise unsuitable soil.

Place embedment including bedding, haunching, and initial backfill as shown on Drawings.

For pipe installation, manually spread embedment materials around the pipe to provide uniform bearing and side support when compacted. Do not allow materials to free-fall from heights greater than 24 inches above the top of the pipe. Perform placement and compaction directly against the undisturbed soils in the trench sidewalls, or against sheeting which is to remain in place.

Do not place trench shields or shoring within height of the embedment zone unless means to maintain the density of compacted embedment material are used.

If moveable supports are used in embedment zone, lift the supports incrementally to allow placement and compaction of the material against undisturbed soil.

Place geotextile to prevent particle migration from the in-situ soil into open-graded (Class I) embedment materials or drainage layers.

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.

Place haunching material manually around the 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 the pipe with sand bags or other suitable means.

Place electrical conduit, if used, directly on foundation without bedding.

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.

For water lines construction embedment, use bank run sand, concrete sand, gem sand, pea gravel, or crushed limestone as specified in Item 02320 - Utility Backfill Material. For water lines adhere to the following subparagraph numbers 1 and 2; for utility installation other than water, adhere to numbers 3 and 4 below.

Class I, II, III Embedment Materials:

Maximum 6 inches compacted lift thickness.

Compact to achieve a minimum of 95 percent of maximum dry density as determined according to ASTM D 698.

Moisture content to be within -3 percent to +5 percent of optimum as determined according to ASTM D 698, unless otherwise approved by Water Utilities Engineer.

Cement Stabilized Sand:

Maximum 6 inches compacted thickness.

Compact to achieve a minimum of 95 percent of maximum dry density as determined according to ASTM D 698.

Moisture content to be on dry side of optimum as determined according to ASTM D 698 but sufficient for effective hydration.

Class I embedment materials.

Maximum 6 inches compacted lift thickness.

Systematic compaction by at least two passes of vibrating equipment. Increase compaction effort as necessary to effectively embed the pipe to meet the deflection test criteria.

Moisture content as determined by Contractor for effective compaction without softening the soil of trench bottom, foundation or trench walls.

Class II embedment and cement stabilized sand. Maximum 6 inches compacted thickness.

Compaction by methods determined by Contractor to achieve a minimum of 95 percent the maximum dry density as determined according to ASTM D 698 for Class II material and according to ASTM D 558 for cement stabilized materials.

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 the dry side of optimum as determined according to ASTM D 558 but sufficient for effective hydration.

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

Place backfill for pipe or conduits and restore surface as soon as practicable. Leave only the minimum length of trench open as necessary for construction.

Where damage to completed pipe installation work is likely to result from withdrawal of sheeting, leave the sheeting in place. Cut off sheeting 1.5 feet or more above the crown of the pipe. Remove trench supports within 5 feet from the ground surface.

For sewer pipes, use backfill materials described here as determined by trench limits. As trench zone backfill in paved areas for streets and to one foot back of curbs and pavements, use cement stabilized sand for pipe for nominal sizes less than 36 inches. Uniformly backfill trenches partially within limits one foot from streets and curbs according to the paved area criteria. Use select backfill within one foot below pavement subgrade for rigid pavement. For asphalt concrete, use flexible base material within one foot below pavement subgrade.

For water lines, backfill in trench zone, including auger pits, with bank run sand, select fill, or random backfill material as specified in Item 02320 - Utility Backfill materials.

When shown in Drawings, a random backfill of suitable material may be used in trench zone for trench excavations outside pavements.

Place trench zone backfill in lifts and compact by methods selected by the Contractor. Fully compact each lift before placement of the next lift.

Bank run sand.

Maximum 9 inches compacted lift thickness.

Compaction by vibratory equipment to a minimum of 95 percent of the maximum dry density determined according to ASTM D 698.

Moisture content within 3 percent of optimum determined according to ASTM D 698.

Cement-stabilized sand.

Maximum lift thickness determined by Contractor to achieve uniform placement and required compaction, but not exceeding 24 inches.

Compaction by Vibratory equipment to a minimum of 95 percent of the maximum dry density determined according to ASTM D 558.

Moisture content on the dry side of optimum determined according to ASTM D 558 but sufficient for cement hydration.

Select fill.

Maximum 6 inches compacted thickness.

Compaction by equipment providing tamping or kneading impact to a minimum of 95 percent of the maximum dry density determined according to ASTM D 698.

Moisture content within 2 percent of optimum determined according to ASTM D 698.

For trench excavations outside pavements, a random backfill of suitable material may be used in the trench zone.

Flat clays (CH) may be used as trench zone backfill outside paved areas at the Contractor's option. If the required density is not achieved, the Contractor, at his option and at no additional cost to the City, may use lime stabilization to achieve compaction requirements or use a different suitable material.

Maximum 9 inch compacted lift thickness for clayey soils and maximum 12-inch lift thickness for granular soils.

Compact to a minimum of 90 percent of the maximum dry density determined according to ASTM D 698.

Moisture content as necessary to achieve density.

For electrical conduits, remove form work used for construction of conduits before placing trench zone backfill.

3.10 MANHOLES, JUNCTION BOXES, AND OTHER PIPELINE STRUCTURES

Meet the requirements of adjoining utility installations for backfill of pipeline structures, as shown on the Drawings.

3.11 FIELD QUALITY CONTROL

Test for material source qualifications as defined in Item 02320 - Utility Backfill Materials.

Provide excavation and trench safety systems at locations and to depths required for testing and retesting during construction at no additional cost to City.

Tests will be performed on a 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 a noticeable change in material gradation or plasticity.

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 558. Additional moisture-density relationship tests will be performed whenever there is a noticeable change in material gradation or plasticity.

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 2922 and ASTM D 3017, and at the following frequencies and conditions.

A minimum of one test for every 20 cubic yards of compacted embedment and for every 50 cubic yards of compacted trench zone backfill material.

A minimum of three density tests for each full shift to Work.

Density tests will be distributed among the placement areas. Placement areas are: foundation, bedding, haunching, initial backfill and trench zone. 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.

Density tests may be performed at various depths below the fill surface by pit excavation. Material in previously placed lifts may therefore be subject to acceptance/rejection.

Two verification tests will be performed adjacent to in-place tests showing density less than the acceptance criteria. Placement will be rejected unless both verification tests show acceptable results.

Recompacted placement will be retested at the same frequency as the first test series, including verification tests.

Recondition, recompacted, 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.

Acceptability of crushed rock compaction will be determined by inspection.

3.12 DISPOSAL OF EXCESS MATERIAL

Disposal of excess materials shall be at the Contractor's cost and in areas approved by the owner.

End of Section

XXII. ITEM 02320 SPECIFICATIONS FOR UTILITY BACKFILL MATERIAL

PART 1 GENERAL

1.01 SECTION INCLUDES

Material Classifications. Utility
Backfill Materials:

Concrete sand
Gem sand Pea
gravel Crushed
stone

Crushed concrete
Back run sand
Select backfill
Random backfill

Material Handling and Quality Control Requirements.

1.02 MEASUREMENT AND PAYMENT

Unit Prices.

No payment will be made for backfill material under this Section. Include payment in unit price for applicable utility installation.

Payment for backfill material, when included as a separate pay item, is on a cubic yard basis for material placed and compacted within theoretical trench width limits and thickness of material according to Drawings.

1.03 DEFINITIONS

Unsuitable Material: Unsuitable soil materials are the following:

Materials that are classified as ML, CL-ML, MH, PT, OH, and OL according to ASTM D 2487.

Materials that cannot be compacted to the required density due to either gradation, plasticity, or moisture content.

Materials that contain large clods, aggregates, and stones greater than 4 inches in any dimension; debris, vegetation, and waste; or any other deleterious materials

Materials that are contaminated with hydrocarbons or other chemical contaminants.
Materials that do not satisfy the installed utilities manufacturers recommendations.

Suitable Material: Suitable soil materials are the following:

Those meeting specification requirements and manufacturers recommendations.

Unsuitable soils meeting specification requirements for suitable soils after treatment with lime or cement.

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 the structure foundation base. Foundation backfill materials may include concrete fill and seal slabs.

Foundation Base: Crushed stone aggregate with filter fabric as required, cement stabilized sand, or concrete seal slab., The foundation base provides a smooth, level working surface for the construction of the concrete foundation.

Backfill Material: Classified soil material meeting specified quality requirements for the designated application as embedment or trench zone backfill.

Embedment Material: Soil material placed under controlled conditions within the 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.

Trench Zone Backfill: Classified soil material meeting specified quality requirements and placed under controlled conditions in the trench zone from the top of embedment zone to base course in paved areas or to the surface grading material in unpaved areas.

Foundation: Either suitable soil of the trench bottom, or material placed as backfill of over excavation for removal and replacement of unsuitable or otherwise unstable soils.

Source: A source selected by the Contractor supply of embedment or trench zone backfill material. A selected source may be the project excavation, off-site borrow pits, commercial borrow pits, or sand and aggregate production or manufacturing plants.

Refer to Item 02317 - Excavation and Backfill for Utilities for other definitions regarding utility installation by trench construction.

1.04 **REFERENCES**

ASTM C 33 - Specification for Concrete Aggregate.

ASTM C 40 - Test Method for Organic Impurities in Fine Aggregates for Concrete.

ASTM C 123 - Test Method for Lightweight Pieces in Aggregate.

ASTM C 131 - Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

ASTM C 136 - Test Method for Sieve Analysis of Fine and Coarse Aggregates. ASTM C 142 - Test Method for Clay Lumps and Friable Particles in Aggregates. ASTM D 1140 - Test Method for Amount of Materials in Soils Finer Than No.

200 Sieve.

ASTM D 2487 - Classification of Soils for Engineering Purposes (Unified Soil Classification System).

ASTM D 2488 - Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).

ASTM D 4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

ASTM D 4643 - Method for Determination of Water (Moisture) Content of Soil by the Microwave Oven Method.

TxDOT Tex-101-E - Preparation of Soil and Flexible Base Materials for Testing. TxDOT Tex-104-E - Test Method for Determination of Liquid Limit of Soils (Part 1).

TxDOT Tex-106-E - Test Method - Methods of Calculating Plasticity Index of Soils.

TxDOT Tex-110-E - Determination of Particle Size Analysis of Soils.

1.05 **SUBMITTALS**

Conform to requirements of Section 01300 - Contractor Submittals.

Submit a description of source, material classification and product description, production method, and application of backfill materials.

Submit test results for samples of off-site backfill materials to comply with Paragraph 2.03, Materials testing.

Before stockpiling materials, submit a copy of temporary easement or approval from landowner for stockpiling backfill material on private property.

For each delivery of material, provide a delivery ticket which includes source location.

1.06 TESTS

Perform tests of sources for backfill material in accordance with Paragraph 2.03B.

Verification tests of backfill materials may be performed by the City and in accordance with Paragraph 3.02.

Random fill obtained from the project excavation as source is exempt from pre-qualification requirements by Contractor but must be inspected by City testing lab at Contractors expense for unacceptable materials based on ASTM D 2488.

PART 2 PRODUCTS

2.01 MATERIAL CLASSIFICATIONS

Materials for backfill shall be classified for the purpose of quality control in accordance with the 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. Class Designations Based on Laboratory Testing:

Class I: Well-graded gravels and sands, gravel-sand mixtures, crushed well-graded rock, little or no fines (FW, SW):

Plasticity index: nonplastic.

Gradation: D₆₀/D₁₀ - greater than 4 percent; amount passing No. 200 sieve less than or equal to 5 percent.

Class II: Poorly graded gravels and sands, silty gravels and sands, little to moderate fines:

Plasticity index: nonplastic to 4.

Gradations:

Gradation (GP, SP): amount passing No. 200 sieve-less than 5 percent.

Gradation (GM, SM): amount passing No. 200 sieve - between 12 percent and 50 percent.

Borderline gradations with dual classifications (e.g., SP-SM): amount passing No. 200 sieve - between 5 percent and 12 percent.

Class III: Clayey gravels and sands, poorly graded mixtures of gravel, sand, silt, and clay (GC, SC, and dual classifications, E.G., SP-SC):

Plasticity index: greater than 7

Gradation: amount passing No. 200 sieve - between 12 percent and 50 percent.

Class IVA: Lean clays (CL) Plasticity

Indexes:

Plasticity index: greater than 7, and above A line. Borderline plasticity with dual classifications (CL-ML): PI between 4 and 7.

Liquid limit: less than 50.

Gradation: amount passing No. 200 sieve - greater than 50 percent. Inorganic.

Class IVB: Fat clays (CH)

Plasticity index: above A line.

Liquid limit: 50 or greater.

Gradation: amount passing No. 200 sieve - greater than 50 percent. Inorganic.

Use soils with dual class designation according to STM D 2487, and which are not defined above, according to the more restrictive class.

2.02 PRODUCT DESCRIPTIONS

Soils classified as silt (ML), 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 the Water Utilities Engineer. Soils in Class IVB, fat clay (CH) may be used as backfill materials where allowed by the applicable backfill installation specification. Refer to Section 02317 - Excavation and Backfill for Utilities.

Provide backfill material that is free of stones greater than 6 inches, free of roots, waste, debris, trash, organic material, no-soil matter, hydrocarbon or other contamination, conforming to the following limits for deleterious materials:

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.

Lightweight pieces: Less than 5 percent when tested in accordance with ASTM C 123.

Organic impurities: No color darker than standard color when tested in accordance with ASTM C 40.

Manufactured materials, such as crushed concrete, may be substituted for natural soil or rock products where indicated in the product specification, and approved by the Water Utilities Engineer, provided that the physical property criteria are determined to be satisfactory by testing.

Bank Run Sand: Durable bank run sand classified as SP, SW, or SM by the Unified Soil Classification System (ASTM D 2487) meeting the following requirements:

Less than 15 percent passing the number 200 sieve when tested in accordance with ASTM D 1140. The amount of clay lumps or balls not exceeding 2 percent.

Materials passing the number 40 sieve shall meet the following requirements when tested in accordance with ASTM D 4318:

Liquid limit: not exceeding 25 percent. Plasticity index: not exceeding 7.

Concrete Sand: Natural sand, manufactured sand, or a combination of natural and manufactured sand conforming to the requirements of ASTM C 33 and graded within the 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

Gem Sand: Sand conforming to the 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

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

Crushed Aggregates: Crushed aggregates consist of durable particles obtained from an approved source and meeting the following requirements:

Materials of one product delivered for the same construction activity from a single source.
Non-plastic fines.

Los Angeles abrasion test wear not exceeding 45 percent when tested in accordance with ASTM C 131.

Crushed aggregate shall have a minimum of 90 percent of the particles retained on the No. 4 sieve with 2 or more crushed faces as determined by Test Method Tex460-A, Part I.

Crushed stone: Produced from oversized plant processed stone or gravel sized by crushing to predominantly angular particles from a naturally for embedment where crushed stone is shown on the applicable utility embedment drawing details.

Crushed Concrete: Crushed concrete is an acceptable substitute for crushed stone as utility backfill. Gradation and quality control test requirements are the 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.

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

Select Backfill: Class III clayey gravel or sand or Class IV lean clay with a plasticity index between 7 and 20 or clayey soils treated with lime.

Random Backfill: Any suitable soil or mixture of soils within Classes I, II, III and IV; or fat clay (CH) where allowed by the applicable backfill installation specification. Refer to Item 02317 - Excavation and Backfill for Utilities.

Cement Stabilized Sand: Conform to requirements of Item 817 - Cement Stabilized Sand.

2.03 MATERIAL TESTING

Ensure that material selected, produced and delivered to the project meets applicable specifications and is of sufficient uniform properties to allow practical construction and quality control.

Source or Supplier Qualification. Perform Testing, or obtain representative tests by suppliers, for selection of material sources and products. Provide test results for a minimum of three samples for each source and material type. Tests samples of processed materials from current production representing material to be delivered. Tests shall verify that the materials meet the specification requirements and/or manufacturer recommendations. Repeat qualification test procedures each time the source characteristic changes or there is a planned change in source location or supplier.

Qualification tests shall include, as applicable:

Gradation. Complete sieve analyses shall be reported regardless of the specified control sieves. The range of sieves shall be from the largest particle through the No. 200 sieve.

Plasticity of material passing the No. 40 sieve.

Los Angeles abrasion wear of material retained on the No. 4 sieve. Clay lumps.

Lightweight pieces.

Organic impurities.

Production Testing. Provide reports to the Water Utilities Engineer from an independent testing laboratory that backfill materials to be placed in the Work meet applicable specification requirements.

Assist the Water Utilities Engineer in obtaining material samples for verification testing at the source or at the production plant.

PART 3 EXECUTION

3.01 SOURCES

Use of material encountered in the trench excavations is acceptable, provided applicable specification requirements are satisfied. If excavation material is not acceptable, provide materials from other approved source.

Identify off-site sources for backfill materials at least 14 days ahead of intended use so that the Water Utilities Engineer may obtain samples for verification testing. Obtain approval for each material source by the Water Utilities Engineer before delivery is started. If sources previously approved do not produce uniform and satisfactory products, furnish materials from other approved sources. Materials may be subjected to inspection or additional verification testing after delivery. Materials which do not meet the requirements of the 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 change to a different material will be credited by the District through a change order.

Bank run sand, select backfill, and random backfill, if available in the project excavation, may be obtained by selective excavation and acceptance testing. Obtain additional quantities of these materials and other materials required to complete the work from off-site sources.

The District does not represent or guarantee that any soil found in the excavation work will be suitable and acceptable as backfill material.

3.02 MATERIAL HANDLING

When backfill material is obtained from either a commercial or non-commercial borrow pit, open the pit to expose the vertical faces of the various strata for identification and selection of approved material to be used. Excavate the selected material by vertical cuts extending through the exposed strata to achieve uniformity in the product.

Establish temporary stockpile locations for practical material handling and control, and verification testing by the Water Utilities Engineer in advance of final placement. Obtain approval from landowner for storage of backfill material on adjacent private property.

When stockpiling backfill material near the project site, use appropriate covers to eliminate blowing of materials into adjacent areas and prevent runoff containing sediments from entering the drainage system.

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

Quality Control

The Water Utilities Engineer may sample and test backfill at:

Sources including borrow pits, production plants and Contractor's designated off-site stockpiles.

On-site stockpiles.

Materials placed in the Work.

The Water Utilities Engineer may resample material at any stage of work or location if changes in characteristics are apparent.

Production Verification Testing: The City's testing laboratory will provide verification testing on backfill materials, as directed by the Water Utilities Engineer. Samples may be taken at the source or at the production plant, as applicable.

End of Section

XXIII. ITEM 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.
- 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 MEASUREMENT AND

PAYMENT

- A. Unit Prices.

No payment will be made for acceptance testing under this Section. Include payment in unit price for work requiring acceptance testing.
- 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.

1.03 REFERENCES

- A. ASTM C 828 - Standard Test Method for Low Pressure Air Test of Vitrified Clay Pipe Lines.
- B. ASTM C 924 - Standard Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method.
- C. ASTM D 3034 - Standard Specification for Type PSM Polyethylene (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- D. ASTM F 794 - Specification for Polyvinyl Chloride Large-Diameter Ribbed Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
- E. ASTM F 1417 - Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air.
- F. 30 TAC 317.2 - Design Criteria for Sewage Systems.
- G. Uni-Bell UNI-B-3 Polyvinyl Chloride (PVC) Pressure Pipe (Complying with AWWA C 900).

1.04 PERFORMANCE REQUIREMENTS

- A. Gravity flow sanitary sewers are required to have a 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 a line segment but prior to final acceptance using a standard mandrel to verify that installed pipe is within specified deflection tolerances.
- C. Maximum allowable leakage for Infiltration or Exfiltration
 - 1. The total exfiltration, as determined by a hydrostatic head test, shall not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of 2 feet above the crown of the pipe at the upstream manhole or 2 feet above the groundwater elevation,

whichever is greater.

2. When pipes are installed more than 2 feet below the groundwater level, an infiltration test shall be used in lieu of the exfiltration test. The total infiltration shall not exceed 50 gallons per inch diameter per mile of pipe per 24 hours. Groundwater elevation must be at least 2 feet above the crown of the pipe at the upstream manhole.
 3. Refer to Table 02533-1, Water Test Allowable Leakage, at the end of the Section, for measuring leakage in sewers. Perform leakage testing to verify that leakage criteria are met.
- D. Perform air testing in accordance with requirements of this Section and the Texas Commission on Environmental Quality (TCEQ) requirements. Refer to Table 02533-2, Time Allowed For Pressure Loss From 3.5 psig to 2.5 psig, Table 02533-3, Minimum Testing Times for Low Pressure Air Test, and Table 02533-4, Vacuum Test Time Table, at the end of this Section.

1.05 SUBMITTALS

- A. Conform to requirements of Section 1300 - Contractor Submittals.
- B. Test Plan: Before testing begins and in adequate time to obtain approval through the submittal process, prepare and submit a test plan for approval by Water Utilities Engineer. Include testing procedures, methods, equipment, and tentative schedule. Obtain advance written approval for deviations from the Drawings and Specifications.
- C. Test Reports: Submit test reports for each test on each segment of sanitary sewer.

1.06 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 post-installation video tape of television inspection as directed by Water Utilities Engineer.
- C. Upon completion of tape reviews by Water Utilities Engineer, Contractor will be notified regarding final acceptance of the sewer segment.

1.07 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 any one time.
- B. Coordinate testing schedules with Water Utilities Engineer. Perform testing under observation of Water Utilities Engineer.

PART 2 PRODUCTS

2.01 DEFLECTION MANDREL

- A. Mandrel Sizing. The rigid mandrel shall have an outside diameter (O.D.) equal to 95 percent of the inside diameter (I.D.) of the pipe. The inside diameter of the pipe, for the purpose of determining the outside diameter of the mandrel, shall be the average outside diameter minus two minimum wall thicknesses for O.D. controlled pipe and the 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. The rigid mandrel shall be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed. The mandrel shall have nine or more "runners" or "legs" as long as the total number of legs is an odd number. The barrel section of the mandrel shall have a length of at least 75 percent of the inside diameter of the pipe. The rigid mandrel shall not have adjustable or collapsible legs which would allow a reduction in mandrel diameter during testing. A proving ring shall be provided and used for modifying each size mandrel.
- C. Proving Ring. Furnish a "proving ring" with each mandrel. Fabricate the ring of 1/2-inch-thick, 3-inch-wide bar steel to a diameter 0.02 inches larger than approved mandrel diameter.

2.02 Mandrel Dimensions (5 percent allowance). Average inside diameter and minimum mandrel diameter are specified in Table 02533-5, Pipe vs. Mandrel Diameter, at the end of this Section. Mandrels for higher strength, thicker wall pipe or other pipe not listed in the table may be used when approved by the Water Utilities Engineer.

2.03 **EXFILTRATION TEST**

- A. Water Meter: Obtain a transient water meter from the City for use when water for testing will be taken from the City system. Conform to City requirements for water meter use.
- B. Test Equipment:
 - 1. Pipe plugs.
 - 2. Pipe risers where the manhole cone is less than 2 feet above highest point in pipe or service lead.

2.04 **INFILTRATION TEST**

- A. Test Equipment:
 - 1. Calibrated 90 degree V-notch weir.
 - 2. Pipe plugs.

2.05 **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 a pneumatic plug in each end of a length of pipe on the ground. Pressurize plugs to 25 psig; then pressurize sealed pipe to 5 psig. Plugs are acceptable if they remain in place against the test pressure without external aids.

2.06 **GROUND WATER DETERMINATION**

- A. Equipment: Pipe probe or small diameter casing for ground water elevation determination.

2.07 **SMOKE TESTING**

- A. Equipment:
 - 1. Pneumatic plugs.
 - 2. Smoke generator as supplied by Superior Signal Company, or an 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. The selection of test methods and pressures for gravity sanitary sewers shall be determined based on ground water elevation. Determine ground water elevation using equipment and procedures conforming to Item 01578 - Control of Ground Water and Surface Water.

3.02 VISUAL INSPECTION OF GRAVITY SANITARY SEWERS

- A. Check pipe alignment visually by flashing a 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 the line segment.
- B. Pull the approved mandrel by hand through sewer sections. Replace any section of sewer not passing the mandrel. Mandrel testing is not required for stubs. C. Retest repaired or replaced sewer sections.

3.04 LEAKAGE TESTING FOR GRAVITY SANITARY SEWERS

- A. Test Options:
 - 1. Test gravity sanitary sewer pipes for leakage by either exfiltration or infiltration methods, as appropriate, or with low pressure air testing.
 - 2. Test new or rehabilitated sanitary sewer manholes with water or low pressure air. Manholes tested with low pressure air shall undergo a physical inspection prior to testing.
 - 3. Leakage testing shall be performed after backfilling of a line segment, and prior to tie-in of service connections.
 - 4. If no installed piezometer is within 500 feet of the sewer segment, Contractor shall provide a temporary piezometer for this purpose.
- B. Compensating for Ground Water Pressure:
 - 1. Where ground water exists, install a pipe nipple at the same time sewer line is placed. Use a 1/2-inch capped pipe nipple approximately 10 inches long. Make the installation through manhole wall on top of the sewer line where line enters manhole.
 - 2. Immediately before performing line acceptance test, remove cap, clear pipe nipple with air pressure, and connect a clear plastic tube to nipple. Support tube vertically and allow water to rise in the tube. After water stops rising, measure height in feet of water over invert of the pipe. Divide this height by 2.3 feet/psi to determine the 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 if 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, if used, with water to a 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 a one-hour period, and calculate water loss (1 inch of water in 4 feet diameter manhole equals 8.22 gallons) or measure the 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 the 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.
 5. Take five readings of accumulated volume over a period of 2 hours and use average for infiltration. The average must not exceed that calculated for 2 hours from allowable leakage according to the Table 02533-1 at the end of this Section.
- E. Low Air Pressure Test: When using this test conform to ASTM C 828, ASTM C 924, or ASTM F 1417, as applicable, with holding time not less than that listed in Table 02533-2.
1. Air testing for sections of pipe shall be limited to lines less than 36-inch average inside diameter.
 2. Lines 36-inch average inside diameter and larger shall be tested at each joint. The minimum time allowable for the pressure to drop from 3.5 pounds per square inch gauge to 2.5 pounds per square inch during a joint test shall be 10 seconds, regardless of pipe size.
 3. For pipe sections less than 36-inch average inside diameter:
 - a. Determine ground water level.
 - b. Plug both ends of pipe. For concrete pipe, flood pipe and allow 2 hours to saturate concrete. Then drain and plug concrete pipe.
 - c. After a manhole-to-manhole section of sanitary sewer main has been sliplined and prior to any service lines being connected to new liner, plug liner at each manhole with pneumatic plugs.
 - d. Pressurize pipe to 4.0 psig. Increase pressure 1.0 psi for each 2.3 feet of ground water over highest point in system. Allow pressure to stabilize for 2 to 4 minutes. Adjust pressure to start at 3.5 psig (plus adjustment for ground water table). See Table 02533-2 at the end of this Section.
 - e. To determine air loss, measure the time interval for pressure to drop to 2.5 psig. The time must exceed that listed in the Table 02533-2 at the end of this Section for pipe diameter and length. For sliplining, use diameter of carrier pipe.
- H. Retest: Any section of pipe which fails to meet requirements shall be repaired and retested.

3.05 TEST CRITERIA TABLES

- A. Exfiltration and Infiltration Water Tests: Refer to Table 02533-1, Water Test Allowable Leakage, at the 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 the end of this Section, are based on the equation from Texas Natural Resources and Conservation Commission (TNRCC) Design Criteria 317.2(a)(4)(B).

$$T = 0.0850(D)(K)/(Q)$$

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 a 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, the time shall be computed by the ratio of lengths involved.
2. Lines with a 27-inch average inside diameter and larger may be air tested at each joint.
3. Lines with an average inside diameter greater than 36 inches must be air tested for leakage at each joint.
4. If the joint test is used, a visual inspection of the joint shall be performed immediately after testing.
5. For joint test, the pipe is to be pressurized to 3.5 psi greater than the pressure exerted by groundwater above the pipe. Once the pressure has stabilized, the minimum times allowable for the 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 a minimum of 6 inches outside of manhole walls. Brace inverts to prevent lines from being dislodged if 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 the 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 the time period specified in Table 02533-4, Vacuum Test Time Table.
3. If the drop in vacuum exceeds 1 inch Hg over the specified time period tabulated above, locate leaks, complete repairs necessary to seal manhole and repeat test procedure until satisfactory results are obtained.

- D. Hydrostatic exfiltration testing shall be performed as follows:
1. Seal wastewater lines coming into the manhole with an internal pipe plug. Then fill the 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 PROCEDURE FOR POINT REPAIRS

- A. Application: Perform smoke test to:
1. Locate points of line failure for point repair.
 2. Determine if point repairs are properly made.
 3. Determine if service connections have been reconnected to the 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 a single manhole section at any one time. Keep the number of open excavations to a 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 City of Beaumont Police and Fire Departments 24 hours prior to actual smoke testing.
- D. Isolate Section: Isolate the manhole section to be tested from adjacent manhole sections to keep smoke localized. Temporarily seal the annular space at manhole for sliplined sections.
- E. Smoke Introduction:
1. Operate equipment according to manufacturer's recommendation and as approved by Water Utilities Engineer.
 2. Conduct test by forcing smoke from smoke generators through sanitary sewer main and service connections. Operate smoke generators for a minimum of 5 minutes.
 3. Introduce smoke into upstream and downstream manhole as appropriate. Monitor the tap/connection for smoke leaks. Note sources of leaks.
- F. Repair and Retest: Repair and replace any taps or connections noted as leaking and then retest. Taps and connections may be left exposed in only one manhole section at a time. If repair or replacement, testing or retesting, and backfilling of the excavation is not completed within one work day, properly barricade and cover each excavation as approved by Water Utilities Engineer.
- G. Service Connections: On houses where smoke does not issue from plumbing vent stacks to confirm reconnection of sewer service to the newly installed liner pipe, perform a dye test to confirm reconnection. Introduce dye into the service line through a plumbing fixture inside the structure or a sewer cleanout immediately outside the structure and flush with water. Observe flow at service reconnection or downstream manhole. Detection of dye confirms a reconnection.

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 shall be reduced to 10 gallons per inch of inside diameter per mile per 24 hours, when sewer is identified as located within the 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(i n)	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)
6	340	398	0.855 (L)
8	454	298	1.520 (L)
10	567	239	2.374 (L)
12	680	199	3.419 (L)
15	850	159	5.342 (L)
18	1020	133	7.693 (L)
21	1190	114	10.471 (L)
24	1360	100	13.676 (L)
27	1530	88	17.309 (L)
30	1700	80	21.369 (L)
33	1870	72	25.856 (L)

**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 924-85)			

Table 02533-5
PIPE VS. MANDREL DIAMETER

	Nominal	Average	Minimum Mandrel
Material and Wall Construction	Size (Inches)	I.D. (Inches)	Diameter (Inches)
PVC-Solid (SDR 26)	6	5.764	5.476
	8	7.715	7.329
	10	9.646	9.162
PVC-Solid (SDR 35)	12	11.737	11.150
	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
	36	35.500	33.725
	42	41.500	39.425
HDPE-Profile	48	47.500	45.125
	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
	60	60.000	57.000
Fiberglass-Centrifugally Cast (Class SN 46)	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	52.079
	60	60.38	57.361

End of Section



City of Beaumont
Water Utilities / Engineering
Gravity Sanitary Sewer Line Pressure Test Sheet

JOB #

PROJECT: _____ DATE: _____

CONTRACTOR: _____ WEATHER: _____

CONTRACTOR'S EQUIPMENT ON JOB:

ENGINEER: _____ PIPE TYPE/CLASS: _____

Allowable Time for Pressure Drop From 3.5 psi to 2.5 psi	Pipe Dia. (Inches)	Min. Time (Min:Sec)	Length for Min. Time (Feet)	Time for Longer Length (Seconds)
	6	5:40	398	0.855 * (L)
	8	7:33	298	1.520 * (L)
	10	9:27	239	2.374 * (L)
	12	11:20	199	3.419 * (L)
	15	14:10	159	5.342 * (L)
	18	17:00	133	7.693 * (L)
	21	19:50	114	10.471 * (L)
	24	22:40	99	13.676 * (L)
	27	25:30	88	17.309 * (L)
	30	28:20	80	21.369 * (L)
	33	31:10	72	25.856 * (L)

LOW PRESSURE AIR TEST					
LINE:		LINE:		LINE:	
SIZE/LENGTH:		SIZE/LENGTH:		SIZE/LENGTH:	
Allowable Time for 1.0 psi Pressure Drop:		Allowable Time for 1.0 psi Pressure Drop:		Allowable Time for 1.0 psi Pressure Drop:	
TIME	PRESSURE	TIME	PRESSURE	TIME	PRESSURE
End:	Start:	End:	Start:	End:	Start:
Start:	End:	Start:	End:	Start:	End:
Total:	Drop:	Total:	Drop:	Total:	Drop:
() PASS () FAIL		() PASS () FAIL		() PASS () FAIL	
ALL 4" SERVICE LINES TESTED <u>WITH MAIN?</u> () YES () NO					

COMMENTS:

CITY REPRESENTATIVE: _____SIGNATURE

XXIV. ITEM 02951- SPECIFICATIONS FOR PAVEMENT REPAIR AND RESURFACING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Repairing and resurfacing streets, highways, driveways, sidewalks, and other pavements that have been cut, broken or otherwise damaged during construction.

1.02 MEASUREMENT AND PAYMENT

- A. Unit Prices
 - 1. No separate payment will be made for pavement repair and resurfacing under this Section. Include payment in unit price for work in appropriate sections.

PART 2 - PRODUCTS

2. .01 MATERIALS

- A. Subgrade:
 - 1. Provide backfill material as required by City of Beaumont and Texas Department of Transportation Standards.
 - 2. Provide material for stabilization as required by City of Beaumont and Texas Department of Transportation Standards.
- B. Base: Provide base material as required by City of Beaumont and Texas Department of Transportation Standards.
- C. Pavement: Provide paving materials as required by City of Beaumont and Texas Department of Transportation Standards for Asphaltic Concrete Pavement, Concrete Paving, Concrete Driveways, Curb, Curb and Gutter, and Headers, and Concrete Sidewalks.

PART 3 - EXECUTION

3. .01 PREPARATION

- A. Conform to requirements of Item 02221 - Removing Existing Pavements and Structures, for removals.
- B. Saw cut pavement 18 inches wider than width of trench needed to install utilities unless otherwise indicated on Drawings.
- C. Protect edges of existing pavement to remain from damage during removals, utility placement, backfill, and paving operations. For concrete pavement leave and protect minimum of 18 inches of undisturbed subgrade on each side of trench to support replacement slab.

3.02 INSTALLATION

- A. Parking Areas, Service Drives, Driveways and Sidewalks: Replace with material equal to or better than existing or as indicated on Drawings. Conform to applicable requirements of sections referenced in Paragraph 2.01 Materials.
- B. Street Pavements and Curbs, Curbs and Gutters: Replace subgrade, base and surface course with like materials or as indicated on Drawings. Curbs and curbs and gutters shall match existing. Conform to requirements of sections referenced in Paragraph 2.01, Materials.
- C. For concrete pavement, install size and length of reinforcing steel and pavement thickness or as indicated on Drawings.
- D. Where existing pavement consists of concrete pavement with asphaltic surfacing, resurface with minimum 2-inch depth asphaltic pavement.

- E. Repair State highway crossing in accordance with TxDOT permit and within 1 week after utility work is installed.

3.03 WASTE MATERIAL DISPOSAL

- A. Dispose of waste material to sites approved by the Water Utilities Engineer.

3.04 PROTECTION

- A. Maintain pavement in good condition until completion of the Work.
- B. Replace damaged pavement.

End of Section

XXV. SPECIAL PROVISIONS - IMPORTANT NOTICE TO CONTRACTORS

The Contractor's attention is directed to the fact that utility adjustments may be required for the construction of this project. The Contractor will be expected to coordinate work with all utility companies in order to maintain service at all times to the adjacent property owners. Additional time will be granted for delays caused by utility adjustments, if in the opinion of the Engineer, such delays warrant additional time. It is specifically understood, however, that if the Contractor is delayed by virtue of these utility adjustments, that this delay will not be considered as a basis for a claim by the Contractor.

The following utility companies are involved in the construction of this project and a telephone number and current contact person are listed:

<u>UTILITY</u>	<u>TELEPHONE NO.</u>	<u>CONTACT PERSON</u>
AT&T	(409) 291-9415	Randall Jennings
CenterPoint Energy	(409) 860-7114	Richard Hartstein
City of Beaumont Water & Sewer	(409) 785-3027	Bill Kemp
City of Beaumont Streets & Drainage	(409) 838-5016	Kerry Jean
Entergy	(409) 782-0898	Paul Blackburn
Spectrum	(409) 217-1760	Altoria Prince

The utilities listed above will be adjusted by the Owner of the utility and will not be the responsibility of the Contractor with the exception of sewer and water line adjustments. The Contractor shall perform all work necessary to adjust the sewer and water lines as detailed in the plans.

XXVI. SPECIAL PROVISIONS - DETOURS, BARRICADES, WARNING SIGNS, SEQUENCE OF WORK, ETC.

- The Contractor's particular attention is directed to the requirements of Article 5 "The Contractors Responsibilities" of the "General Conditions". In addition to these requirements, the following provisions shall govern on this Contract.
- Prior to beginning any work on this project, it will be necessary for the Contractor to participate in the pre-construction safety meeting with the Engineer in charge of the project, and other agencies. The Engineer in charge of the project will notify the Contractor when this meeting will be held. This meeting shall be prior to the beginning of working time changes.
- Before beginning work on this project, the contractor shall submit in writing, for approval by the Engineer, a plan of operation outlining in detail a sequence of work to be followed.
- The Traffic Control Plan shall be governed by TxDOT Traffic Control Plan, Barricades and Traffic Control Standards; BC (1-12)-14 and Work Zones Traffic Control Details as shown on the plans.
- Flaggers, portable barricades, pavement markings, and warning signs in addition to those shown in the plans may be required as directed by the Engineer in order to insure a safe and continuous flow of traffic. If the Contractor desires to deviate from the Traffic Control Plans, approval from the Engineer must be obtained. No additional compensation will be allowed the Contractor if there is a deviation from the Traffic Control Plan.
- All inlets and manholes may be constructed to subgrade elevation to facilitate drainage during construction. If the Contractor chooses to build inlets in stages a temporary top will be required as provided in Item 465.5 "Stages of Construction".
- The Contractor's particular attention is called to the Traffic Control Plan and sequence of work detailed in the plans. Strict adherence to this plan will be required unless otherwise approved by the Engineer in writing.
- It is the intent of the City of Beaumont that unfavorable impact by the contract work, on businesses and residences, shall be minimized. The Contractor shall notify in writing, at least forty-eight (48) hour prior to beginning any phase of work, all businesses and residences which are expected to be affected by said phase of work. Ingress and egress to affected businesses and residences shall be maintained at all times by the Contractor as provided in the Plans and Contract documents.

General:

- The Contractor shall provide the traffic control devices so detailed in the Traffic Control Plan. It is the intent of the sequence of work that the Contractor be continually aware and responsive to the needs of the traveling public and that all operations be performed with the needs of the public and local residences in mind and to insure the safety of both the public and the project personnel.

Note:

- Maintain existing storm water drainage facilities. During construction in all phases of work on site or as ordered by the engineer, the contractor will provide all necessary labor, equipment and conveyance materials to drain the storm water and discharge into existing and new storm sewer structures where storm water will flood properties and roadways. This will not be paid for separately, but will be considered subsidiary to various bid items.
- Ensure that safe access is provided to bus stops, bus shelters and to and from bus loading and unloading at all times.
- Provide temporary driveway access crossing construction area at the end of each day.

End of Special Provision

XXVII. TEMPORARY FIRE HYDRANT CONSTRUCTION METER



Agreement #
Item 814

City of Beaumont Water Utilities
1350 Langham Rd., Beaumont, TX 77707
(409) 866-0062 Fax: (409) 861-4836

ACCOUNT APPLICATION FOR TEMPORARY FIRE HYDRANT CONSTRUCTION METER

BILLING INFORMATION:

Application Date: _____

Company Name: _____

Mailing Address: _____

City: _____ State: _____ ZIP Code: _____

Phone: _____ Contact Person: _____

Email Address of Billing Contact Person: _____

Guarantor Account Number (if applicable): _____ Deposit Amt: _____

LOCAL CONTACT INFORMATION:

Contact Person: _____

Local Phone or Cellular Phone: _____

Email Address of Local Contact Person: _____

SERVICE INFORMATION:

Meter Location: _____

Type of Project: _____ How long will cage be rented? _____

Comments: _____

CUSTOMER INSTRUCTIONS:

- I. The meter will not be relocated to another project and/or site without first notifying the City staff of the new location by sending an email to: ConstructionMeters@BeaumontTexas.gov
- II. Customer Service will bill for monthly water usage as regulated in the City Ordinance Chapter 22, Article 22.02, Sec. 22.02.001 for a 2" meter.
- III. Damage protection of the device shall be the responsibility of the Contractor. The cost to replace or repair any damaged parts will be deducted from the security deposit or project retainage as applicable. Any repair or replacement costs exceeding the security deposit will be invoiced to the Contractor. This also applies to fire hydrant damage. Contractors will only use a fire hydrant wrench when operating the hydrant.
- IV. Daily protective storage of the device shall be the responsibility of the Contractor. If the device is stolen the \$4,500.00 deposit will not be refunded.
- V. Contractors working for the City of Beaumont on a City-owned project shall have the fees and security deposit waived. Upon project completion, prior to the project's closeout, the Contractor is required to return the device or the \$4,500.00 shall be deducted from the contract's retainage.
- VI. Meters will be read by the Contractor and the reading must be submitted to Water Billing on the 20th of the month (even if the reading has not changed from the previous month) to ConstructionMeters@BeaumontTexas.gov or faxed to (409) 860-4672.

For Office Use: Clerk: _____

Cage #

Meter Size: _____ Meter Type: _____ Meter No: _____

Reading: _____

Backflow Preventer No: _____

Account No: _____

SERVICE AGREEMENT FOR FIRE HYDRANT CONSTRUCTION METER

- I. **Purpose.** The Texas Commission on Environmental Quality (TCEQ) requires cities to take all necessary measures to ensure that its water supply remains protected. The City of Beaumont Water Utilities Department is responsible for protecting the drinking water supply from contamination or pollution. In order to protect the health of the public, the City Council enacted the Cross Connection Control and Prevention Ordinance 01-032 on March 27, 2001. These restrictions are enforced by the Water Utilities Department to ensure the safety of the public's health and welfare. The purpose of this Service Agreement with _____ (herein "Contractor") is to provide and ensure this protection. The Contractor must sign this Agreement before the City of Beaumont Water Utilities Department will allow the use of water service through fire hydrant connections. In addition, when service to an existing connection has been suspended or terminated, the Water Utilities Department will not reestablish service unless it has received a signed copy of this Agreement.
- II. **Service Agreement.** The following are the terms of the Service Agreement between the City of Beaumont Water Utilities Department and the Contractor:
- A. Effective immediately, fire hydrant construction meters will be issued to the Contractor on a job-by-job basis. When that particular project is finished, the fire hydrant assembly will be returned to the City of Beaumont Water Utilities Department. The assembly is not allowed outside the City of Beaumont. The assembly will not be relocated to another project or site without first notifying the City of the new location at: ConstructionMeters@BeaumontTexas.gov
 - B. The fire hydrant meter and backflow prevention assemblies are required to be in a protective cage (device) and will be supplied by the Water Utilities Department. Initial testing of the backflow prevention assembly will be performed by the City. Periodic testing will be required, and the frequency will be determined by the Water Quality Control Manager. This testing will be performed by the City's certified backflow tester. Contact Dwayne Trahan at (409) 730-4404 to coordinate this testing.
 - C. An initial non-refundable service fee of \$500.00 and a security deposit of \$4,500.00 (payable by check or cash only to the City of Beaumont), will be required to accompany this Service Agreement and Application Form. The fire hydrant meter will be ready for pick up 24 hours from receipt of the signed agreement, service fee, and security deposit.
 - D. Contractors working for the City of Beaumont on a City-owned project shall have the fees and security deposit waived. Upon project completion, prior to the project's closeout, the Contractor is required to return the device or a \$4,500.00 replacement fee shall be deducted from the contract's retainage. The cost to replace or repair any damaged parts will be deducted from the contract's retainage.
 - E. Damage protection of the device shall be the responsibility of the Contractor. The cost to replace or repair any damaged parts will be deducted from the security deposit. Any repair or replacement costs exceeding the security deposit will be invoiced to the Contractor. This also applies to fire hydrant damage. Contractors will only use a fire hydrant wrench when operating the hydrant.
 - F. Daily protective storage of the device shall be performed by the Contractor. If the device is stolen or removed from the designated job site, the \$4,500.00 deposit will not be refunded.
 - G. Placement of this device will be located in such a place as to protect the public, pedestrians, vehicles, and construction workers on the site. The City assumes no responsibility for injuries or damages to personnel or equipment.

- H. Any unauthorized tampering with Water Utility valves or appurtenances, or any theft of water, will be dealt with according to the penalties set forth in the City Ordinances.
- I. Meters will be read by the Contractor and the reading must be submitted to Water Billing on the 20th of each month (even if reading has not changed from the previous month) to:
ConstructionMeters@BeaumontTexas.gov or faxed to (409) 860-4672.

The City expects the contractors to give their full cooperation.

- III. **Enforcement.** If the Contractor fails to comply with the terms of this Service Agreement, the Water Utilities Department shall, as its option, terminate service and enforce any and all penalties set forth in City Ordinance 01-032. Any expenses associated with the enforcement of this Agreement shall be billed to the Contractor.

- IV. In connection with this Agreement, the official name and address for notification shall be:

A. Contractor:

Contractor Name: _____
Owner/Manager (Print): _____
Owner/Manager (Signature): _____ Date: _____
Email Address: _____
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Phone: _____ Fax: _____

B. City of Beaumont, Water Utilities Department

Water Utilities Administration Date

Payment Information: (Fees must accompany this Agreement)

\$500.00 Non-Refundable Service Fee

Receipt # _____

\$4,500.00 Security Deposit Fee

Receipt # _____

For Office Use:

Contractor's Account Number: _____ Cage No: _____
Meter No: _____ Backflow Preventer No: _____
Location of Fire Hydrant Meter: _____

TEMPORARY METER NOTIFICATION

DATE: _____

TO WHOM IT MAY CONCERN:

The City of Beaumont Water Utilities Department will be providing a temporary fire hydrant construction cage meter to _____ at the installation location of _____ . As stated in the Service Agreement II.A., the Fire Hydrant construction meters will be issued to the Contractor on a job-by-job basis, and must be returned to the City of Beaumont immediately upon completion of that particular project. The assembly is not allowed outside the City of Beaumont. It will be the Contractors responsibility to report meter readings to ConstructionMeters@BeaumontTexas.gov or faxed to (409) 860-4672 on the 20th of the month as stated in the Service Agreement II.H. The Contractor must submit the reading even if the meter reading did not change from the previous month. It will be the Contractor's responsibility to report meter locations to ConstructionMeters@BeaumontTexas.gov

Your cooperation in this procedure is appreciated.

Local Contact Person

Local Contact Number

Local Contact Email

PART VI SPECIAL SPECIFICATIONS

I. ITEM 98 – ABANDONMENT OR REMOVAL OF OLD STRUCTURES

98.01 - DESCRIPTION

This item shall provide for the removal of and disposal of old structures, as noted on the plans, and shall include all excavation and backfilling necessary to complete the removal.

98.02 - METHOD OF REMOVAL

1. Culverts or Sewers. Pipe shall be removed by careful excavation of all dirt on top and the sides in such manner that the pipe will not be damaged. Those pipes which are deemed unsatisfactory for re-use by the Engineer may be removed in any manner the Contractor may select. Those pipes which are to be crushed in place shall be thoroughly crushed and may not be used as fill material within the eighteen (18") inches of the finished grade. Those pipes which are to be abandoned in place shall be sealed at both ends with concrete unless otherwise approved by the Engineer.
2. Concrete or Brick Structures. Concrete or brick structures (or portions of structures) shall be removed by chipping and/or sledging the structure into sizes not larger than one cubic foot.
3. Steel Structures. Steel structures (or steel portions of structures) shall be dismantled in sections as determined by the Engineer. The sections shall be of such weight and dimensions as will permit convenient handling, hauling, and storing. All necessary severing of connections between members, or between members and supports, shall be done in a manner which will not injure the members for reuse. Flame-cutting of members will be permitted only with the written permission of the Engineer.
4. Timber Structures. Timber structures or timber portions of structures shall be removed in such manner as to avoid damage to the timber. All bolts and nails shall be removed from lumber deemed salvageable by the Engineer.

Unless otherwise specified on the plans, timber piles shall be either pulled or cut off at a point not less than two (2) feet below ground line, with the choice between these two methods resting with the Contractor.

98.03 - UNDERGROUND PORTIONS OF STRUCTURES

Portions of structures below the permanent ground line, which will not interfere in any manner with the proposed construction, may be left in place. These structures shall be removed at least two feet (2') below the permanent ground line and neatly squared off. Reinforcement shall be cut off close to the concrete.

When a sewer, lift station, or other structure is to be constructed on the site of a structure to be removed, removal shall extend at least two feet below and outside the proposed structure. If the old structure is located under a proposed road excavation, removal shall extend at least two feet below the proposed undercut. The excavation shall be backfilled according to the requirements of the new structure or roadway.

98.04 - BACKFILL

All excavation made in connection with this item and all openings below the natural ground line caused by the removal of old structures or portions thereof shall be backfilled to the level of the permanent ground line, unless otherwise provided on the plans.

ITEM 98 – ABANDONMENT OR REMOVAL OF OLD STRUCTURES

That portion of the backfill which will support any portion of the roadbed or embankment shall be placed in layers of the same depth as those required by embankment. Material in each layer shall be wetted uniformly if required and shall be compacted to the density required in the adjoining embankment. In places inaccessible to blading and rolling equipment, mechanical or hand tamps or rammers shall be used to obtain the required compaction.

Backfill which will support any portion of a structure or an underground pipe shall be placed in layers and compacted to the same density as the surrounding undisturbed soil. Special backfill material may be required by the specifications for the structure.

That portion of the backfill which will not support any portion of the roadbed or embankment shall be placed as directed by the Engineer in such manner and to such state of compaction as will preclude objectionable amounts of settlement.

98.05 - SALVAGE

Any materials which are designated in the plans for salvage by the Owner, and which the Engineer deems as salvage for reuse, shall be carefully placed in neat piles. These piles shall be located on or near the construction site at convenient loading points which will not interfere with traffic or construction. All such materials shall be handled, transported, and stacked so as to avoid damage.

All materials not designated or acceptable for salvage shall become the property of the Contractor. The Contractor shall remove these materials from the construction site as soon as practical.

98.06 - PAYMENT

No separate payment will be made for this item.

II. ITEM 100 – STRUCTURAL EXCAVATION, FOUNDATIONS, & BACKFILL

100.01 - DESCRIPTION

This item shall govern the removal of all earth, rock, water, and other materials, regardless of their nature or the manner in which they are removed, to the extent required for the construction of such facilities as shown on the plans. This item shall include preparing the subgrade and/or sub-base for the foundation of the facilities and drilling of footings to lines and grades established by the plans.

This item does not provide for excavation and/or trenching and backfilling necessary for the installation of pipe culverts, sewers, and/or any other pipe installation which may be required; or the removal of old structures.

100.02 - EXCAVATION AND FOUNDATIONS

1. General. Excavations shall be of such dimensions as to permit the construction of the work in the manner, shape, and size shown on the plans. Excavation shall extend a sufficient distance from the walls to allow for placing and removal of forms, installation of piping, installation of excavation safety system, and inspection. The sides of the excavation shall be laid back or stepped when warranted by the soil conditions encountered, or when required by the Contractor's excavation safety system. The Contractor shall furnish any necessary temporary supports for piping and structures within the excavation, at no extra compensation.

Final trimming and bottom excavation shall be done just prior to placing of steel and concrete to insure a firm footing base. If such bases become softened, the Contractor shall excavate to firm material by facing and concreting to replace the softened material at no extra compensation.

When caissons are used for excavation, no excavation shall be made outside the outer face of the caisson.

Any excavation five (5) feet or deeper shall conform to Item 2010, the Trench Safety System Specification, as contained in these specifications. Any payment shall be included in and be subsidiary to the corresponding safety bid item.

2. Changes in Footing Depths. When it is necessary to increase or decrease footing depths for a structure, the Contractor shall modify the structural details as directed by the Engineer.
3. Seal Slabs. The Contractor shall provide a two-inch seal slab under all proposed structural slabs located below grade.

The seal slab shall cover the entire area of the excavation on which the structure will rest, as shown on the plans. The Contractor shall excavate to the depth required for the seal slab, performing final excavation to grade just before placement of the seal slab.

4. Material Storage. Excavated materials which will be used for backfill shall be stored at points convenient for rehandling, or as directed by the Engineer.

Storage piles shall be located so as not to interfere with traffic, drainage, plant operation, other construction work, or surveying which is necessary for construction.

5. Protection of Excavations. Excavations shall be protected from rainfall and surface water. If bearing values of supporting soils are affected by excessive moisture or drying, the Contractor shall excavate deeper and/or wider at no cost to the Owner.

The Contractor shall pump or bail from the foundation enclosure if necessary to prevent water from moving through or alongside concrete being placed. No pumping or bailing shall be done during concrete placement, or within 24 hours thereafter, unless it is done from a suitable sump separated from concrete work by a watertight wall.

Pumping or bailing for dewatering sealed cofferdams shall not be started until the seal has set for at least 36 hours.

6. Groundwater Control. When requested by Contractor and approved by Engineer, install well points to maintain hydrostatic ground water levels to 3 feet below the bottom of excavations. Install a 2-inch piezometer into the zone of soil being dewatered to observe effectiveness of dewatering. Piezometer to include 2" diameter standpipe with screwed lid, tip consisting of a minimum of 4 feet of well screen and a surrounding zone of filter sand in with 100% passing No. 10 sieve and 100% retained on No. 10 sieve and 100% retained on No. 16 sieve and a seal consisting of cement grout or bentonite slurry placed between the standpipe and well screen to isolate the zone.

100.03 - STRUCTURAL BACKFILLING

The backfill material may be composed of excavated clay soils or an imported clay. Clay backfill shall be compacted to a minimum of 90 percent of the maximum density as defined by the standard moisture-density relationship (ASTM D-698). Use select clay fill, plasticity index of 10 to 20, in areas where excavation extends under or to within 5 feet of slab on grade. Compact select fill to a minimum of 95 percent of the maximum density and 0 to

+2% of optimum moisture as defined by the standard moisture - density relationship (ASTM D-698).

All backfilling shall be deposited in layers of not more than six (6) inches thick. No backfill may be placed against a concrete wall until the concrete has cured at least seven (7) days and the forms have been removed.

Before placing backfill against walls of a partially completed structure, the Contractor shall determine from the Engineer whether the design features of the wall will permit such backfilling operations. The Contractor shall exercise care to prevent wedging action of backfill against structures, including stepping or serrating adjacent slopes if necessary.

Unless otherwise authorized by the Engineer, all backfilling shall be performed in the presence of the Engineer or his authorized representative.

100.04 - MEASUREMENT AND PAYMENT

No separate payment except for groundwater control where approved by Engineer. Groundwater control, well pointing, will be paid at the unit price bid per each setup.

III. ITEM 110 – EXISTING UTILITIES

110.01 – DESCRIPTION

In general, the Contractor shall be responsible for locating and protecting all utility lines during the construction and for support and maintenance in position of all ducts and conduits, except for those specifically shown to be relocated or removed by others. Contractor shall be responsible for any damage to existing utilities and shall promptly repair same, or make arrangements for such repair with the Owner of the utility involved.

110.02 – CONSTRUCTION METHOD

In all cases the Contractor shall co-ordinate his work with the Owners of the various utilities and shall notify their proper representative not less than forty-eight (48) hours in advance of any work which might damage, interfere with or require adjustments to utilities along or adjacent to the work.

All utility adjustment other than those shown on the plans to be done by the Contractor, shall be the responsibility of the Owners of the utilities and if in the opinion of the Engineer adjustment is required, the Contractor will be responsible for notifying the respective owner.

110.03 – PAYMENT

Payment for this item will be subsidiary to other items.

IV. ITEM 200 - STRUCTURAL CONCRETE

200.01 - DESCRIPTION

This item governs materials, proportioning and mixing, testing, placing, finishing and curing of all plain and reinforced cast-in-place concrete, fibermesh reinforced concrete and prestressed concrete.

The concrete shall be composed of Portland or other hydraulic cement, fine and coarse aggregate, fibermesh, and water, with or without admixtures, conforming to the design and test requirements of this specification. This item excludes lightweight aggregate concrete.

200.02 - QUALITY ASSURANCE

1. Materials and work shall conform to the requirements of all standards, codes and recommended practices required in this section. In conflicts between standards, required standards and this specification, or this specification and the local building code, the more stringent requirement shall govern.
2. Contractor shall provide at least one person, when requested by the Engineer, who shall be present at all times during execution of this portion of the work and who shall be thoroughly trained and experienced in placing the type of concrete specified and who shall direct all work performed under this section.

200.03 - MATERIALS

Ready mix concrete conforming to ASTM C-94 or site-mixed concrete (dry weight 145-150 pounds per cubic foot.)

1. All cement used in any one monolithic placement shall be of the same type and brand. Only one brand of each type will be permitted in any one structure unless otherwise authorized by the Engineer. Only one brand shall be used for exposed concrete.
 - a. Portland Cement shall conform to ASTM C-150.
 - b. Blended Hydraulic Cement shall conform to ASTM C-595, excluding Type S and Type SA.
 - c. Expansive Hydraulic Cement, Type E-1 shall conform to ASTM C-845-76T.
2. Water used in mixing concrete shall be clean and free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances that may be deleterious to concrete or reinforcement.
3. Aggregate shall conform to ASTM C-33. Nominal maximum size of coarse aggregate shall not be larger than:
 - (1) 1/5 the narrowest dimension between sides of forms, nor
 - (2) 1/3 the depth of slabs, nor
 - (3) 3/4 the minimum clear spacing between individual or bundles or reinforcing bars.
4. Fibermesh Reinforcement. Shall be 100 percent virgin polypropylene, fibrillated fibers containing no reprocessed olefin materials and specifically manufactured for use as concrete secondary reinforcement. Volume per cubic yard shall equal a minimum of 0.1% (1.5pounds).

CLASSIFICATION TABLE

Class - Type	Min. Comp. Strength (psi)		Max. Water Content (1,61)		Min. Cement Per C.Y. (1,22)		Slump Range (in.) *	Total Air Content (%)
	7-day	28-day	lbs. of Water / lb. Cement	Gallons of Water / Bag Cement	Lbs.	Bag s		
A - Structural	2,000	3,000	0.55	6.25	494	5.25	2-1/2 to 4-1/2	2-1/2 to 4-1/2
A _{sp} - Structural ⁽¹³⁾	2,000	3,000	0.50	5.65	423	4.50	7 to 10 ⁽¹⁴⁾	3 to 5
B Slope Protection	1,200	2,000	0.75	8.50	400	4.25	2-1/2 to 4	2-1/2
C - Pipe Blocking	---	1,500	0.97	11.00	282	3.00	3 to 5	3 to 6
D - Seal Slab	---	---	---	---	376	4.00	6 to 8	as needed
E Monolithic Sewer	2,000	3,000	0.55	6.25	564	6.00	4 to 6	3 to 5
F – Prestressed ⁽¹⁵⁾	---	5,000	0.51	5.75	635	6.75	2 to 3	as needed
G - Prestressed ⁽⁵⁾	---	6,000	0.49	5.50	658	7.00	2 to 3	as needed
K - Structural ⁽¹⁶⁾	2,800	4,000	0.45	5.65	564	6.00	3-1/2 to 5	2-1/2 to 4-1/2
K _{sp} - Structural ⁽³⁾	2,800	4,000	0.45	5.00	517	5.50	7 to 10 ⁽⁴⁾	3 to 5
P - Paving	3,500	4,400	0.45	5.00	564	6.00	3 to 5	2-1/2 to 4-1/2
	650 ⁽⁷⁷⁾							

* All Slump Ranges +1/2 inch Tolerance.

Include in maximum water, free water in aggregate minus absorption of aggregate based on a 30-minute absorption period.

- (1) For concrete placed under water, minimum cement per cubic yard shall be 611 pounds (6.5 bags).
- (2) Asp and Ksp to contain approved High Range Water Reducing (HRWR) Admixture.
- (3) Maximum 2-inch slump before additional HRWR Admixture.
- (4) For pre-stressed concrete, water reducing admixture may be used as needed.
- (5) Use approved water-reducing and retarding admixtures.
- (6) Minimum flexural strength at 28 days.

5. Admixtures (requiring prior approval of the Engineer) to be used in concrete shall be produced and serviced by established, reputable manufacturers and used in compliance with manufacturer's recommendations.

- a. Air-entraining Admixture shall conform to ASTM C-260, and when requested, certification attesting to compliance shall be furnished by the manufacturer.
- b. Water-reducing, Set Controlling Admixture shall conform to ASTM C-494 and when requested, a qualified concrete technician employed by the manufacturer shall be available to advise and assist in the use, proportioning and adjustment of concrete mix.
- c. Fly-ash or Other Pozzolans used as admixtures shall conform to ASTM C-618.

200.04 - CONCRETE PROPORTIONING

The Contractor shall be responsible for the design of concrete mixtures. Concrete shall be proportioned and produced to provide an average compressive strength as provided for herein. (f'_c = specified compressive strength of concrete).

1. Proportioning of concrete for the required f'_c shall be based on 28-day compressive test shall be based on laboratory trial batches performed by an independent testing laboratory meeting the requirements of ASTM E-329 and approved by the Engineer, and/or on the basis of field experience, both as set forth in ACI 318-Latest Edition and this specification. The average compressive strength used as a basis for selecting the proportions shall exceed the specified f'_c as required by ACI 318.
2. Proportions of materials for concrete shall conform to minimum cement content and maximum water content for various classes as shown on Classification Table.
3. Where different materials are to be used for different portions of the work, each combination shall be evaluated separately.
4. Concrete proportions, including water-cement ratio, shall be established on the basis of field experience, or laboratory trial batches, with materials to be employed, as required herein.
5. 1.5 lbs of fiber mesh per cubic yard of concrete, where noted for use on plans, shall be added to the mixer before placement. Fibermesh is required in all sidewalks.
6. Average Strength Reduction

After sufficient test data become available from the job, methods of "Recommended Practice for Evaluation of Compression Test Results of Concrete (ACI 214-65)" may be used to reduce the amount by which the average strength must exceed f'_c .

- (1) Probable frequency of strength tests more than 500 psi below f'_c will not exceed 1 in 100;
- (2) Probable frequency of an average of three consecutive strength tests below f'_c will not exceed 1 in 100, and;
- (3) Concrete Classification Requirements Table are met.

7. Evaluation and Acceptance of Concrete

- a. Frequency of Testing. Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 150 cubic yard of concrete, nor less than once for each 5000 sq. ft. of surface area for slabs or walls.

On a given project, if total volume of concrete is such that frequency of testing required would provide less than five strength tests for a given class of concrete, tests shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used.

When total quantity of a given class of concrete is less than 50 cubic yards, strength tests may be waived by the Engineer if in his judgment adequate evidence of satisfactory strength is provided.

Average strength of two cylinders from the same sample, tested at 28 days or the specified earlier age, is required for each strength test.

- b. Tests of Cured Specimens. Samples for strength tests shall be taken in accordance with "Method of Sampling Fresh Concrete" (ASTM C-172).

Cylinders for strength tests shall be molded and laboratory-cured in accordance with "Method of Making and Curing Concrete Test Specimens in the Field" (ASTM C-31) and tested in accordance with "Method of Test for Compressive Strength of Cylindrical Concrete Specimens" (ASTM C-39).

Strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:

- (1) The average of all sets of three consecutive strength tests equal or exceed required f_c .
- (2) No individual strength test (average of two cylinders) falls below required f_c by more than 500 psi.

- c. Investigation of Low-Strength Test Results. If any strength test of cured cylinders falls below required f_c by more than 500 psi or if test indicate deficiencies in protection and curing, steps shall be taken to assure that load-carrying capacity of the structure is not jeopardized.

If the likelihood of low-strength concrete is confirmed and computations indicate that load-carrying capacity may have been significantly reduced, tests of cores drilled from the area in question may be required in accordance with "Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete" (ASTM C-42). In such case, three cores shall be taken for each strength test more than 500 psi below required f_c .

If concrete in the structure will be dry under service conditions, cores shall be air dried (temperature 60° to 80° F, relative humidity less than sixty (60%) percent) for seven (7) days before test and shall be tested dry.

If concrete in the structure will be more than superficially wet under service conditions, cores shall be immersed in water for at least 48 hours and be tested wet.

Concrete in an area represented by core tests shall be considered structurally adequate if the average of three cores is equal to at least eighty-five (85%) percent of f_c and if no single core is less than seventy-five (75%) percent of f_c . To check testing accuracy, locations represented by erratic core strengths may be retested.

If criteria above are not met, and if structural adequacy remains in doubt, the Engineer may order load tests for the questionable portion of the structure, or take other action appropriate to the circumstances.

200.05 - MIXING AND PLACING CONCRETE

1. Preparation

Preparation before concrete placement shall include the following:

- (1) All equipment for mixing and transporting concrete shall be clean.
- (2) All debris and ice shall be removed from spaces to be occupied by concrete.
- (3) Forms shall be properly coated.
- (4) Masonry filler units that will be in contact with concrete shall be well drenched.
- (5) Reinforcement shall be thoroughly clean of ice or other deleterious coatings.
- (6) Water shall be removed from place of deposit before concrete is placed unless a tremie is to be used or unless otherwise permitted by the Engineer.
- (7) All laitance and other unsound material shall be removed before additional concrete is placed against hardened concrete.

2. Mixing

All concrete shall be mixed until there is a uniform distribution of materials and shall be discharged completely before mixer is recharged.

Ready-mixed concrete shall be mixed and delivered in accordance with requirements set forth in "Specification for Ready-Mixed Concrete" (ASTM C-94).

Job-mixed concrete shall be mixed in accordance with the following:

- (1) Mixing shall be done in a batch mixer of approved type.
- (2) Mixer shall be rotated at a speed recommended by the manufacturer.
- (3) Mixing shall be continued for at least 1-1/2 minutes after all materials are in the drum, unless a shorter time is shown to be satisfactory by the mixing uniformity tests of "Specification for Ready-Mixed Concrete" (ASTM C-94).

3. Conveying

Concrete shall be conveyed from mixer to place of final deposit by methods that will prevent separation or loss of materials.

Conveying equipment shall be capable of providing a supply of concrete at site of placement without separation of ingredients and without interruptions sufficient to permit loss of plasticity between successive increments.

4. Depositing

Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing.

Concreting shall be carried on at such a rate that concrete is at all times plastic and flows readily into spaces between reinforcement.

Concrete that has partially hardened or been contaminated by foreign materials shall not be deposited in the structure.

Retempered concrete or concrete that has been remixed after initial set shall not be used unless approved by the Engineer.

After concreting is started, it shall be carried on as a continuous operation until placing of a panel or section, as defined by its boundaries or predetermined joints, is completed except as permitted or prohibited by Item 200.07.4.

Top surfaced of vertically formed lifts shall be generally level.

When construction joints are required, joints shall be made in accordance with Item 200.07.4.

All concrete shall be thoroughly consolidated by suitable means during placement and shall be thoroughly worked around reinforcement and embedded fixtures and into corners of forms.

200.06 CURING

1. Concrete (other than high-early-strength) shall be maintained above 50° F and in a moist condition for at least the first seven (7) days after placement, except when cured in accordance with 200.06.3.
2. High-early strength concrete shall be maintained above 50° F and in a moist condition for at least the first three (3) days, except when cured in accordance with 200.06.3.
3. Accelerated Curing
 - a. Curing by high pressure steam, steam at atmospheric pressure, heat and moisture, or other accepted process, may be employed to accelerate strength gain and reduce time of curing, with prior approval of the Engineer.

- b. Accelerated curing shall provide a compressive strength of the concrete at the load stage considered at least equal to required design strength at that load stage.
- c. Curing process shall be such as to produce concrete with a curability at least equivalent to the curing method of 200.06.1 or 200.06.2.
- d. Supplementary strength tests may be required to assure that curing is satisfactory. The Engineer may require strength tests of cylinders cured under field conditions to check adequacy of curing and protection of concrete in the structure.

4. Cold Weather Requirements

- a. Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather.
- b. All concrete materials and all reinforcement, forms, fillers, and ground with which concrete is to come in contact shall be free from frost.
- c. Frozen materials or materials containing ice shall not be used.

5. Hot Weather Requirements

During hot weather, proper attention shall be given to ingredients, production methods, handling, placing, protection, and curing to prevent excessive concrete temperatures or water evaporation that may impair required strength or serviceability of the member or structure.

200.07 - FORMWORK AND CONSTRUCTION JOINTS

1. Design – Contractor shall be solely responsible for the form design for the anticipated work.

- a. Forms shall result in a final structure that conforms to shapes, lines, and dimensions of the members as required by the design drawings and specifications.
- b. Forms shall be substantial and sufficiently tight to prevent leakage of mortar.
- c. Forms shall be properly braced or tied together to maintain position and shape.
- d. Forms and their supports shall be designed so as not to damage previously placed structure.
- e. Design of formwork shall include consideration of the following factors:
 - (1) Rate and method of placing concrete;
 - (2) Construction loads, including vertical, horizontal, and impact loads;
 - (3) Special form requirements for construction of shells, folded plates, domes, architectural concrete, or similar types of elements.
- f. Forms for prestressed concrete members shall be designed and constructed to permit movement of the member without damage during application of prestressing force.

2. Removal of Forms

- a. No construction loads shall be supported on, nor any shoring removed from any part of the structure under construction except when that portion of the structure (in combination with remaining forming and shoring system) has sufficient strength to support safely its weight and loads placed thereon.

Sufficient strength may be demonstrated by field-cured test cylinders and by a structural analysis considering proposed loads in relation to field-cured cylinder strengths and strength of the forming and shoring system. Such analysis and strength test data shall be furnished by the Contractor to the Engineer when so required.
- b. No construction loads exceeding combination of superimposed dead load plus specified live load shall be supported on any unshored portion of the structure under construction, unless analysis indicates adequate strength to support such additional loads.

- c. Forms shall be removed in such manner as not to impair safety and serviceability of the structure. All concrete to be exposed by form removal shall have sufficient strength not to be damaged thereby.
- d. Form supports for prestressed concrete members may be removed when sufficient prestressing has been applied to enable prestressed members to carry their dead load and anticipated construction loads.
- e. Forms will remain in place a minimum of 72 hours for all conditions except in the following case:

Concrete subject to high bending stress and wholly (or almost wholly) reliant on forms for vertical support. Examples: Roof or floor slabs and beams; undersides of sloping surfaces (flatter than 1:1); walkways and platforms; bridge decks and girders.

Forms will remain in place a minimum of 4-1/2 days in those areas where no immediate superimposed loading will occur and a minimum of 10 days at all other areas.
- f. The early removal of forms (except as noted above) to facilitate the normal progress of work will be permitted only by approval of the Engineer, and in no case less than 24 hours.

3. Conduits and Pipes Embedded in Concrete

- a. Conduits, pipes and sleeves of any material not harmful to concrete may be embedded in concrete with approval of the Engineer, provided they are not considered to replace structurally the displaced concrete.
- b. Except when plans for conduits and pipes are approved by the Structural Engineer, conduits and pipes embedded within a slab, wall, or beam (other than those merely passing through) shall satisfy the following:
 - (1) They shall not be larger in outside dimension than 1/3 the overall thickness of slab, wall, or beam in which they are embedded.
 - (2) They shall not be spaced closer than 3 diameters or widths on center.
 - (3) They shall not impair significantly the strength of the construction.
 - (4) Concrete cover for pipes and fittings shall not be less than one and one-half (1-1/2") inches for concrete exposed to earth or weather, nor three-fourths (3/4") inches for concrete not exposed to weather or in contact with ground.

4. Construction Joints

- a. Where a construction joint is to be made, the surface of concrete shall be thoroughly cleaned and all laitance and standing water removed.
- b. Vertical construction joints shall be thoroughly wetted and coated with neat cement grout immediately before new concrete placement.
- c. Construction joints not indicated on the design drawings shall be so made and located as not to impair significantly the strength of the structure.
- d. Construction joints in floors shall be located near the middle of spans of slabs, beams, or girders, unless a beam intersects a girder at the middle location, in which case joints in the girders shall be offset a distance equal to twice the width of the beam.

Provision shall be made for transfer of shear and other forces through construction joints.
- e. Beams, girders, or slabs supported by columns or walls shall not be cast or erected until concrete in the vertical support members is no longer plastic.
- f. Beams, girders, column capitals, and haunches shall be considered as part of a slab system and shall be placed monolithically therewith.
- g. Structures containing liquids shall have all exterior walls and bottom slab joints constructed with water stops and/or seals. When prevention of contamination and/or control of leakage is necessary at exterior or interior wall/slab, water stops and/or seals shall be provided at joints.

- h. Horizontal joints in walls less than twelve feet high are not to be located for contraction or expansion, but for construction only. Such horizontal wall joints shall be minimal and as approved by the Engineer only.
Triangular fillet seals should be made on liquid-face when leakage control is necessary.
- i. Vertical joints in walls shall be located at points of no shear. Joints shall be constructed with water-stops and fillet seals where control of leakage is required. Where slabs are cast in two separate lifts, joints are to be staggered. All joints shall be located at positions of no shear.
- j. Longitudinal keys at least one and one-half (1-1/2") inches deep shall be provided in all joints in walls and between walls and slabs or footings.
- k. When joints are not indicated on plans, Contractor shall supply shop drawings clearly indicating all joints in any part of the structures, sequence of pours and time lapse for control of shrinking, for approval by the Engineer. No intermediate joints will be allowed other than those on the approved shop drawings without the express approval of the Engineer.

200.08 - PATCHING AND SURFACE FINISH

After forms are removed, the Contractor shall remove all concrete fins, projections and form ties. All surfaces which will remain exposed will be inspected by the Engineer and all voids, stone pockets, tie holes, honeycombed and defective areas shall be patched as directed. The patching mortar shall be sand-cement grout with sufficient white Portland Cement added to effect a match with the concrete surfaces. Areas to be patched shall be clean, free of loose material and dampened before applying grout. The patched areas shall be rubbed before the grout is set hard to blend into adjacent areas.

Rub-Finish exposed vertical and battered surfaces from 6-inches below ground surface or from 6-inches below normal water level to top, except for small plinths and similar structures which extend less than 12 inches above finished grade.

200.09 - DEFECTIVE WORK

The following defects shall be cause for rejection of placed concrete:

- 1. Voids, rock pockets, honeycombing, and spalled areas which, in the opinion of the Engineer, cannot be satisfactorily repaired, will affect the strength of the structure materially, or will limit the life of the reinforcement.
- 2. Uneven or bulged surfaces resulting from shifting of the forms during placement or curing.
- 3. Concrete found structurally inadequate after thorough investigation according to Item 200.04.8, Subsections a through c.

Upon discovery of any of these defects, the Engineer may declare the structure defective and require the Contractor to remove and replace the portion of the structure affected, at the Contractor's expense.

200.10 – PAYMENT

No separate payment for work performed under this item. Include cost of same in contract price bid for work of which this is a component part.

V. ITEM 201 – REINFORCEMENT STEEL

201.01 - GENERAL

This item shall govern deformed reinforcement; plain reinforcement; prestressing tendons; and reinforcement consisting of structural steel, steel pipe, or steel tubing as specified herein.

Reinforcement to be welded is indicated on the drawings. Reinforcement of the specified ASTM steel, except for ASTM A-706, shall require a report of material properties conforming to "Reinforcing Steel Welding Code" (AWS D12.1) of the American Welding Society.

201.02 - MATERIALS

1. Deformed Reinforcement

- a. Deformed reinforcing bars shall conform to one of the following specifications, except as provided in Section 1.b below.
 - (1) "Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" (ASTM A-615), Grade 60.
 - (2) "Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement" (ASTM A-616), Grade 60.
 - (3) "Specification for Axle-Steel Deformed and Plain Bars for Concrete Reinforcement" (ASTM A-617), Grade 60.
 - (4) "Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement" (ASTM A-706).
- b. Deformed reinforcing bars shall conform to the following exceptions to the ASTM specifications listed in Section 1.a. above.
 - (1) For ASTM A-615, and A-617, yield strength shall correspond to that determined by tests on full size bars.
 - (2) For ASTM A-615, A-616, and A-617, bend test requirements for all bar sizes #3 through #11 shall be based upon 180 degree bends of full-size bars around pins with diameters specified in Table 1. If #14 or #18 bars meeting these specifications are to be bent, full-size bar specimens shall be bend tested 90 degree at a minimum temperature of 60°F around a 9db pin without cracking of the bar. However, if #14 and #18 bars as used in the structure are required to have bends exceeding 90 deg., specimens shall be bend tested 180 degrees with other criteria the same as for 90 degrees.

TABLE 1
BEND TEST REQUIREMENTS

Bar Designation	Pin Diameter for Bend #3,
#4, and #5	3-1/2db
#6, #7, and #8	5db
#9, #10, and #11	7db
#9, #10, and #11	5db
(of Grade 40)	

- c. Bar and rod mats for concrete reinforcement shall conform to "Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement" (ASTM A-184).
 - d. Deformed wire for concrete reinforcement shall conform to "Specification for Deformed Steel Wire for Concrete Reinforcement" (ASTM A-496).
 - e. Welded deformed wire fabric for concrete reinforcement shall conform to "Specification for Welded Deformed Steel Wire Fabric for Concrete Reinforcement" (ASTM A-497).
2. Plain Reinforcement
- a. Plain bars for spiral reinforcement shall conform to the specification listed in Section 1.a. (1), (2), or (3) including additional requirements of Section 1.b.
 - b. Smooth wire for spiral reinforcement shall conform to "Specification for Cold-Drawn Steel Wire for Concrete Reinforcement" ASTM A-82).
 - c. Welded smooth wire fabric for concrete reinforcement shall conform to "Specification for Welded Steel Wire Fabric for Concrete Reinforcement" (ASTM A-185).
3. Prestressing Tendons
- a. Wire, strands, and bars for tendons in prestressed concrete shall conform to one of the following specifications:
 - (1) "Specification for Uncoated Stress-Relieved Wire for Prestressed Concrete" (ASTM A-421).
 - (2) "Specification for Uncoated Seven-Wire Stress-Relieved Strand for Prestressed Concrete" (ASTM A-416).
 - (3) "Specification for Uncoated High-Strength Steel Bar for Prestressing Concrete" (ASTM A-722).
 - b. Wire, strands, and bars not specifically listed in ASTM A-421, A-416, or A-722 may be used provided they conform to minimum requirements of these specifications and do not have properties that make them less satisfactory than those listed in ASTM A-421, A-416, or A-722.
4. Structural Steel, Steel Pipe, or Tubing
- a. Structural steel shall conform to one of the following specifications:
 - (1) "Specification for Structural Steel" (ASTM A-36).
 - (2) "Specification for High-Strength Low-Alloy Structural Steel" (ASTM A-242).
 - (3) "Specification for High-Strength Low-Alloy Structural Manganese Vanadium Steel" (ASTM A-441).
 - (4) "Specification for High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality" (ASTM A-572), Grade 60.
 - (5) "Specification for High-Strength Low-Alloy Structural Steel with 50,000 psi Minimum Yield Point to 4 in. Thick" (ASTM A-588).
 - b. Steel pipe or tubing shall conform to one of the following specifications:
 - (1) Grade B of "Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless" (ASTM A-53).
 - (2) "Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes" (ASTM A-500), Grade B.
 - (3) "Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing" (ASTM A-501).

201.03 - SIZES AND WEIGHTS

The nominal sizes and areas, and the theoretical weights of deformed bars shall not be less than the current standard of the Concrete Reinforcing Steel Institute.

201.04 - BENDING

Bending of deformed reinforcement bars shall conform to Section 7.3 – Bending of ACI 318 latest version. Reinforcement bars shall be bent cold to the shapes indicated on the plans. All bending of hard grade new billet and rail steel bars shall be done in the shop; other grades shall preferably be bent in the shop. Bends shall be made around pins; the diameter of pins shall be not less than four (4) times the minimum thickness of the bar. Heating for bending shall be employed only when authorized specifically.

201.05 - STORAGE

Reinforcement shall be stored above the ground surface upon skids, platforms, or other supports, and shall be protected from mechanical injury and from deterioration by exposure to the weather. When placed in the work, the reinforcement shall be free from dirt, loose rust, scale, paint, oil, or other foreign material.

201.06 - SPLICES

Spllices of deformed reinforcement bars shall conform to Section 12.14 – Spllices of Reinforcement of ACI 318 latest version. No spllices of bars, except when shown on the plans, will be permitted except upon the written approval of the Engineer. Spllices which are permitted shall have a length of not less than that required by the ACI Code, and shall be well distributed or else located at points of low tensile stress. The spacing between bars shall meet the recommendation of the ACI Code for anchorage bond and placing concrete.

Where welded spllices may be required, they shall conform to AWS D 12.1 "Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction." Welded spllices shall develop in tension at least 125% percent of the specified yield strength of the reinforcing bar. Spllices shall transfer the entire computed stress from bar to bar without exceeding three-fourths of the permissible bond. Welded wire fabric shall be lapped not less than two mesh, i.e., the length of the lap shall be at least equal to the spacing of wires parallel to the lap.

Bars shall be rigidly clamped or wired at all spllices in a manner approved by the Engineer.

201.07 - REJECTION

Reinforcement may be rejected for failure to meet any of the requirements of this specification on account of any of the following:

1. Reinforcement exceeding the allowable variations in size or weight.
2. Reinforcement with bends not in conformity with the details.
3. Reinforcement with a coating of dirt, loose rust, scale, paint, oil, or other foreign substance at time of placing in the work.
4. Twisted bars.

201.08 - DETAILING

1. Completely detailed shop drawings and schedules shall be submitted by the Contractor for approval of the Engineer in accordance with requirements specified for working drawings.
2. The bars shall be supplied in lengths which will allow them to be conveniently placed in the work and provide sufficient lap at joints. Dowels of proper length, size, and shape shall be provided for tying walls, beams, floors, and the like together where shown, specified, or ordered.
3. Steel reinforcement shall be of the type and size, cut to lengths, and bent to shape as indicated on the plans. Where dimensions of hooks are not shown, the diameter of the hook shall equal six (6) times the bar diameter for bar sizes #3 through #8 and 8 times for #9, #10 and #11, with a straight length of bar at the end of the hook equal to four (4) times the bar diameter, or 2-1/2" minimum, whichever is greater.

201.09 - PLACING REINFORCEMENT

Placement of deformed reinforcement bars shall conform to Section 7.5 – Placing Reinforcement of ACI 318 latest version. Reinforcement, before being placed, shall be thoroughly cleaned of mill and rust scale and of coatings that will destroy or reduce the bond with the concrete. When there is a delay in concreting operations and the reinforcement has been in place in excess of two (2) days, it shall be re-inspected and, when necessary, cleaned.

Metal reinforcement shall be accurately positioned and dimensioned in accordance with the plans and specifications. The bars and mesh shall be tightly secured against displacement by using annealed wire of not less than No. 16 gauge and suitable clips at intersections. The reinforcement shall be supported in a manner that will keep all metal away from the interior surfaces of forms, or the surface against which the concrete is placed, in accordance with the "clear" dimensions as shown on the plans or as specified single layer reinforcement in slabs shall be placed at mid-depth unless otherwise dimensioned in plans.

Nails shall not be driven into the outside forms to support reinforcement, nor shall any other device for this purpose come in contact with outside form, except that wood strips shall be inserted between the reinforcement and the forms at intervals to maintain the required clear distances between the reinforcement and the outside surfaces of the concrete. These wood strips shall be pulled up and removed as the level of the concrete rises in the forms. In the case of slabs and beams, metal chairs, spacers, and other metal accessories necessary to provide the required clear distances and proper alignment and spacing between bars shall be used subject to the approval of the Engineer. Precast concrete blocks wired to the reinforcing bars will not be permitted as supports or spacers.

201.10 - CONCRETE PROTECTION FOR REINFORCEMENT

Concrete protection of deformed reinforcing bars shall conform to Section 7.7 Concrete Protection of Reinforcement of ACI 318 latest version. Concrete cover as protection of reinforcement against weather and other effects is measured from the concrete surface to the outmost surface of the steel to which the cover requirement applies. Where minimum cover is prescribed for a class of structural member, it is measured to the outer edge of the stirrup, ties, or spiral if transverse reinforcement encloses main bars; to the outmost layer of bars if more than one layer is used without stirrups or ties; to the metal end fitting or duct on post-tensioned prestressing steel. Concrete protection of prestressing tendons shall conform to Section 7.7.3 - Prestressed Concrete of ACI 318 latest version.

201.11 - PAYMENT

No separate payment for work performed under this item. Include cost of same in contract price bid for work of which this is a component part.

VI. ITEM 300 – STRUCTURAL STEEL

300.01 - DESCRIPTION

This item governs the furnishing, fabrication, and erection of structural steel as shown or called for on the plans and specifications, necessary and required to construct the improvements under this contract.

300.02 - MATERIALS

All structural steel as defined in the AISC Code of Standard Practice for Steel Buildings and Bridges shall conform to ASTM A-6 and ASTM A-36 unless otherwise noted in the specifications or plans (AWS Code).

All arc-welding electrodes (E70XX) shall conform to the Structural Welding Code of the American Welding Society (AWS Code).

All erection bolts shall conform to ASTM-A325, rivets to ASTM-A502, and anchor bolts to ASTM-A307.

All bolts, nuts, flat washers, and ogee washers shall be hot dip galvanized in accordance with ASTM-A123 and A-153. Galvanized structural steel, when so designated or called for in the plans and specifications, shall conform to ASTM-A123.

300.03 - DESIGN AND FABRICATION

The design and fabrication and erection of steel structures shall conform to the recommendations and requirements as given in the national codes designated herein and shall conform to state or local codes having jurisdiction. The more rigid specification shall govern where one code conflicts with another, or with any part of this technical specification. The designated codes are as follows:

- A. AISC Specification for the Design, Fabrication and Erection of Structural Steel for Buildings;
- B. The Structural Welding Code of the American Welding Society (AWS);
- C. The Code of Standard Practice of the American Institute of Steel Construction (AISC);
- D. The Steel Structures Painting Council (SSPC) Steel Structure Painting Manual, Vol. 2, Systems And Specifications.

300.04 - CONNECTIONS

Temporary and permanent field connections shall be in accord with the codes set forth in these specifications and as indicated on the approved shop drawings.

Unless shown or called for otherwise in the plans and specifications, connections may be bolted, riveted, or welded at the option of the Fabricator/Erector, such connection to be consistent with the requirements of these specifications.

300.05 - TEMPORARY SUPPORTS AND CONNECTIONS

Temporary supports and connections as may be required for the erection of structural steel will be determined, furnished, and installed by the erector. No temporary supports shall be removed without the consent of the erector.

Bolts used for temporary bolted field connections in conjunction with welded field connections may be left in place at the option of the erector provided they do not interfere with any other member of the structure.

300.06 - PAINTING

All painting shall be done on dry surfaces, free from rust, scale, and grease. Color, number of coats, and thickness shall be as designates and called for in the plans and specifications, and applied in accordance with SSPE-SSPM Vol. 2. All spot painting and painting of bolts, rivets, and field welds shall be with the material used for the shop coat.

300.07 - SHOP AND ERECTION DRAWINGS

The Contractor, immediately following the award of the Contract, shall prepare shop drawings of all structural steel, based on the design drawings, for the approval of the Engineer. Shop drawings shall give all necessary information for the fabrication, erection, field connections, anchor bolt size, and locations and painting of the structure.

Three sets of finally approved drawings shall be furnished to the Engineer. No fabrication shall be conducted until approved drawings are in the hands of the shop inspector.

300.08 - FIELD MEASUREMENTS

In the case of alterations or additions, the Contractor shall make measurements in the field to verify or supplement dimensions shown on structural plans, and he shall take the responsibility for the fit of the new steel to the existing work.

300.09 - SAFETY

The Contractor/Erector shall provide barricades and other devices consistent with standard erection procedures and in accordance with the Occupational Safety and Health Act of 1970 (OSHA).

VII. ITEM 400 – UNDERGROUND PIPING CONSTRUCTION

400.01 - DESCRIPTION

This item shall govern the construction of water mains, sanitary sewers, and under drains, complete in place. This item provides for all clearing and grubbing, excavation, tunnelling, sheeting, bracing, embedment, connecting to new or old work, laying, jointing, excluding water, backfilling, tamping, and removal and replacement of street surfaces; and the furnishing of all materials, equipment, tools, labor, and incidentals for complete line construction.

Point repairs to existing water or sewer lines are excluded from work under this item, except insofar as the items providing for point repairs may refer to this item.

400.02 - MATERIALS

As specified elsewhere in the Technical Specifications.

400.03 - SEQUENCE OF WORK

All gravity sewer lines shall be laid beginning at the downstream connection to existing facilities. When construction involves a main trunk having lateral or tributary lines, the latter shall not be started until the main trunk has been built to the point of their junction unless otherwise approved by the Engineer. All appurtenances shall be constructed as soon as the pipeline they serve is constructed to their location, rather than constructing them in advance or postponing construction. However, if construction reaches a point requiring installation of an appurtenance for which the materials are not immediately available, upon approval of the Engineer, the Contractor shall provide sufficient space for installation at a later time. The open ends of pipe shall be properly sealed and backfilled.

The Contractor shall excavate the trench to finish grade fifty (50') feet to one hundred (100') feet ahead of the end of the completed pipeline. No excavation shall be performed farther than three hundred (300') feet beyond the completed pipeline, except for isolated excavations which may be required to locate existing utilities.

These limitations shall not apply to tunnel installations. Each tunnel required by the plans and specifications shall be excavated, lined, and back packed for its entire length before laying pipe through the tunnel. For any tunnels constructed at the Contractor's option, the work sequence shall be as approved by the Engineer.

400.04 - PUBLIC CONVENIENCE AND SAFETY

Materials stored about the work shall be so placed, and the work shall at all times be so conducted as to cause no greater obstruction to the traveling public than is considered necessary by the Engineer. Sidewalks must not be obstructed except by special permission of the Engineer.

The materials excavated and the construction materials or plant used in the construction of the work shall be placed so as not to endanger the work, or prevent free access to all fire hydrants; water and gas valves; manholes for telephone, telegraph, signal, or electric conduits; sanitary or storm sewers; and fire alarm or police call boxes in the vicinity. The Contractor shall make provisions by bridges or otherwise at all cross streets, highways, sidewalks, and private driveways for the free passage of pedestrians and vehicles. Where bridging is impractical or unnecessary in the opinion of the Engineer, the Contractor may make arrangements satisfactory to the Engineer for the diversion of traffic and shall, at his own expense, provide all material and perform all work necessary for the construction and maintenance of roadways and bridges for the diversion of traffic. At no time shall more than two (2) blocks be closed to traffic. Where practical, the Contractor shall leave at least two (2) access routes open to any residential or commercial area.

If pipe line construction or construction traffic creates a need for dust control, as along dirt streets, the Contractor shall at his own expense perform all necessary sprinkling as directed by the Engineer.

The Owner reserves the right to remedy any neglect on the part of the Contractor regarding public convenience and safety which may come to its attention, after twenty-four (24) hours notice in writing to the Contractor. In cases or emergency, the Owner shall have the right to remedy any neglect without notice. In either case, the cost of such work done by the Owner shall be deducted from monies due or to become due the Contractor.

The Contractor shall notify the Engineer and the local street or road department forty-eight (48) hours in advance (excluding Saturdays, Sundays, and holidays) of the closing or obstruction of any street. Where the Contractor is required to construct temporary bridges or make other arrangements for crossings over ditches or streams, his responsibility for accidents shall include the roadway approaches as well as the structures of such crossings.

400.05 - BARRICADES, LIGHTS, AND WATCHMEN

Where the work is being performed in or adjacent to any street, alley, or public place, the Contractor shall, at his own cost and expense, furnish and erect such barricades, fences, lights, and danger signals; shall provide such watchmen; and shall take such other precautionary measures for the protection of persons or property and of the work as are necessary. Barricades shall be recently painted in a color that will be visible at night. From sunset to sunrise the Contractor shall furnish and maintain adequate lights at each barricade. A sufficient number of barricades shall be erected to keep vehicles from being driven on or into any work under construction.

The Contractor shall furnish watchmen in sufficient numbers to protect the work at all times from vandalism or related instances. The Contractor shall be held responsible for all damage to the work due to failure of barricades, signs, lights, and watchmen to protect it.

Whenever evidence is found of such damage, the Engineer may order the damaged portion immediately removed and replaced by the Contractor at the Contractor's cost and expense. The Contractor's responsibility for the maintenance of barricades, signs, and lights, and for providing watchmen, shall not cease until the project has been accepted by the Owner.

400.06 - PROTECTION AND RESTORATION OF PROPERTY

The Contractor shall not enter upon private property for any purpose without previously obtaining permission from the property owner. The Contractor shall notify the proper representative of any public utility, corporation, company, or individual not less than forty-eight (48) hours in advance of any work which might damage or interfere with the operation of their facilities along or adjacent to the work.

The Contractor shall be responsible for the preservation of all public and private property along or adjacent to the work, including trees, shrubbery, plants, lawns, fences, culverts, bridges, pavement, driveways, sidewalks, etc.; drainage facilities; and all underground or above ground utilities. Any pavement or sidewalks which must be removed shall be replaced according to Sections 400.16 and 400.17.

The Contractor shall be responsible for all direct or indirect damage to property of any character resulting from any act, omission, or negligence in execution of the work; from non-execution of the work; or from defective work or materials. When any such damage occurs, the Contractor shall restore the affected property to a condition at least equal to its condition prior to the damage or shall fully compensate the property owner. Such restoration shall be at the Contractor's expense, except for any items specifically designated in the plans and specifications.

The Owner may, upon forty-eight (48) hours written notice (or without notice when a nuisance or hazardous condition occurs), proceed to restore any property damage which the Engineer deems necessary. The cost of such restoration will be deducted from any monies due or to become due the Contractor under this contract.

If the Contractor discovers that existing utilities present obstructions to construction of lines or appurtenances, he shall immediately notify the Engineer. The Engineer will determine without delay whether existing improvements should be relocated, or whether the grade and/or alignment of the line should be changed.

When necessary to move services, poles, guy wires, pipelines, or other obstructions, the Contractor will make necessary arrangements with the owner-operator of utilities. The Owner will not be liable for damages on account of delays due to changes made by owner-operator of privately owned utilities which hinder progress of work. The Owner will not be liable for cost incurred in relocating utility service poles, services, and appurtenances (unless specifically designated for payment).

400.07 - CLEARING AND GRUBBING

All trees, stumps, brush, roots, logs, rubbish, and other objectionable material in the path of the storm sewer, water line or sewer line shall be removed and disposed of in a manner satisfactory to the Engineer, without any extra compensation to the Contractor.

400.08 - TEMPORARY SEWER AND DRAIN CONNECTIONS

When existing sewers or drains have to be taken up or removed, the Contractor shall take care of all sewage or drainage from these facilities. For this purpose, the Contractor shall provide and maintain, at his own expense, all necessary temporary connections, outlets, diversions, and pumping facilities. The Contractor shall dispose of all drainage and sewage from these facilities until the permanent connections are built and put into use, unless otherwise provided for in these specifications or as directed by the Engineer. All water or sewage shall be disposed of in a satisfactory manner

so that no nuisance is created and so that the work under construction will be adequately protected.

400.09 - TRENCH EXCAVATION

1. General. The Contractor shall excavate the trench to finish grade at least fifty (50') feet ahead of pipe laying unless physical conditions make this impractical. Bell holes shall be excavated in advance of pipe laying.

If a trenching machine (not a backhoe) is used to excavate the trench for a water line, with Engineers approval, selected loose, fine excavated material may be used in lieu of sand embedment around the pipe.

2. Sewers. The ground shall be excavated by the open trench method to the required depth, line, and grade as indicated on the drawings. Excavated material shall not be removed from the site of work until backfilling is completed, except by permission of the Engineer.

The sides of the trench shall be vertical to a point not less than twelve (12") inches above the top of the sewer pipe. The sides of the trench shall be between six (6") and eight (8") inches outside the pipe for pipe sizes ten (10") inches or less; and between eight (8") inches and twelve (12") inches outside the pipe for sizes larger than ten (10") inches.

The bottom of the trench shall be excavated below required grade and refilled to grade with thoroughly compacted select material bedding per the details.

3. Water Mains. Trench requirements for water mains shall be the same as for sewer lines.
4. Other Trench Designs. If the specifications for the type of pipe being used contain special trench requirements, those requirements shall be followed in lieu of Subsection 2 or 3 above.
5. Unstable Soils. If unstable material is encountered at the bottom of the trench, the Contractor shall undercut and stabilize the trench with suitable materials such as shell or cement stabilized sand (one (1) sack cement per ton, or Class I embedment material in accordance with Item 500 and at the direction of the Engineer.
6. Locating Intersecting Pipes. Before laying a segment of line, the Contractor shall attempt to locate all utilities which might interfere with the proposed alignment and grade. He shall locate and excavate in advance all water lines, sewer lines, service lines, and appurtenances to which the proposed line will be connected, so that the Engineer can make any necessary adjustments in alignment or grade. The owners of all utilities crossing or closely paralleling the proposed alignment shall be notified in advance of construction
7. Dewatering

- A. Under no circumstances shall surface water be allowed to flow in the trench. When ground water exists in the trench, the Contractor shall make attempts to drain it away from the pipe laying area or pump it out of the trench.

Where necessary in the opinion of the Engineer, the Contractor shall dewater the trench by the well point method. The Contractor may also use well pointing at his option in other locations.

If quicksand or water sand conditions appear in the trench bottom, the Contractor shall undercut the trench and replace it with Class I embedment as follows:

Angular, 1/4 to 1-1/2 inch graded stone including crushed stone, crushed shells, slag, cinders, etc.

- B. Trench Dewatering. Trench dewatering is sufficient removal of groundwater to keep an excavation reasonably dry. This means dry enough to eliminate the need for any special bedding and insure safe installation of the carrier pipe. The groundwater table shall be kept a minimum of two feet (2') below the bottom of the excavation.

- (1) Well Points. Where well points are used to dewater the trench the maximum allowable spacing shall be six feet (6') center to center. The minimum allowable depth of well points shall be equal to the depth of the excavation plus five feet (5'). Well points shall be set deeper if necessary to draw the groundwater down below the bottom of the excavation. Well points shall have metal well screens a minimum of two inches (2") in diameter and three feet (3') long. The well screens and riser shall be surrounded by filter sand up to the water table and the space above shall be sealed with clay.

Two-inch (2") diameter piezometers shall be installed at 250 foot centers to establish the extent that dewatering is necessary. At least one volume of water shall be ejected from the piezometer and then allowed to recharge prior to each groundwater measurement taken.

- (2) Deep Wells. Deep wells may be used as a means of trench dewatering provided the following information is submitted to the Engineer for his approval.

- (a) A certified well draw down curve prepared by a registered professional geotechnical engineer. Information to be submitted with the draw down curve shall include the type and classification of the soil to be dewatered, permeability of soil, and all information necessary for preparing curve.
- (b) Proposed well construction details including size of casing, type of pump, depth of well, filter material, screen details, and all other details necessary for well construction
- (c) The rate of draw down of the groundwater table.

Two inch (2") piezometers shall also be installed in the same manner as for well points to measure the groundwater table. The Engineer will use the draw down curve submitted above along with the groundwater table elevations to determine the maximum allowable spacing of the deep wells.

- (3) Other Methods. Other methods of trench dewatering may be used provided prior approval has been obtained from the Engineer.

- C. Dewatering of Tunnels. All tunnels and access pits shall be kept free of groundwater and surface water at all times. Method to be used shall be as approved by Engineer. Any cost incurred for dewatering of tunnels and access pits shall be included in the cost of installing the tunnel liner with no extra compensation.

- D. Settlement. Prior to performing any dewatering, the Contractor shall take all necessary precautions to insure that the dewatering operation does not cause structures near the excavation to settle

400.10 - SHEETING AND BRACING

The Contractor shall provide all sheeting and bracing necessary for the protection of the work, employees, or any existing utilities or structures. No such sheeting shall be removed from below the spring line of the pipe after the pipe has been backfilled to this level.

In the event the soil conditions are such that the Contractor should desire to leave such sheeting above the spring line in place, he shall secure the permission of the Engineer to do so.

The cost of any necessary sheeting or bracing, whether left in place or removed, shall be included in the unit price of the pipe being laid.

400.11 - LAYING PIPE

The Engineer will establish such general reference points and construction stakes as in his judgment will enable the Contractor to proceed with the work. The Contractor will be responsible for the layout of the work from these stakes and will protect and preserve the established reference points and construction stakes and will make no changes or relocations without prior written approval. He will report to the Engineer whenever any reference point or construction stake is lost or destroyed or requires relocation because of necessary changes in grades or locations. The Contractor will replace and accurately relocate all reference points and construction stakes so lost, destroyed, or moved.

All pipe lines must be laid in a straight line, unless otherwise shown on the drawings, and with the flow line of the pipe accurately placed to the grade and alignment fixed by the Engineer.

A joint shall be located within two (2) pipe diameters (thirty (30") inches maximum) outside the walls of each proposed manhole or junction box, both upstream and downstream. Joints shall also be placed near other rigid connections, or near the ends of pipe casings, when recommended by the manufacturer or by the appropriate ASTM specification.

No variation from true and even grade, alignment, and invert will be permitted except to avoid existing underground main service lines of utilities, and then only upon the written permission of the Engineer, signed by him personally, should he find such deviation to be desirable and not detrimental to the pipe line.

All pipes shall be laid with the spigot-end or tongue end downstream entering the bell or groove to full depth. Care shall be taken in placing pipe to prevent any earth being dragged into or left in the annular space for sealing of the joints.

After the trench has been carefully graded and all bell holes excavated, the trench must receive the approval of the Inspector before any pipe is placed therein. Each piece of pipe shall be examined for defects and cut to the correct lengths. The interior surface and the bell and spigot shall be thoroughly cleaned of all foreign material prior to placing same in the trench in an approved manner. The pipe, valves, fittings, etc., shall be adjusted so as to be at their proper locations and then each spigot properly fitted into position. Each length of pipe shall rest on the bottom of the trench throughout its entire length.

Joints shall be as specified in the 500 series material technical specifications as provided herein. Instructions for jointing pipes with special couplings shall be in strict conformity with the Manufacturer's printed instructions.

If a defective piece of pipe furnished and placed by the Contractor should collapse, the Contractor shall furnish at his expense all labor and materials required for removing and replacing the defective pipe and restoring the street or other surface to its condition prior to the failure of the pipe.

All pressure piping shall have thrust blocks installed as designated on the drawings.

400.12 - PLUGGING ENDS

Before leaving the work for the night, or at any time, any openings in the pipeline shall be securely closed with a tight fitting plug. Cost of plugging pipe ends shall be included with the cost of installing the pipe.

400.13 - PROTECTIVE COATINGS

All metal, bolts, and nuts shall receive a protective coating with an asphaltic compound acceptable to the Engineer before backfilling. Surface preparation shall be in accordance with the coating manufacturer's recommendations

400.14 - TIME OF BACKFILLING

Backfilling shall begin as soon as the joints have been completed and all protective coating applied. All open trenches shall be completely backfilled before the work day ends, unless otherwise directed by the Engineer.

400.15 - BACKFILLING OF TRENCH

1. Lower Portion of Trench (initial backfill). Care shall be taken to see that no dirt clods or trench sides are allowed to fall and/or rest against the pipe prior to completion of the sand encasement.
 - a. Sewer Lines. Six (6") inches of sand bedding shall be provided in the bottom of the trench (trench having been cut six (6") inches below grade), prior to laying the pipe and making up the joints. After the pipe has been placed, the backfill around and to a point twelve inches (12") above the top of the pipe shall be made in accordance with the installation specifications for the pipe material being installed.
 - b. Water Lines. Six (6") inches of sand bedding shall be provided in the bottom of the trench (trench having been cut six (6") inches below grade), prior to laying the pipe and making up the joints. After the pipe has been placed, the backfill around and to a point six inches (6") above the top of the pipe shall be made in accordance with the installation specifications for the pipe material being installed.
2. Upper Portion of Trench (final backfill). From the six (6") or twelve (12") inches above the top of the pipe upward, the type of backfill for various locations shall be as follows:
 - a. Concrete or Asphalt Pavement. The trench shall be filled to two (2") inches below the bottom of the existing flexible base (or concrete pavement) with a mixture of clean sand and 1-1/2 sacks of cement per cubic yard. This material shall be placed in layers not more than six (6") inches thick and thoroughly tamped by mechanical or hand tamping, as directed by the Engineer.

The Contractor may use, with prior approval from the Engineer, select native material in lieu of the sand-cement mixture. The select native material must be compacted to 90% density as measured by the Standard Proctor Density Test. Cost of testing shall be borne by the Owner. No further backfill is required for concrete pavement. Flexible base shall be replaced to the bottom of the pavement with a compacted base material, consisting of crushed limestone, iron ore gravel, or a sand-shell mixture.

This requirement shall apply to all trenches running underneath surfaced streets, whether crossing the pavement or running along the street.

- b. Unsurfaced Streets. The trench shall be backfilled with selected loose, fine excavated material by means of water tamping or power tamping. The Engineer may require power tamping for heavily traveled streets.

In using water tamping, the trench shall be filled to ten (10") inches below the surface with the loose fine material in even layers not exceeding eighteen (18") inches in thickness of loose material and immediately flooded to complete saturation and left undisturbed for three (3) days. The trench shall then be refilled and flooded again using poles to insure penetration of water to full depth of the trench. This flooding shall continue until there is no further settlement.

Power tamping will be permitted only where the trench and backfill material are dry enough to permit satisfactory compaction. Backfill shall be placed in the trench in layers not exceeding twelve (12") inches in thickness.

The top ten (10") inches of the trench shall be backfilled with shell or crushed limestone. On completion of the tamping, all of the excavated material shall be substantially replaced in the trench deducting the space occupied by the pipe, bedding, and shell or limestone. Compaction in all levels from six (6") inches or twelve (12") inches above the top of pipe to ten (10") inches below grade shall be not less than ninety (90%) percent of the maximum density value as determined by the "Standard Laboratory Method for Compaction and Density of Soil, AASHTO Designation T-99".

The above procedure for unsurfaced streets shall apply in trenches running in and parallel to and running across the normally maintained portion of the road or street right-of-way.

- c. Trench Within Right-of-Way, but Outside Pavement. Trenches within the right-of-way of a surfaced street shall be backfilled according to the procedure for an unsurfaced street, except that the shell or crushed limestone in the top ten (10") inches of the trench shall be placed only in driveway crossings, roadway shoulders, and other areas where there will be light traffic. Where the shell is omitted the ground shall be restored to its original condition by the replacement of grass or any other improvement which existed before the construction or which are shown on the plans to be constructed.
- d. Trenches Away from Streets. Whenever the trench is not in a street but in an easement or plant area, which is not traveled, the backfill procedure shall be the same as for an unsurfaced street, except that the top ten (10") inches of shell or crushed limestone shall be omitted.

400.16 - REMOVAL AND REPLACEMENT OF STREET OR DRIVEWAY SURFACES OR SIDEWALKS AND INSTALLATION OF NEW SIDEWALKS

When any portion of a street, driveway, or parking lot surface must be removed for the installation of lines or appurtenances, the Contractor shall remove and replace the pavement as specified below.

1. Concrete Pavement (with or without asphalt overlay). The pavement shall be removed to a distance not less than twelve inches (12") back from a firm bank of the trench excavation. The Contractor shall not use equipment to cut trenches in existing pavements which will strike a heavier blow than is usual with a hand pavement breaker operated from an air compressor. The edges of the cut shall be trimmed so as to leave a vertical face of sound, unfractured pavement. If concrete pavement without overlay is encountered, the top three (3") inches shall be saw cut.

Replacement of concrete pavement shall be according to the details in the plans. Unless otherwise specified, concrete pavement shall be replaced to its original depth plus two inches. All replaced pavement shall be finished in a neat and workmanlike manner and protected and cured as its nature may require.

Any asphalt overlay shall be replaced with asphaltic concrete so as to make a smooth joint with adjacent pavement.

2. Flexible Base Asphalt Pavement. The pavement and flexible base shall be removed to a distance not less than twelve (12") inches back from a firm bank of the trench excavation. The edges of the cut shall be smooth and vertical. The base shall be replaced to its original depth plus two (2") inches. The surface shall be replaced with asphaltic concrete so as to make a smooth joint with adjacent pavement.

3. Curb and Gutter. If the Contractor removes any curb and gutter in order to install lines or appurtenances, he shall replace it at his own expense. The replacement curb and gutter shall be similar to that removed, and shall be at least equal in quality.
4. Concrete Sidewalks. The Contractor shall replace at his own expense any concrete sidewalk removed or damaged during line construction. The replacement sidewalk shall be of the same width and thickness as that removed, and shall be at least equal in quality.

New sidewalks shall be of the same width, thickness and quality as adjacent sections of replacement sidewalk.

5. Time of Replacement. The Contractor may replace concrete or asphaltic pavement immediately after completion of trench backfilling, or he may wait until the line has passed an exfiltration test. If pavement replacement is not made within seventy-two (72) hours after backfilling, the Contractor shall restore and maintain the roadway at his own expense until the time of replacement. For this purpose he shall provide enough temporary base material and/or surfacing to bring the roadway up to grade.

Curbs, gutters, and sidewalks shall be replaced without undue delay.

400.17 - SPECIAL CROSSINGS

1. Major Streets

- a. General. Crossings of major streets shall be made by the open-cut method. The Contractor shall notify the street superintendent for the Owner at least two (2) days prior to beginning construction of crossings. The Contractor shall maintain all necessary barricades, signs, flares and flagmen for traffic protection, and shall restore the site to its original condition.
- b. Construction Methods. The Contractor shall saw cut the existing asphalt surface full depth a minimum 12" outside the required trench width of the size pipe being installed prior to excavation. After installation of the proposed line, the contractor shall backfill the trench with cement stabilized sand containing 1 1/2 sacks of cement per cubic yard compacted in place. Replacement of asphalt shall be in accordance with Item 400.17.

2. Stream Beds. Where shown on the plans or designated by the Engineer, the Contractor shall encase the line in quick-set concrete as specified in Item 200 (3000 psi, 2" max. aggregate size). The encasement shall extend a minimum of six (6") inches outside the pipe in all directions. The trench shall be dewatered if necessary, and the trench bottom shall be firm enough to prevent settlement of the concrete.
3. Streams and Ditches. Water and sewer lines which cross streams or ditches above the flow line shall be constructed according to the plans, or as directed by the Engineer.
4. Crossings (or Parallel Construction) of Water and Sewer Lines. All crossings or parallel construction of water and sewer lines shall conform to section 290.44 Water Distribution, of Chapter 290, Rules and Regulations for Public Water Systems as adopted by the Texas Water Commission, effective March 1, 1993.

These requirements shall apply whether the water line, the sewer line, or both are new construction.

5. Casing Section. Casings shall be steel pipe, coated on the outside with coal tar epoxy (20 mil minimum thickness). Minimum thickness shall be 1/4" for I.D. less than 24", 5/16" for I.D. 24" and larger. The diameter (if not specified in plans and specifications) shall be sufficient to allow installation of the carrier pipe (including joints). Any joints in casing shall be welded.

Casing may be installed by trenching except where boring is specified. Boring shall be in accordance with the latest Texas State Department of Highways Standard Specifications, unless otherwise specified.

400.18 - EXCESS EXCAVATION

Excess excavation shall be hauled to and placed on properties designated by the Owner. Once each week the Contractor shall spread the deposited excavation at the site as directed by the Owner.

If no site is designated by the Owner, then it shall be the responsibility of the Contractor to dispose of this material in a safe and legal manner.

400.19 - INFILTRATION AND/OR EXFILTRATION AND TESTING

Infiltration and/or exfiltration in gravity sanitary sewer lines shall not exceed two hundred (200) gallons per inch of diameter per day per mile of pipe. Sewer lines shall be tested for exfiltration according to Item 501 of these specifications.

Water lines shall be sterilized and tested in accordance with applicable specifications.

400.20 - CLEAN-UP

The Contractor shall remove from the work site all temporary structures, rubbish, and waste material including all excess excavated materials. The completed clean up shall not be greater than one thousand (1000') feet behind the pipe laying operation. Pipe laying operations will be suspended temporarily if completed clean up is further behind than one thousand (1000') feet.

Clean-up requirements shall also apply to any public or private property used by the Contractor for constructing the project, such as temporary storage or field office sites.

400.21 - PAYMENT

Pipe will be measured by the linear foot of pipe complete in place. Such measurement will be made between the ends of the pipe barrel along the center axis as installed. The cost of connecting bands or couplings, as in the case of asbestos cement pipe, shall be included in the unit price of pipe. Special fittings, such as tees, bends, etc., which have unit cost set up in the Bid Proposal shall be deducted from the total length of pipe.

When pipe is to be paid for according to depth, the depth will be measured from natural ground to the invert of the pipe. Measurements will be taken at 200-foot intervals, or more often if the terrain requires it.

Those materials, i.e. sand, 60/40 mix and cement stabilized material used in the bedding and backfill and which are required by Item 400, Item 500 or by the specifications of the pipe manufacturer will not be pay items. The cost of materials and installation will be included in the price bid per linear foot for pipe.

All special embedment materials as described in 400.9.7 if ordered by the Engineer shall be paid for at the unit price bid per cubic yard based on quantities taken from truck tickets.

Pipe construction will be paid for according to the applicable unit bid prices as follows:

Water or sewerline (general)	Linear foot of specified size, type and depth or other classification.
Water or sewerline embedded in concrete	Same as general, embedment will be separate pay item.
Pipe laid in tunnels and casing	Unit price for pipe per linear foot in tunnel or casing.

The following items will be paid for at the appropriate unit price, where shown on the bid proposal. Otherwise, no separate payment shall be made.

Tunnel or casing installation	Unit price bid per lineal foot for tunnel or casing.
Dewatering of trenches by well point	Unit price bid per linear foot of trench if Engineer gives prior approval. No separate payment for other dewatering methods.
Replacement of sidewalks, driveway cuts placement of new sidewalks	Unit price bid per linear foot. and
Replacement of street surfacing	Unit price bid per linear foot for type of street.
Manholes and prefabricated bends	Unit price bid per each. Bends will be included with pipe footage and will not be a separate pay item.

No separate payment shall be made for the following work in connection with tunneling and casing.

Access pits for tunnels, shoring of pits, furnishing and installing of liner or casing, backpacking, grouting, lighting, ventilation, and disposal of excavated material.

VIII. ITEM 407 – JACKING AND BORING CONCRETE BOX

407.01 - DESCRIPTION

This specification governs the furnishing and installation of precast concrete box by jacking and boring, and is based on TxDOT Item 476 - Jacking, Boring, or Tunneling Pipe or Box.

407.02 - MATERIALS

Use reinforced concrete box meeting TxDOT Item 462 - Concrete Box Culverts and Drains, of the size and type shown on the plans.

E-80 Concrete Box Culverts shall be designed by a Texas Registered Professional Engineer to meet Cooper E-80 loading requirements conforming to Chapter 8 of the AREMA manual. The Contractor shall provide a signed and sealed detailed design submittal.

407.03 - CONSTRUCTION

Excavate suitable bore pits for conducting the jacking and boring operations and for placing end joints of the pipe or box if the grade at the pipe end is below the ground surface. Maintain a 3:1 slope on the shaft side of the pit unless otherwise shown or directed. Provide a positive barrier when the shaft location is within the clear zone of a roadway. Protect excavations deeper than 5 ft. as specified in TxDOT Item 402 - Trench Excavation Protection, or TxDOT Item 403 - Temporary Special Shoring.

Install box so there is no interference with the operation of street, highway, railroad, or other facility and no embankment or structure is weakened or damaged.

Repair any box damaged during the jacking or boring process. Remove and replace any box damaged beyond repair at the Contractor's expense.

Backfill shafts or trenches excavated to facilitate jacking, boring immediately after installation of box.

1. Slip Sheet and Shield. Provide a 1/4" steel plate above the box, matching the external width of the box, to minimize skin friction during jacking operations.

Use a full shield or cutting edge of steel plate around the entire head end of the box, extending a short distance beyond the end of the pipe to facilitate jacking operations. Half shield will not be accepted.

2. Jacking. Provide jacks suitable for forcing the box through the embankment. Use even pressure to all jacks during operation. Provide a suitable jacking head and suitable bracing between the jacks and the jacking head to apply uniform pressure around the ring of the pipe or circumference of the box. Use joint cushioning of 3/4-in. minimum thickness plywood for all boxes. Use cushioning rings of single or multiple pieces. Provide a suitable jacking frame or backstop. Set the box to be jacked on guides that support the section of the box and direct it on the proper line and grade. Place the entire jacking assembly in line with the direction and grade of the box. In general, force the box through the embankment with jacks, then excavate the embankment material to the front edge of the box, removing the material through the box as excavation proceeds. Furnish a plan showing the proposed method of jacking for approval. Include the design for the jacking head, jacking support or backstop (thrust block),

arrangement and position of jacks, top surface drag shield, and guides in the plan.

Carry out jacking without interruption to prevent the pipe from becoming firmly set in the embankment.

The excavation must not extend beyond the end of the box in order to maintain stability of the material being excavated. Provide face stabilization as required to prevent the face from collapsing.

Jack the box from the location shown on the plans. The final position of the pipe or box must not vary from the line and grade shown on the plans by more than 1 in. across 10 ft. Variation

must be regular and in one direction, and the final flow line must be in the direction shown on the plans.

The minimum separation distance for parallel box jacking or tunneling is 2 ft. unless otherwise shown on the plans.

3. Boring or Tunneling. Bore from a bore pit in an approved location provided for the boring equipment and workmen.

Dispose of excavated material using an approved method. Use an appropriate drilling fluid in connection with the boring operation only as necessary to lubricate cuttings and pipe or box. Do not use jetting under any circumstances.

Use a gel-forming colloidal drilling fluid consisting of high-grade, carefully processed bentonite to consolidate cuttings in unconsolidated soil formations as required.

Allowable variations from line and grade are specified in Section 407.03.2 Jacking. Pressure-grout any over excavation of more than 1 in.

4. Joints. All joints shall be restrained as shown on the plans. Absolutely no unrestrained joints will be permitted in the project. Seal the joints in accordance with TxDOT Item 462 - Concrete Box Culverts and Drains.

407.04 - MEASUREMENT

This Item will be measured by the foot between the ends of the box along the flow line.

407.05 - PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for Jacking and Boring Box Culvert of the type, size, and design specified.

This price is full compensation for excavation, grouting, backfilling, and disposal of surplus material; furnishing box; preparation, hauling, and installing of box; and materials, tools, equipment, labor, and incidentals

END OF BID SPECIFICATIONS

APPENDIX A

FAIR LABOR STANDARDS PROVISIONS

HUD-4010
Federal Labor Standards Provisions

U.S. Department of Housing and Urban Development
Office of Davis-Bacon and Labor Standards

APPLICABILITY

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.

1. Minimum wages and fringe benefits

- i. All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often 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 basic hourly 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. As provided in 29 CFR 5.5(d) and (e), the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(v) of these contract clauses; also, regular 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in 29 CFR 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 classifications and wage rates conformed under 29 CFR 5.5(a)(1)(iii)) and the Davis-Bacon poster (WH-1321) must 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. Frequently recurring classifications

- A. In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to 29 CFR 5.5(a)(1)(iii), provided that:
 1. The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;
 2. The classification is used in the area by the construction industry; and
 3. The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination (APPENDIX D).
- B. The Administrator will establish wage rates for such classifications in accordance with 29 CFR 5.5(a)(1)(iii)(A)(3). Work performed in such a classification must be paid at no less than the wage and fringe

benefit rate listed on the wage determination for such classification.

iii. Conformance

A. The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate 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 used 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. The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

C. If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

D. In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

E. The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under 29 CFR 5.5 (a)(1)(iii)(C) and (D). The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to 29 CFR 5.5 (a)(1)(iii)(C) or (D) must 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.

iv. Fringe benefits not expressed as an hourly rate

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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

v. Unfunded plans

If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any 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, in accordance with the criteria set forth in 29 CFR 5.28, 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.

vi. Interest In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding

i. Withholding requirements

The U. S. Department of Housing and Urban Development may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in 29 CFR 5.5(a) for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in 29 CFR 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work (or otherwise working in construction or development of the project under a development statute) all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in 29 CFR 5.5(a)(3)(iv), HUD may on its own initiative and after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, 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.

ii. Priority to withheld funds

The Department has priority to funds withheld or to be withheld in accordance with 29 CFR 5.5(a)(2)(i) or (b)(3)(i), or both, over claims to those funds by:

- A. A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- B. A contracting agency for its re-procurement costs;
- C. A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- D. A contractor's assignee(s);
- E. A contractor's successor(s); or
- F. A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.

3. Records and certified payrolls

i. Basic record requirements

- A. **Length of record retention.** All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.
- B. **Information required** Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.
- C. **Additional records relating to fringe benefits.** Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(v) 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 40

U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must 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.

- D. Additional records relating to apprenticeship** Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

ii. Certified payroll requirements

- A. Frequency and method of submission** The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to HUD if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the certified payrolls to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to HUD. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system
- B. Information required** The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i)(B), except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the sponsoring government agency (or the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records).
- C. Statement of Compliance** Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:
1. That the certified payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information and basic records are being maintained under 29 CFR 5.5 (a)(3)(i), and such information and records are correct and complete;
 2. That each laborer or mechanic (including each helper and apprentice) working 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; and
 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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.
- D. Use of Optional Form WH-347** The weekly submission of a properly executed certification

set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the “Statement of Compliance” required by 29 CFR 5.5(a)(3)(ii)(C).

- E. Signature** The signature by the contractor, subcontractor, or the contractor’s or subcontractor’s agent must be an original handwritten signature or a legally valid electronic signature.
- F. Falsification** The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.
- G. Length of certified payroll retention** The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

iii. Contracts, subcontracts, and related documents The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

iv Required disclosures and access

- A. Required record disclosures and access to workers** The contractor or subcontractor must make the records required under 29 CFR 5.5(a)(3)(i)–(iii), and any other documents that HUD or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by 29 CFR 5.1, available for inspection, copying, or transcription by authorized representatives of HUD or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.
- B. Sanctions for non-compliance with records and worker access requirements** If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, 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, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to 29 CFR 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.
- C. Required information disclosures** Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to HUD if the agency is a party to the contract, or to the Wage and Hour Division of the Department of Labor. If the Federal agency is not such a party to the contract, the contractor, subcontractor, or both, must, upon request, provide the full Social Security number and last known address, telephone number, and email address of each covered worker to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to HUD, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity

i. Apprentices

- A. Rate of pay** Apprentices will be permitted to work at less than the predetermined rate for the work they perform 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, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- B. Fringe benefits** Apprentices must 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, fringe benefits must be paid in accordance with that determination.
 - C. Apprenticeship ratio** The allowable ratio of apprentices to journey workers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to 29 CFR 5.5(a)(4)(i)(D). Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in 29 CFR 5.5(a)(4)(i)(A), must 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.
 - D. Reciprocity of ratios and wage rates** Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journey worker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.
- ii Equal employment opportunity** The use of apprentices and journey workers under this part must 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. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6 Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (11), along with the applicable wage determination(s) and such other clauses or contract modifications as the U.S. Department of Housing and

Urban Development may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate.

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 Davis-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 the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

- i. By entering into this contract, the contractor certifies that neither it 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 40 U.S.C. 3144(b) or 29 CFR 5.12(a).
- ii. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).
- iii. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11 Anti-retaliation It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- i. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, or 29 CFR parts 1, 3, or 5;
- ii. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5;
- iii. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5; or
- iv. Informing any other person about their rights under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5.

B. Contract Work Hours and Safety Standards Act (CWHSSA)

The Agency Head must cause or require the contracting officer to insert the following clauses set forth in 29 CFR 5.5(b)(1), (2), (3), (4), and (5) in full, or (for contracts covered by the Federal Acquisition Regulation) by reference, in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses must be inserted in addition to the clauses required by 29 CFR 5.5(a) or 4.6. As used in this paragraph, the terms "laborers and mechanics" include watchpersons and guards.

- 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 29 CFR 5.5(b)(1) the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. 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 watchpersons and guards, employed in violation of the clause set forth in 29 CFR 5.5(b)(1), in the sum of \$31 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in 29 CFR 5.5(b)(1).
- 3. Withholding for unpaid wages and liquidated damages**

- i. **Withholding process** The U.S Department of Housing and Urban Development or the recipient of Federal assistance may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in 29 CFR 5.5(b) on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in 29 CFR 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.
 - ii **Priority to withheld funds** The Department has priority to funds withheld or to be withheld in accordance with 29 CFR 5.5(a)(2)(i) or (b)(3)(i), or both, over claims to those funds by:
 - A. A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
 - B. A contracting agency for its repurchase costs;
 - C. A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
 - D. A contractor's assignee(s);
 - E. A contractor's successor(s); or
 - F. A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.
- 4. **Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in 29 CFR 5.5(b)(1) through (5) and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in 29 CFR 5.5(b)(1) through (5). In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.
- 5 **Anti-retaliation** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:
 - i. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in 29 CFR part 5;
 - ii. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or 29 CFR part 5;
 - iii. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or 29 CFR part 5; or
 - iv. Informing any other person about their rights under CWHSSA or 29 CFR part 5.
- C. **CWHSSA required records clause** In addition to the clauses contained in 29 CFR 5.5(b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other laws referenced by 29 CFR 5.1, the Agency Head must cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor must maintain regular payrolls and other basic records during the course of the work and must preserve them for a period of 3 years after all the work on the prime contract is

completed for all laborers and mechanics, including guards and watchpersons, working on the contract. Such records must contain the name; last known address, telephone number, and email address; and social security number of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid; daily and weekly number of hours actually worked; deductions made and actual wages paid. Further, the Agency Head must cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph must be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview workers during working hours on the job.

D. Incorporation of contract clauses and wage determinations by reference Although agencies are required to insert the contract clauses set forth in this section, along with appropriate wage determinations, in full into covered contracts, and contractors and subcontractors are required to insert them in any lower-tier subcontracts, the incorporation by reference of the required contract clauses and appropriate wage determinations will be given the same force and effect as if they were inserted in full text.

E. Incorporation by operation of law The contract clauses set forth in this section (or their equivalent under the Federal Acquisition Regulation), along with the correct wage determinations, will be considered to be a part of every prime contract required by the applicable statutes referenced by 29 CFR 5.1 to include such clauses, and will be effective by operation of law, whether or not they are included or incorporated by reference into such contract, unless the Administrator grants a variance, tolerance, or exemption from the application of this paragraph. Where the clauses and applicable wage determinations are effective by operation of law under this paragraph, the prime contractor must be compensated for any resulting increase in wages in accordance with applicable law.

F. HEALTH AND SAFETY

The provisions of this paragraph (F) are applicable where the amount of the prime contract exceeds

\$100,000.

1. No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his or her 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 29 CFR Part 1926 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), 40 U.S.C. § 3701 et seq.
3. The contractor shall include the provisions of this paragraph in every subcontract, so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

APPENDIX B

REQUIRED CONTRACT PROVISIONS

REQUIRED CONTRACT PROVISIONS

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REQUIRED CONTRACT PROVISIONS

Italics – Explanatory; not contract language

All Contracts

THRESHOLD	PROVISION	CITATION
None	(H) Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the government-wide Excluded Parties List System in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR Part 1986 Comp., p. 189) and 12689 (3 CFR Part 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.	2 CFR 200 APPENDIX II (H)
None	The U.S. Department of Housing and Urban Development (HUD), Inspectors General, the Comptroller General of the United States, and the Texas General Land Office (GLO), and the City/County, or any of their authorized representatives, shall have access to any documents, papers, or other records of the Contractor which are pertinent to the CDBG-MIT award, in order to make audits, examinations, excerpts, and transcripts and to closeout the City’s/County’s CDBG-MIT contract with the GLO.	2 CFR 200.337
None	Grantees or subgrantees must retain all required records for three years after grantees or subgrantees make final payments and all other pending matters are closed.	2 CFR 200.334
None	Sec. 176.003. CONFLICTS DISCLOSURE STATEMENT REQUIRED. (a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if: (1) the vendor enters into a contract with the local governmental entity or the local governmental entity is considering entering into a contract with the vendor; and (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	<u>Chapter 176</u> of the Local Government Code

	(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; or (C) has a family relationship with the local government officer. (a-1) A local government officer is not required to file a conflicts disclosure statement in relation to a gift accepted by the officer or a family member of the officer if the gift is: (1) a political contribution as defined by Title 15, Election Code; or (2) food accepted as a guest. (a-2) A local government officer is not required to file a conflicts disclosure statement under Subsection (a) if the local governmental entity or vendor described by that subsection is an administrative agency created under Section 791.013, Government Code. (b) A local government officer shall file the conflicts disclosure statement with the records administrator of the local governmental entity not later than 5 p.m. on the seventh business day after the date on which the officer becomes aware of the facts that require the filing of the statement under Subsection (a).	
>\$10,000	<i>(B) All contracts in excess of \$10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be effected and the basis for settlement.</i> <i>Use the following language for contracts > \$ 10,000:</i> <u>Termination for Cause</u> If the Contractor fails to fulfill in a timely and proper manner its obligations under this Agreement, or if the Contractor violates any of the covenants, conditions, agreements, or stipulations of this Agreement, the City/County shall have the right to terminate this Agreement by giving written notice to the Contractor of such termination and specifying	2 CFR 200 APPENDIX II(B)

	the effective date thereof, which shall be at least five days before the effective date of such termination. In the event of termination for cause, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports prepared by the Contractor pursuant to this Agreement shall, at the option of the City/County, be turned over to the City / County and become the property of the City / County. In the event of termination for cause, the Contractor shall be entitled to receive reasonable compensation for any necessary services actually and satisfactorily performed prior to the date of termination. Notwithstanding the above, the Contractor shall not be relieved of liability to the City/County for damages sustained by the City/County by virtue of any breach of contract by the Contractor, and the City/County may set-off the damages it incurred as a result of the Contractor's breach of contract from any amounts it might otherwise owe the Contractor. <u>Termination for Convenience of the City/County</u> City/County may at any time and for any reason terminate Contractor's services and work at City/County's convenience upon providing written notice to the Contractor specifying the extent of termination and the effective date. Upon receipt of such notice, Contractor shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of this Agreement. [Parties should include the manner by which such termination will be effected and the basis for settlement or any other terms and conditions concerning payment upon such termination.]	
>\$50,000	<i>(A) Contracts for more than \$50,000 must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.</i> <i>Use the following language for contracts > \$50,000:</i> <u>Resolution of Program Non-compliance and Disallowed Costs</u> In the event of any dispute, claim, question, or disagreement arising from or relating to this Agreement, or the breach thereof, including determination of responsibility for any costs disallowed as a result of non-compliance with federal, state or CDBG-MIT program requirements, the parties hereto shall use their best efforts to settle the dispute, claim, question or disagreement. To this effect, the parties shall consult and negotiate with each other in good	2 CFR 200 APPENDIX II (A)

	faith within 30 days of receipt of a written notice of the dispute or invitation to negotiate, and attempt to reach a just and equitable solution satisfactory to both parties. If the matter is not resolved by negotiation within 30 days of receipt of written notice or invitation to negotiate, the parties agree first to try in good faith to settle the matter by mediation administered by the American Arbitration Association under its Commercial Mediation Procedures before resorting to arbitration, litigation, or some other dispute resolution procedure. The parties may enter into a written amendment to this Agreement and choose a mediator that is not affiliated with the American Arbitration Association. The parties shall bear the costs of such mediation equally. <i>[This section may also provide for the qualifications of the mediator(s), the locale of meetings, time limits, or any other item of concern to the parties.]</i> If the matter is not resolved through such mediation within 60 days of the initiation of that procedure, either party may proceed to file suit.	
≥\$100,000	(I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award of \$100,000 or more must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal 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 must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.	2 CFR 200 APPENDIX II (I) and 24 CFR §570.303
Optional Contract Language for Procurement before Grant Funds Awarded	Payment of the fees [described in ____ section] shall be contingent on CDBG funding. In the event that grant funds are not awarded to the City / County by the GLO through the CDBG-MIT program, this agreement shall be terminated by the City / County.	

Additional provisions for administration & engineering contracts associated with construction contracts

Italics – Explanatory; not contract language

THRESHOLD	PROVISION	CITATION
>\$10,000	<i>2 CFR 200 Appendix II (C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of “<u>federally assisted construction contract</u>” in 41 CFR Part 60–1.3 must include the equal opportunity clause provided under 41 CFR 60–1.4(b), in accordance with Executive Order 11246, “Equal Employment Opportunity” (30 FR 12319, 12935, 3 CFR Part, 1964–1965 Comp., p. 339), as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and implementing regulations at 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”</i> <i>Therefore, include the following EO clause (not in italics) in construction contracts including construction associated administration and engineering contracts > \$10,000:</i> §60-1.4(b) Equal opportunity clause. (b) <i>Federally assisted construction contracts. 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:</i> <i>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:</i> 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	41 CFR §60-1.4(b) And 2 CFR 200 APPENDIX II (C)

	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 considerations for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin. (3) The Contractor will not discourage 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 (7) 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: 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. (c) Subcontracts. Each nonexempt prime contractor or subcontractor shall include the equal opportunity clause in each of its nonexempt subcontracts. (d) Incorporation by reference. The equal opportunity clause may be incorporated 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 Deputy Assistant Secretary 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.	

	[43 FR 49240, Oct. 20, 1978, as amended at 62 FR 66971, Dec. 22, 1997; 79 FR 72993, Dec. 9, 2014; 80 FR 54934, September 11, 2015]	
None	<i>§75.27 Section 3 contract provision</i> <i>Recipients must include language applying Section 3 requirements in any subrecipient agreement or contract for a Section 3 project.:</i> Economic Opportunities for Section 3 Residents and Section 3 Business Concerns. (a) The work to be performed under this Contract is subject to the requirements of section 3 of the Housing and Urban Development (HUD) Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing. (b) The parties to this Contract agree to comply with HUD's regulations in 24 CFR part 75, which implement section 3. As evidenced by their execution of this Contract, the parties to this Contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 75 regulations. (c) The Contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 75. The Contractor will not subcontract with any subcontractor where the Contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 75. (d) The Contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the Contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 75 require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under 24 CFR part 75. Minimum expectations of effort to direct employment opportunities to such workers are identified in the CDBG-MIT Project Implementation Manual. (e) Noncompliance with HUD's regulations in 24 CFR part 75 may result in sanctions, termination of this Contract for default, and debarment or suspension from future HUD assisted contracts.	24 CFR §75.27

Construction Contracts

Italics – Explanatory; not contract language

THRESHOLD	PROVISION	CITATION
>\$2,000 for Davis Bacon and Copeland “Anti-Kickback” Act; >\$100,000 for Contract Work Hours and Safety Standards Act	<i>HUD 4010 Federal labor standards provisions include:</i> <i>1. Davis Bacon Act (40 U.S.C. 3141 et seq.) as supplemented by DOL regulations (29 CFR part 5);</i> <i>2. Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3); and</i> <i>3. Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 et seq.)</i> <i>See HUD 4010 contract language in Appendix F. Inclusion of this language into the construction contract satisfies contract requirements of the separate acts noted.</i>	
>\$2,000 (Satisfied with inclusion of HUD 4010)	<i>Compliance with the Davis-Bacon Act (40 U.S.C. 3141 et seq.) as supplemented by Department of Labor regulations (29 CFR part 5) and with the Copeland “Anti-Kickback” Act (18 U.S.C. 874; 40 U.S.C. 3145) as supplemented in Department of Labor regulations (29 CFR part 3):</i> (D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give	2 CFR 200 APPENDIX II (D)

	up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.	
>\$10,000	<i>2 CFR 200 Appendix II (C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of “federally assisted construction contract” in 41 CFR Part 60–1.3 must include the equal opportunity clause provided under 41 CFR 60–1.4(b), in accordance with Executive Order 11246, “Equal Employment Opportunity” (30 FR 12319, 12935, 3 CFR Part, 1964–1965 Comp., p. 339), as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and implementing regulations at 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”</i> <i>Therefore, include the following EO clause (not in italics) in construction contracts including construction associated administration and engineering contracts > \$10,000:</i> §60-1.4(b) Equal opportunity clause. <i>(b) Federally assisted construction contracts. 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:</i> <i>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:</i> <i>During the performance of this contract, the contractor agrees as follows:</i> <i>(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</i>	41 CFR §60-1.4(b) And 2 CFR 200 APPENDIX II (C)

	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 considerations for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin. (3) The Contractor will not discourage 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 (7) 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: 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. (c) Subcontracts. Each nonexempt prime contractor or subcontractor shall include the equal opportunity clause in each of its nonexempt subcontracts. (d) Incorporation by reference. The equal opportunity clause may be incorporated 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 Deputy Assistant Secretary 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.	

	[43 FR 49240, Oct. 20, 1978, as amended at 62 FR 66971, Dec. 22, 1997; 79 FR 72993, Dec. 9, 2014; 80 FR 54934, September 11, 2015]	
>\$100,000 (Satisfied with inclusion of HUD 4010)	(E) Contract Work Hours and Safety Standards Act (40 U.S.C. 3701–3708). Where applicable, all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.	2 CFR 200 APPENDIX II (E)
None	Economic Opportunities for Section 3 Residents and Section 3 Business Concerns. (a) The work to be performed under this Contract is subject to the requirements of section 3 of the Housing and Urban Development (HUD) Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing. (b) The parties to this Contract agree to comply with HUD's regulations in 24 CFR part 75, which implement section 3. As evidenced by their execution of this Contract, the parties to this Contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 75 regulations. (c) The Contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 75. The Contractor will not subcontract with any subcontractor where the Contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 75. (d) The Contractor will certify that any vacant employment positions, including training positions, that are filled	24 CFR §75.27

	(1) after the Contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 75 require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under 24 CFR part 75. Minimum expectations of effort to direct employment opportunities to such workers are identified in the GLO CDBG MIT Project Implementation Manual. (e) Noncompliance with HUD's regulations in 24 CFR part 75 may result in sanctions, termination of this Contract for default, and debarment or suspension from future HUD assisted contracts.	
>\$150,000	(G) Clean Air Act (42 U.S.C. 7401–7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251–1387), as amended—Contracts and subgrants of amounts in excess of \$150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401–7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251–1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).	2 CFR 200 APPENDIX II (G)
No Threshold	§ 200.322 Domestic preferences for procurements. (a) As appropriate and to the extent consistent with law and 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.	2 CFR §200.322

APPENDIX C

PREVAILING WAGE RATES

"General Decision Number: TX20260299 05/18/2026

State: Texas

Construction Types: Highway

Counties: Texas Counties of
Austin, Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty,
Montgomery, Orange, San Jacinto and Waller

Modification Number	Publication Date
0	01/02/2026
1	05/18/2026

SATX2025-013 11/15/2023

	Rates	Fringes
WORK ZONE BARRICADE SERVICER.	\$ 17.37	0.00
WELDER.	\$ 20.97	0.00
TRUCK DRIVER, TANDEM AXLE TRACTOR WITH SEMI TRAILER.\$	20.17	0.00
TRUCK DRIVER, SINGLE OR TANDEM AXLE DUMP TRUCK.	\$ 18.60	0.00
TRUCK DRIVER, SINGLE AXLE.	\$ 21.93	0.00
TRUCK DRIVER LOWBOY FLOAT.	\$ 25.94	0.00
STRUCTURAL STEEL WORKER.	\$ 22.64	0.00
SPREADER BOX OPERATOR.	\$ 17.84	0.00
SERVICER.	\$ 20.33	0.00
ROLLER OPERATOR, OTHER.	\$ 18.93	0.00
ROLLER OPERATOR, ASPHALT.	\$ 19.79	0.00
REINFORCING STEEL WORKER.	\$ 22.34	0.00
PIPELAYER.	\$ 20.03	0.00
PILEDRIVER.	\$ 21.48	0.00
PAVEMENT MARKING MACHINE OPERATOR.	\$ 17.12	0.00
PAINTER, STRUCTURES.	\$ 26.40	0.00
OFF ROAD HAULER.	\$ 17.12	0.00
MOTOR GRADER OPERATOR, ROUGH.	\$ 21.20	0.00
MOTOR GRADER OPERATOR, FINE GRADE.	\$ 23.91	0.00
MILLING MACHINE OPERATOR.	\$ 21.65	0.00
MECHANIC.	\$ 23.38	0.00
LOADER/BACKHOE OPERATOR.	\$ 21.37	0.00
LABORER, UTILITY.	\$ 19.11	0.00
LABORER, COMMON.	\$ 17.12	0.00
FRONT END LOADER OPERATOR, OVER 3 CY.	\$ 20.34	0.
		00
FRONT END LOADER OPERATOR, 3 CY OR LESS.	\$ 19.72	0.00
FOUNDATION DRILL OPERATOR, TRUCK MOUNTED.	\$ 26.04	0.00
FOUNDATION DRILL OPERATOR, CRAWLER MOUNTED.	\$ 22.25	0.00
FORM SETTER, PAVING & CURB.	\$ 19.32	0.00
FORM BUILDER/SETTER, STRUCTURES.	\$ 19.93	0.00
FLAGGER.	\$ 16.63	0.00
EXCAVATOR OPERATOR, OVER 50,000 POUNDS.	\$ 22.24	0.00
EXCAVATOR OPERATOR, 50,000 POUNDS OR LESS.	\$ 21.53	0.00
ELECTRICIAN.	\$ 31.46	0.00

CRAWLER TRACTOR OPERATOR.....	\$ 20.33	0.00
CRANE OPERATOR, LATTICE BOOM OVER 80 TONS.	\$ 23.85	0.00
CRANE OPERATOR, LATTICE BOOM 80 TONS OR LESS.	\$ 25.74	0.00
CRANE OPERATOR, HYDRAULIC 80 TONS OR LESS.....	\$ 24.75	0.00
CONCRETE SAW OPERATOR.....	\$ 21.57	0.00
CONCRETE PAVING, CURING, FLOAT, TEXTURING MACHINE OPERATOR.	\$ 22.62	0.00
CONCRETE PAVEMENT FINISHING MACHINE OPERATOR.....	\$ 22.18	0.00
CONCRETE FINISHER, PAVING AND STRUCTURES.	\$ 20.79	0.00
BROOM OR SWEEPER OPERATOR.....	\$ 17.63	0.00
ASPHALT RAKER.....	\$ 20.41	0.00
ASPHALT PAVING MACHINE OPERATOR.....	\$ 22.67	0.00
ASPHALT DISTRIBUTOR OPERATOR.	\$ 23.26	0.00

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

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>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.65 per hour (or the applicable wage rate listed on this

wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

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 classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than

◆SU◆, ◆UAVG◆, ◆SA◆, or ◆SC◆ denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate 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. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE:

UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ◆SU◆ identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the 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. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

◆SU◆ wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ◆SA◆ identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination.

The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ◆SA◆ identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

- 1) Has there been an initial decision in the matter? This can be:
 - a) a survey underlying a wage determination

- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

END OF GENERAL DECISION

"

APPENDIX D CONTRACTOR PAYROLL CERTIFICATION

Contractor Payroll Certification

_____ (Prime Contractor) submits the following detail of Certified Payrolls for all work completed by Prime and Sub-contractors performed from _____

to _____ on the GLO-CDBG-MIT CORLEY DIVERSION PROJECT for

Jefferson County Drainage District No. 6

Prime Contractor:

<u>Contractor</u>	<u>Status</u>
NOTES:	

Sub-Contractors working during performance period(s):

<u>Contractor</u>	<u>Start Date</u>	<u>End Date</u>	<u>Status</u>
NOTES:			

*This form **must** be included with all contractor invoices.*

I certify that the above information is accurate and correct:

Signature, Title

Date

APPENDIX E



GEOTECHNICAL PROTOCOL FOR PIPELINE AND UTILITY CROSSING(S) UNDER RAILWAY TRACKS

Engineering
Geotechnical and Utilities Department
Last Updated: March 12, 2024

3	March 12, 2024	DJW /JC / GD	Multiple sections highlighted throughout
2	May 16, 2022	DJW	Fig C – Pg 39
1	Feb 25, 2020	MR	Level 2 criteria – Pg 36
No	Date	By	Revision



CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks

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Appendices

Appendix A – Sample Daily Report and Settlement Report

Appendix B – Track Movement Guideline for Trenchless Pipe Installation

Appendix C – Additional Notes & Installation Requirements



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1.0 Limitations of the Document

The following protocol is independent of the requirements for assessing the structural components of the pipeline and pipeline crossing. The structural requirements for all pipeline crossings are included in SP-TS-2.39 - Pipeline and Cable Installations within Railway Right of Way. An agreement or permit from Canadian Pacific Kansas City Railway's Utilities Department is required before commencing with any work within the railway corridor. **Proposals for pipelines and utilities parallel to the track(s) are not covered under this protocol.**

In addition, this document does not cover review on any of the engineering design aspects of the proposed pipelines and utility crossings. Suitable engineering design is the sole responsibility of the applicant. Geotechnical approval of a proposed pipeline crossing by Canadian Pacific Kansas City (CPKC) in no way warrants the suitability of construction methods/techniques for anticipated ground conditions, nor does it warrant the suitability of existing ground and site conditions for the use proposed by the applicant of the crossing. CPKC does not take any responsibility for the suitability of the construction method or warrantee the ground and/or site conditions. CPKC geotechnical approval of a pipeline and utility installation application merely indicates that based on the provided and available information, the proposed construction and design addresses CPKC's needs at the time of review and approval. CPKC does not provide engineering recommendations, directions or minimum standards to the applicant or their contractor(s) for design and execution of their work within CPKC Right-of-Way (ROW).

Due to third party work on CPKC ROW, CPKC will not be liable for any damages or delays to the applicant and/or CPKC assets and operation because of its approval of an application. In addition, any damages incurred to CPKC due to third party pipeline and utility crossing(s) will be the responsibility of the applicant.

CPKC requires that the applicant provide adequate documentation as outlined in this protocol; clearly identify the responsible Professional Engineer of Record and the components of the project for which they are responsible.

2.0 General Terminology

Base of Rail (BOR): is the bottom surface of the rail and is frequently used as a local datum from which vertical measurements are referenced. If an external datum is utilized the elevation of the BOR will be identified.

Geotechnical Engineer of Record's onsite designate/representative: A geotechnical trained and competent person assigned by the Geotechnical Engineer of Record to act as site inspector



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who will be present onsite during the full duration of the construction and installation within railway operating corridor, unless, otherwise directed by CPKC Utilities Supervisor. The site inspector must have the required training, experience and understanding of the site conditions, proposed design, and construction methodology to make sound engineering judgement and decisions, and reports during the course of the work.

Service Provider(s): include professional engineering firm(s) or individual(s) representing relevant or applicable engineering disciplines, to be retained on behalf of CPKC for engineering related review and/or oversight of fieldwork and track settlement monitoring results, for which the compensation will be paid by the applicant.

Zone of Potential Track Loading (ZPTL): is considered as the area under the track and within a 1V to 1.5H soil zone extending down from a point at the level of the BOR and 2 m (6.6 ft.) from The centerline of track as shown in Figure 3.

FRA: Federal Railroad Administration.

TC: Transport Canada.

3.0 Introduction

The purpose of this document is to ensure efficient application process and ensure safety and uninterrupted operation of Canadian Pacific Kansas City (CPKC) Railway's operations during the execution of proposed third party pipeline and utility crossing(s) within CPKC ROW. This document is intended to guide the applicant of the minimum application requirements, review and approval process for proposed pipeline and utility crossing(s) as completed by CPKC Utilities and Geotechnical groups. The goal of this protocol is to:

- 3.1 Provide safe track(s) conditions during and after the installation of proposed pipeline and utility crossing(s);
- 3.2 Establish requirements and procedures to be followed by the applicant(s) to minimize difficulties and risks to CPKC's operations and its assets during the installation and operation of pipeline and utility crossing(s) under CPKC's tracks and within its ROW;
- 3.3 Specify minimum criteria to be met for CPKC's review;



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- 3.4 Ensure adequate subsurface information including geotechnical and groundwater information is available and an assessment by CPKC's geotechnical group or a CPKC approved service provider has been completed prior to providing approval; and
- 3.5 Allow timely processing of application for pipeline and utility crossing(s) approvals.

4.0 Emergencies

In the event of any occurrence due to construction/contractor activities that does or could pose a hazard, immediately contact CPKC Police at [1-800-716-9132](tel:1-800-716-9132).

5.0 Winter Work Restriction within CPKC ROW

No construction and installation of pipeline and utility crossing(s) that fall under the Geotechnical Protocol will take place between **December 15th and March 31st**. This restriction is particularly critical to areas where frost penetrates the ground and may make it difficult to observe surface settlement and loss of soil from underneath the track substructure due to misperception of a levelled frozen surface. Such conditions pose a risk to the stability of CPKC's track and its substructure during thawing season and are not acceptable.

In areas where the applicant does not consider frost as a potential risk, the applicant is required to assure and demonstrate to CPKC as to why winter work restriction is not applicable to their proposed work. Exceptions to winter work restriction will be evaluated on case by case basis.

6.0 Application Process Identification

To identify the applicable process, complete appropriate level of assessment and allow timely processing of a pipeline and utility crossing(s) proposal, the requirement criteria have been divided into three levels as identified in Table 1, i.e. Minimum, Intermediate and Detailed. These processes are categorized based on the size, cover, location and proximity of pipeline from tracks and other structures, and construction methodology of the proposed pipeline and utility crossing(s).

Applicant is expected to consult Table 1 to identify the level of effort and detail of submission required to meet CPKC review requirements for review. Details of each process are discussed in the following sections.



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Table 1 – Process Identification

		Process Levels		
		1. Minimum ¹	2. Intermediate	3. Detailed
Dimension Criteria	Outside diameter of pipe	Less than 300 mm (12 in.)	300 mm (12 inches) to 1500 mm (59 in.)	Greater than 1500 mm (59 in.)
	Cover between BOR and top of pipe	Greater than 1.5 m (5 ft.) or three pipe diameters whichever is greater.	Greater than 1.5 m (5 ft.) or two (2) pipe diameters whichever is greater.	Less than 1.5 m (5 ft.) or two (2) pipe diameters.
	Adjacent structures including switches and signals	Greater than 10 m (32.8 ft.) from centerline	Within 2.5 times, cover between BOR and top of pipe.	
	Depth of pipes outside ZPTL	Refer to SP-TS 2.39 All pipes will be at least 0.91 m (3 ft.) below ground (below sub-ballast layer) where pipes are not below the ZPTL.	Less than 0.91 m (3 ft.) burial within ZPTL.	
Excavation Criteria	Excavation close to CPKC track(s)	Jacking/access pits shall be more than 10 m (32.8 ft.) from the closest track centerline and shall not encroach on the ZPTL.	Excavations or jacking/access pits within 10 m (32.8 ft.) of the closest track centerline.	
	Crossing angle	Less than 45 degrees off perpendicular to the track.	More than 45 degrees off perpendicular to the track.	



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	Process Levels		
	1. Minimum ¹	2. Intermediate	3. Detailed
Construction Method	Trenchless method ²		All methods considered.
	Pipe bursting will only be considered where the predicted heave is less than 10% of the movement that would result in a change of the FRA or TC track class.		
Approval Process	Utility group to approve with no geotechnical submission.	Full review of design, geotechnical and construction method Applicant to pay for the review cost of CPKC approved service provider.	

¹ Move to next class if one or more criteria are not met.

² Trenchless methods include Auger Boring (AB), Pipe Jacking, Pipe Ramming (PR), Horizontal Directional Drilling (HDD) except high pressure fluid jetting method, Microtunnelling (MT) but exclude any type of mining techniques where any stand up time is required before the tunnel support is placed.

7.0 Minimum Information Requirements

7.1 All proposals for pipeline and utility crossing(s) approvals will be under the signature and seal of a locally registered professional Geotechnical Engineer referred to as Geotechnical Engineer of Record (GER). The objective is to ensure that a registered professional from applicant's design firm or organization is given the opportunity and responsibility to assess the site and subsurface conditions and demonstrates due diligence to assure CPKC that the proposal is appropriate for such conditions. This, however, depending on the complexity of design and proposal, may be in addition to the requirements of meeting industry standards or current regulatory requirements for structural integrity of the pipeline/utility. Such design will also require signature and seal by a professional geotechnical and/or structural engineer.

7.1.1 All applications to which the CPKC Geotechnical Protocol applies must include a separate retainer fee to cover costs incurred to the railway due to the project's activities, (such as but not limited to) resurfacing work, survey to obtain as-built drawings, site cleanup, and removal of settlement monitoring equipment. Retainer fee (or a portion thereof) is refundable if final stamped geotechnical



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construction summary report and stamped as-built drawing(s) are provided within six (6) months of completion of construction and post-construction monitoring.

- 7.2 The application package must include a construction plan that specifies the terms and conditions for the execution of the proposed work, including assignment of responsibility. The applicant of the crossing(s) is responsible to ensure that the work is executed in accordance with the terms of the agreement with CPKC. The drill path and installation of the jacking and receiving pits should be planned to have the least impact to railway operations. The jacking and receiving pits should be placed outside CPKC property and not be planned or excavated within the (ZPTL) - zone of potential track loading. Any exceptions to the placement of the pits will require additional reviews at the applicants expense.
- 7.3 **Engineering Drawings:** All pipeline and utility crossing(s) application packages will be accompanied by following documents, at minimum, showing features on drawings in true scale.
- 7.3.1 Plan of the proposed pipe and utility crossing(s) under the track (Appendix A, Figure 1). This drawing will show the following features:
- 7.3.1.1 Location of the crossing(s), referencing identifiable landmarks including Mileage and Subdivision of the proposed crossing(s) as per CPKC Subdivision naming and Mileage convention. Applicant can obtain the Mileage and Subdivision information from CPKC Utilities group; The title of the plan will include the subdivision name and mileage of the location.
 - 7.3.1.2 Pipe centerline, diameter, length, size, limits, thickness and material;
 - 7.3.1.3 Location of any adjacent structures including but not limited to signals, switches, culverts, other existing underground/buried services including Fibre Optics Transmission Systems (FOTS) and relevant distances from the centerline of the track(s);
 - 7.3.1.4 Location of the ditch line and any breaks in slope;
 - 7.3.1.5 Location of drilled boreholes or test pits from geotechnical investigation;
 - 7.3.1.6 Location of all tracks and distances from track centerline to the proposed work area location; and



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- 7.3.1.7 Location of all access pits, size, depth and details of support of excavation, if applicable.
- 7.3.2 Profile of the track and proposed pipeline and utility crossing(s) along the centerline of the track (Appendix A, Figure 2). The profile will show the following features:
- 7.3.2.1 Location of the crossing(s), referencing identifiable landmarks including Mileage and Subdivision of the proposed crossing(s) as per CPKC Subdivision naming and Mileage convention. Applicant can obtain the Mileage and Subdivision information from CPKC Utilities Group;
 - 7.3.2.2 Pipe centerline, diameter, length, size, limits, thickness and material;
 - 7.3.2.3 Location of any adjacent structures including but not limited to signals, switches, culverts, other existing underground/buried services including Fibre Optics Transmission Systems (FOTS) and vertical distance from BOR;
 - 7.3.2.4 Elevation of surface water in ditches, elevation of the ground water table in all boreholes and the date it was measured;
 - 7.3.2.5 Test pit/borehole locations along with the stratigraphic profile as determined through the geotechnical investigation;
 - 7.3.2.6 Depth of top of pipe to the BOR; and
 - 7.3.2.7 Location of all jacking/access pits, size, depth and details of support of excavation, if applicable.
- 7.3.3 Section of the track along the centerline of the proposed pipeline and utility crossing(s) (Appendix A, Figure 3). This drawing will show the following features:
- 7.3.3.1 Location of the crossing(s), referencing identifiable landmarks including Mileage and Subdivision of the proposed crossing(s) as per CPKC Subdivision naming and Mileage convention. Applicant can obtain the Mileage and Subdivision information from CPKC Utilities group;
 - 7.3.3.2 Pipe centerline, diameter, length, size, limits, thickness and material;



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- 7.3.3.3 Any adjacent structures including but not limited to signals, switches, culverts, other existing underground/buried services including FOTS and vertical distance from BOR;
 - 7.3.3.4 Elevation of surface water in ditches, elevation of the ground water table in all boreholes and the date they were measured;
 - 7.3.3.5 Test pit/borehole locations along with the stratigraphic profile as determined through the geotechnical investigation;
 - 7.3.3.6 Location of jacking or access pits and proposed cut slope angles;
 - 7.3.3.7 Location of the centerline of all tracks;
 - 7.3.3.8 Depth of the top of pipe to the BOR; and
 - 7.3.3.9 Any excavations that encroach on the ZPTL; Indicate ZPTL and distance from ground to the top of pipe.
 - 7.3.3.10 Cross-Sections of perpendicular to the track shall be displayed as viewing in the direction of increasing CPKC mileage; left and right-hand being so determined.
- 7.4 Geotechnical Investigation Report must be signed and sealed by a locally registered professional Geotechnical Engineer;
- 7.5 Settlement Monitoring Plan indicating layout and types of settlement monitors to be installed, frequency of measurements, alarm thresholds i.e. "Alert" and "Critical" thresholds, reporting protocol, and immediate actions to take when required. General track movement monitoring guidelines are provided in Appendix C.
- 7.6 Other Information: This includes information related to additional design and requirements based on the ground conditions and proposed construction. This may include excavation support/shoring, dewatering requirements etc. If required, complete design and relevant drawings will be required.
- 7.7 Applicant is expected to restore the site to its original condition.



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- 7.8 Proposals for open cut is not a preferred method of installation. This, however, will be assessed on a case by case basis, and prior written approval from CPKC is required for any exceptions.
- 7.9 Installations using high pressure fluid jetting will not be considered.
- 7.10 The cost of remediation incurred to CPKC as a result of pipeline and utility crossing(s) construction and installation and related activities will be borne by the crossing(s) applicant. Some of the issues include settlement or soil heave induced by the crossing(s) installation during and after the construction and may be partially offset by the geotechnical retainer fee.
- 7.11 All pipelines and utilities installed below the highest ground water level predicted will be sealed during construction.
- 7.12 All pipelines that will or could carry water shall be:
- 7.12.1 Installed with even bearing throughout its length to limit local settlement; and
 - 7.12.2 Sloped to one end and prevent standing water. Special exemptions will be considered for inverted siphons or other applications requiring level pipes.

8.0 Process 1 – Minimum

8.1 Criteria

The general requirements included in Table 1 in conjunction with the following requirements must be met to obtain approval for a pipeline and utility crossing(s) that qualifies as a Process 1 crossing(s).

Table 2: Process 1 – Minimum

Dimension Criteria	
Outside pipe diameter	Less than 300 mm (12 in.)
Cover between BOR and top of pipe	Greater than 1.5 m (5 ft.) or three pipe diameters whichever is greater.



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Adjacent structures including switches and signals	Greater than 10 m (32.8 ft.) centerline.
Depth of pipes outside ZPTL	Refer to SP-TS 2.39 All pipes will be at least 0.91 m (3 ft.) below ground where pipes are not below the ZPTL.
Excavation Criteria	
Excavation close to CPKC track(s)	Jacking/access pits shall be more than 10 m (33 ft.) from the closest track centerline and not encroach on the ZPTL.
Crossing angle	Less than 45 degrees off perpendicular to the track.
Construction Method	
1. Trenchless method ¹ 2. Pipe bursting will only be considered where the predicted soil heave is less than 10% of the movement that would result in a change of the FRA or TC track class.	

¹ Trenchless methods include Auger Boring (AB), Pipe Jacking, Pipe Ramming (PR), Horizontal Directional Drilling (HDD) except high pressure fluid jetting method, Microtunnelling (MT) but exclude any type of mining techniques where any stand up time is required before the tunnel support is placed.

8.2 Application Requirements

- 8.2.1 The applicant will provide documents and drawings containing the information identified in Section 7.0.
- 8.2.2 Generally, an installation that falls under the minimum review detail level does not require a geotechnical investigation. However, in areas with poor subsurface soil conditions or where failures have occurred with similar pipe crossings, CPKC reserves the right to request a Geotechnical investigation to be conducted in order to proceed with the proposed pipe installation. In situations where a pipe is below the 300mm OD threshold, but the borehole size is 300mm or larger, a Geotechnical investigation is required. Voids between the bore and outside casing are to be filled with non-shrinkable material.



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- 8.2.3 Even if not required by CPKC, a geotechnical investigation may be completed at the discretion of the applicant.

8.3 Application Review and Approval Process

- 8.3.1 Applicant submits engineering documents to CPKC Utilities.
- 8.3.2 CPKC Utilities reviews documents to ensure applicable and complete engineering documents are provided.
- 8.3.3 An assessment is completed by CPKC Utilities to provide decision/approval documentation.

9.0 Process 2 – Intermediate

The Intermediate process pertains to those proposed pipeline/track crossing(s) that exceed the minimum criteria but do not exceed the maximum criteria. The applicant will be required to submit information for review and approval by CPKC Utilities Department or a CPKC approved service provider but may be subjected to additional engineering, monitoring, and construction requirements.

9.1 Criteria

The general requirements included in Table 1 in conjunction with the following requirements must be met to obtain approval for a pipeline and utility crossing(s) that qualifies as a Process 2 crossing(s).

Table 3: Process 2 – Intermediate

Dimension Criteria	
Outside pipe diameter	300 mm (12 in.) to 1500 mm (59 in.)
Cover between BOR and top of pipe	Greater than 1.5 m (5 ft.) or two (2) pipe diameters whichever is greater.



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Adjacent structures including switches and signals	Within 2.5 times, cover between BOR and top of pipe.
Depth of pipes outside ZPTL	Less than 0.91 m (3 ft.) burial within ZPTL.
Excavation Criteria	
Excavation close to CPKC track(s)	Excavations or jacking/access pits within 10 m (32.8 ft.) of the closest track centerline.
Crossing angle	More than 45 degrees off perpendicular to the track.
Construction Method	
	1. Trenchless method ¹ 2. Pipe bursting will only be considered where the predicted soil heave is less than 10% of the movement that would result in a change of the FRA or TC track class.

¹ Trenchless methods include Auger Boring (AB), Pipe Jacking, Pipe Ramming (PR), Horizontal Directional Drilling (HDD) except high pressure fluid jetting method, Microtunnelling (MT) but exclude any type of mining techniques where any stand up time is required before the tunnel support is placed.

9.2 Application Requirements

- 9.2.1 Identification of the Geotechnical Engineer of Record (GER). The GER will be responsible for the proposed works on CPKC's ROW from project start up to project closeout including submission of construction summary report and as-built drawing.
- 9.2.2 Description of the subsurface soil and ground water conditions within and adjacent to CPKC embankment along the proposed pipe/track crossing alignment and to a depth no less than 1.5 times the invert depth below the BOR.



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This will consider the impact of silt, fine sand or sand soil, and their relation to the water table and pipe depth. First set of deep monitoring points to be placed on either side of the outside rail at 2m distance off track centerline. Additional deep monitoring points to be placed at the toe of slope and at end points of ZPTL. Signal and fibre locates to be completed before installing any settlement monitoring equipment in the railway right of way.

- 9.2.3 An estimate of the expected extent and magnitude of ground movement over time based on the proposed pipe installation method will be provided.
- 9.2.4 A program of ground surface and subsurface (settlement plates) movement monitoring will be implemented. The program must be capable of detecting movement of no less than 50 percent of the movement that would result in a change of the track class as determined by the FRA or TC track safety rules. A real-time remote settlement monitoring system should be used, aiding in reduction of requirements for overnight railway flagging protection when work is paused, but within the ZPTL. Manual methods of gathering settlement monitoring readings (such as rod and level) will only be entertained with prior approval.
- 9.2.4.1 A GIMP (Geotechnical Instrumentation and Monitoring Plan) system will be required if installation is occurring within the zone of potential loading of rail bridge supporting piers or abutments. The instrumentation installed is intended to monitor short and long term embankment performance, along with settlement and stability due to the subsurface site conditions and the nature of the proposed construction activities.
- 9.2.5 A procedure for notification of the appropriate CPKC personnel in the event that excessive or unexpected settlement occurs. A complete 24 Hour CPKC Emergency contact list, including local personnel and OC will be compiled and in place before any work proceeds within the railway right of way.
- 9.2.6 A recovery plan will be provided outlining the steps to be implemented in the event of failure (excessive ground loss or settlement / collapse, heaving etc).
- 9.2.7 Design of de-watering control measures where applicable for the proposed construction method.
- 9.2.8 Temporary track support system will be required if any of the excavation is closer than 6 m (19.7 feet) from the centre of track and encroaches on the zone of potential track loading. The length of the excavation and an estimated stand-up



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time of the proposed cut within these limits must be provided and demonstrated to be safe.

- 9.2.9 A complete description of the proposed construction method.
- 9.2.10 Confirmation that the proposed construction/installation technique is suited to the site conditions and performance criteria. An assessment of the influence of construction on the track structure including estimated settlement/heave and assessment of risk associated with uncontrolled loss of ground or heaving.
- 9.2.11 Based on CPKC's review of the conditions, CPKC Geotechnical group may elevate a proposed crossing to Process 3 if deemed necessary.
- 9.2.12 A qualified independent CPKC approved engineer is required to provide periodic or continuous (at the discretion of CPKC) on-site supervision and document conditions during construction.

9.3 Application Review and Approval Process

- 9.3.1 Applicant submits engineering documents and **utility crossing application** to the CPKC Utilities Department.
- 9.3.2 CPKC Utilities Department reviews documents to check if appropriate **and accurate** engineering documents have been provided.
- 9.3.3 CPKC approved **Geotechnical** service provider to review initially & sign off on behalf of CPKC at applicant's expense. CPKC Geotechnical to provide final geotechnical approval.
- 9.3.4 CPKC Structural Engineering Group may have to provide structural approval, if required.
- 9.3.5 CPKC Utilities Department – To provide final decision or approvals.

10.0 Process 3 – Detailed

Process 3 will be applicable to those crossing(s) applications that do not meet the conditions of Process 2. In this case, expert engineering submissions are required, along with additional work such as dewatering as well as monitoring by on site engineering consultants during construction.



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10.1 Criteria

The general requirements included in Table 1 in conjunction with the following requirements must be met to obtain approval for a pipeline crossing(s) that qualifies as a Process 3 crossing.

Table 4: Process 3 – Detailed

Dimension Criteria	
Outside pipe diameter	Greater than 1500 mm (59 in.)
Cover between BOR and top of pipe	Less than 1.5 m (5 ft.) or two (2) pipe diameters.
Adjacent structures, switches and signals	Within 2.5 times, cover between BOR and top of pipe.
Depth of pipes outside ZPTL	Less than 0.91 m (3 ft.) burial within ZPTL.
Excavation close to CPKC track(s)	Excavations or jacking/access pits within 10 m (33 ft.) of the closest track centerline.
Excavation Criteria	
Excavation close to CPKC track(s)	Excavations or jacking/access pits within 10 m (30 ft) of the closest track centerline.
Crossing angle	More than 45 degrees off perpendicular to the track.
Construction Method	



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All methods considered

Ground conditions, complex installation method, and/or the complexity of the project warrant that specialist-engineering personnel review the design and or construction of the pipe/track crossing(s).

10.2 Application Requirements

10.2.1 The applicant will meet the requirement outlined in Process 2 - Section 9.2.

10.2.2 The applicant will provide resources for CPKC to retain CPKC approved service provider(s) or experts(s) to assess and review the application and advise CPKC on the impact of the applicant's proposal on CPKC ROW.

10.3 Application Process and Approval Process

10.3.1 Applicant submits engineering documents to CPKC Utilities. All applications will be processed as per the procedure outlined in Section 9.3.

11.0 Pre-Construction Meeting Requirement

Prior to commencement of any work within CPKC property/ROW, the Geotechnical Engineer of Record (GER) or their designate shall arrange a pre-construction meeting at least thirty days before with all stakeholders to discuss project and construction details including work description, construction methods and schedule, restrictions, safety, hours/days of work, start time, Daily Reporting & other CPKC requirements and agreed upon Protocols governing Extreme Weather/Rainfall Warning Alerts issued from Local/National weather offices. This may mean that drilling operations ceases until these Alerts are no longer in effect. It is the responsibility of the GER or their designate to ensure that flagging protection has been arranged for the duration of the project, all construction oversight and track settlement monitoring review has been arranged with CPKC approved service provider and that the expectations have been clearly communicated before construction commences.

12.0 Daily Inspection & Reporting during Construction

This section is applicable to Process Levels 2 and 3 application proposals. The agreement holder or applicant will identify a Geotechnical Engineer of Record (GER) responsible for the complete work and installation of proposed crossing/excavation within CPKC ROW from start to finish. The Geotechnical Engineer of Record may assign a competent/trained person to act as Site



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Inspector/Engineer who will be present onsite during the full duration of the bore or any other ground disturbance activity within railway operating corridor, unless, otherwise directed by CPKC Utilities Supervisor. Depending on the complexity of the installation and or field issues encountered during the installation that may adversely impact CPKC Infrastructure, CPKC may, at their discretion, assign a full time Geotech Monitor, of their choice, to be on site, at the Applicant's expense.

CPKC flagger or assigned representative must be present at all times when working or drilling within CPKC property or rail operating corridor. **No movement of pipe within the ROW or ZPTL is permitted without the presence of a CPKC flagger unless prior written approval from CPKC for an exemption has been provided.** The Site Inspector/Engineer must have the required training, experience and understanding of the site conditions, proposed design, and construction methodology to make sound engineering judgement and decisions, and reports during the course of the work.

The Site Inspector/Engineer must ensure that the work is being carried out in accordance with the approved designs, permits and procedures, and/or relevant specifications. The Site Inspector/Engineer must immediately report any issues encountered during construction work and could have an impact on CPKC assets and its operations. Some examples include instability or potential of instability of the embankment or potential ground settlements either future or immediate.

Any concerns about the imminent stability of the grade shall immediately be escalated to CPKC Flagger or representative in order to protect against train operations. In addition, refer to CPKC 24 Hour Emergency Contact list to use in case of emergency. The concerns shall also be escalated to the GER and CPKC Utilities supervisor so immediate remediation plans can be implemented.

The Site Inspector/Engineer will provide a daily report to CPKC approved service provider, copying CPKC Utilities supervisor, CPKC's Director Geotechnical Engineering and the GER, outlining the progress during the day, any deviations from the original plans, any unexpected ground conditions, or any issues that were encountered during the construction. The report shall also contain relevant information that assures CPKC that the field activities are being monitored and documented to ensure that the installation is proceeding in accordance with approved plans and no unexpected conditions/issues are expected. Some examples of relevant information examples include some of the following information:

- A quantitative estimation of amount of material removed versus theoretical material;
- Auger location - Location of both, the leading edge of the pipe and the location of the leading edge of the auger should be documented;



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- A description of the progress and any observations or issues encountered during the pipe installation including geologic conditions, change in material composition, characteristics, etc.

The daily report will also include all settlement monitoring data, along with any pertinent photos. If applicable, this report will also make notes and highlight any measures taken for “out of compliance” practice or when conditions requiring attention are expected or encountered. See Appendix B for a Sample Report.

A mid-day report should also be submitted by 13:00 local time each day until installation clears the railway right of way and no further movement is occurring due to the installation activities. This requirement can be reviewed and waived if agreed upon by all parties during the preconstruction meeting.

Upon completion of the construction and installation of pipeline and utility crossing(s), the GER will provide a final sealed and stamped letter/construction report to CPKC approved service provider with a copy to CPKC Utilities supervisor confirming that the work has been completed in accordance with the approved plans and procedures. If there are any deviations from the approved plans/procedures, these must be noted in the final letter/report. As-built stamped drawings are to be submitted to the CPKC Utilities Department along with final settlement data collected and correspondence.

All costs associated with above mentioned i.e. complete geotechnical review, track settlement monitoring, flagging and construction oversight provided CPKC approved service provider will be borne by the applicant.

A contract between CPKC approved service provider(s) and the applicant must be place before proceeding with this work proposal.

13.0 Review Steps

The following is a checklist of steps that will be completed to ensure that the appropriate level of care has been taken for Process 2 and 3 pipe crossings below the track.

Table 5 – Review Steps

No.	Step	Action/Review by



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No.	Step	Action/Review by
13.1	Submission of crossing(s) proposal by applicant including details of the crossing(s) specification and potential construction method(s) to CPKC Utilities.	Applicant
13.2	Review of the proposal as per this protocol to determine what level of geotechnical engineering and review is required.	CPKC Utilities
13.3	Designation of review i.e. CPKC approved service provider. (ASP)	CPKC Utilities
13.4	Identification of the Applicant's Geotechnical Engineer of Record.	CPKC Geotech Engineering/ASP
13.5	Assessment of adequacy of the geotechnical investigation and other required information.	CPKC Geotech Engineering/ASP
13.6	Applicant's geotechnical engineer determines that the proposed construction/installation method will not cause settlement of the CPKC track or structures.	CPKC Geotech Engineering/ASP
13.7	Settlement monitoring program, if required and developed by the applicant's geotechnical engineer.	CPKC Geotech Engineering/ASP
13.8	Once a contractor has been selected, the Geotechnical Engineer of Record (GER) will review the shop drawings submitted by the contractor or the sub-contractor(s) to determine if the tunnelling and dewatering (if required) method proposed could cause track settlement.	CPKC Geotech Engineering/ASP
13.9	Applicant will provide CPKC with written documentation of who will be completing the onsite review of the contractor's construction practice and the specifics of the assignment.	CPKC Geotech Engineering/ASP
13.10	Applicant will enlist the services of a Geotechnical Engineer of Record (GER) with the responsibility for inspection of the tunnelling contractor's work. They will also assure that adequate measures are in place to minimize the potential for track settlement. The intention is to assign an appropriate group with the task of assuring that actions undertaken by the contractor do not endanger the track structure because of ground loss during tunneling which may affect CPKC Train operations.	CPKC Geotech Engineering/ASP
13.11	An emergency response will be developed and posted on site and will reside with key personnel.	CPKC Geotech Engineering/ASP
13.12	A contingency plan will be prepared and submitted by Tunneling contractor prior to start of construction, identifying tasks/activities that can be completed within hours to get track back in service, if	CPKC Geotech Engineering/ASP



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No.	Step	Action/Review by
	significant track settlement is experienced.	
13.13	24 Hour Emergency Contact List to be provided prior to commencement of construction.	CPKC Utilities

14.0 Abandoned Pipe/Track Crossing(s)

In the event that an existing installation is abandoned or a proposed crossing(s) is abandoned during construction, all potential hazards to CPKC property must be removed or abated. This may be achieved by removal of any buried pipes and the backfill and compaction of any excavations. Alternately, upon approval of the CPKC Geotechnical group any voids within ground may be backfilled with non-shrinkable fill, or pressured grout sufficient to prevent future sloughing or track settlement. Any buried material (wood or metal) that could increase or decrease volume over time due to chemical reaction (oxidation) or decomposition must be removed or stabilized to the satisfaction of CPKC.



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Appendix A

SAMPLE DAILY REPORT AND SETTLEMENT REPORT

SAMPLE DAILY REPORT

PROJECT INFORMATION

Project Name: _____ Date: July 11, 2019

Location: _____ Contractor: _____

Client: _____ Site Rep: _____

DAILY SUMMARY

Excavation Details:

[i.e., depth, sideslopes, trench boxes, sloughing, etc.]

No additional casing installed today. No sloughing of CPR embankment noted. See attached sketch.

Construction Summary:

[i.e., soil type, issues, etc.]

Contractor attaching shoes (wedges) to the casing exterior near the casing head behind the gravel plug (approx. station 0+031). One shoe on track west side of casing approx. 250 mm X 300 mm X 50 mm(deep outside of casing). One shoe on bottom of casing approx. 275 mm X 300 mm X 25 mm(deep outside of casing).

Cumulative Settlement Movement (mm):

☒ Minimal Movement (<8) ☐ Level 1 – Warning (≥8 to <16) ☐ Level 2 – Critical (≥16)

Compliance with Design:

☐ Yes ☒ No If No, discuss below

Issues with Installation:

☒ Yes ☐ No If Yes, discuss below

Other Notes, if any:

Casing was out of alignment by approximately 40 mm track west and 25 mm lower than designed location at about station 0+031. Contractor attaching shoes (wedges) to the casing exterior near the casing head behind the gravel plug (approx. station 0+031) for alignment correction.

Prepared By: _____

Reviewed By: _____



CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks

SAMPLE DAILY SETTLEMENT MONITORING REPORT

SETTLEMENT MONITORING

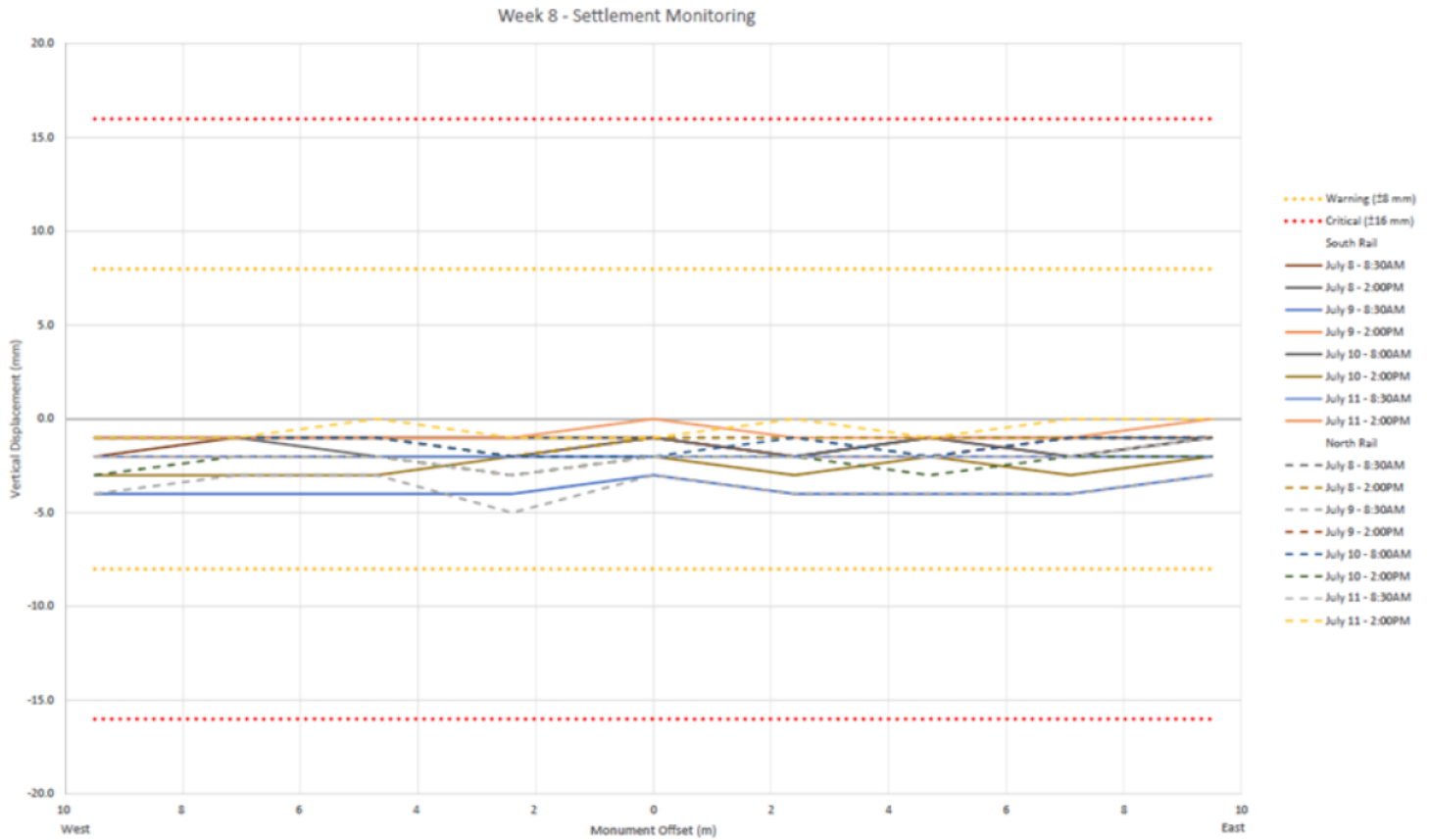
Surveyor: D. Makowsky (Stantec) **Date:** July 11, 2019 **CPR Flagman:** Kaspai Jaswal
Weather: Sunny **Temperature:** 16°C at 8:30 am; 27°C at 2:00 pm

*Survey locations along the top of the rails. **Baseline elevation is average of 2 surveys on June 12, 2019. ***Positive numbers correspond to heave and negative numbers correspond to settlement

Rail Location	Location Description and Monument ID*	Baseline Elevation (m)**	Reading 1			Reading 2		
			Time	Elevation (m)	Cumulative Movement (mm)***	Time	Elevation (m)	Cumulative Movement (mm)***
South Rail	9.45 m East (S9)	1034.587	8:30 am	1034.585	-2	2:00 pm	1034.587	0
	7.08 m East (S8)	1034.593		1034.591	-2		1034.592	-1
	4.72 m East (S7)	1034.597		1034.595	-2		1034.596	-1
	2.36 m East (S6)	1034.601		1034.599	-2		1034.600	-1
	Centerline (S5)	1034.605		1034.603	-2		1034.605	0
	2.36 m West (S4)	1034.612		1034.610	-2		1034.611	-1
	4.75 m West (S3)	1034.618		1034.616	-2		1034.617	-1
	7.08 m West (S2)	1034.622		1034.620	-2		1034.621	-1
	9.45 m West (S1)	1034.626		1034.624	-2		1034.625	-1
North Rail	9.45 m West (N1)	1034.624		1034.622	-2		1034.623	-1
	7.08 m West (N2)	1034.621		1034.619	-2		1034.620	-1
	4.75 m West (N3)	1034.617		1034.615	-2		1034.617	0
	2.36 m West (N4)	1034.612		1034.609	-3		1034.611	-1
	Centerline (N5)	1034.604		1034.602	-2		1034.603	-1
	2.36 m East (N6)	1034.599		1034.597	-2		1034.599	0
	4.75 m East (N7)	1034.597		1034.595	-2		1034.596	-1
	7.08 m East (N8)	1034.590		1034.588	-2		1034.590	0
	9.45 m East (N9)	1034.586		1034.585	-1		1034.586	0



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CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks

SAMPLE TRENCHLESS INSTALLATION MONITORING REPORT

TRENCHLESS INSTALLATION MONITORING

Equipment:	Air Hammer	Operator:	Jorden Calgary Tunneling
Casing Pipe Diameter:	750 mm	16 mm overcut on casing head	
Date:	July 11, 2019	2m plug at casing head during installation	

Date	Segment No.	Segment Length (m)	Station Interval along the Face of Installation	Length of Pipe Installed (m)	Distance of Head to CL Track (S or N) (m)	Soils Condition/Description
July 7, 2019	1	6.0	0+015	6.0	18 m N	Gravel, sandy, some silt, trace clay. Dry
July 8, 2019	2	6.0	0+021	6.0	12 m N	Gravel, sandy, some silt, trace clay. Dry
July 9, 2019	3	6.0	0+027	6.0	6 m N	Gravel, sandy, some silt. Damp
July 9, 2019	4	6.0	0+033	6.0	0 m (CL Track)	Gravel, sandy, some silt. Damp
July 10, 2019 July 11, 2019						No casing installed, contractor attaching shoes (wedges) to casing at station 0+031



CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks





CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks

Appendix B

TRACK MOVEMENT MONITORING GUIDELINES FOR TRENCHLESS PIPE INSTALLATION

Track Movement Monitoring Guidelines for Trenchless Pipe and Utility Crossing(s) Installation under Railway Tracks

The monitoring of track settlement should be carried out by means of surface and subsurface settlement points. The intent of subsurface settlement points is to measure voids created just in the vicinity and above the pipe during construction in order to predict the potential movement of overlying CPKC tracks.

The settlement point essentially consists of a small diameter pipe anchored at the bottom of a vertical borehole and an outer casing to isolate the pipe from down drag forces caused by settlement of soil above the anchor (see Figure B). The subsurface settlement points would be installed to 1 m above the crown of the casing profile. The total number of subsurface settlement points within CPKC Right-of-Way (ROW) along the axis of the proposed pipe crossing(s) would be installed as per the configuration shown in Figure A – Sample Surface and Subsurface Settlement Monitoring Layout.

Surface points installed directly along the base of both rails at a spacing of 9.45 m (31 ft.) over the projected settlement trough would be used to monitor differential transversal elevation between both rails. The total number of surface settlement points within CPKC ROW would be installed as per the configuration shown in Figure A – Sample Surface and Subsurface Settlement Monitoring Layout. These points shall be monitored simultaneously with the subsurface settlement points that would act as a precursor to potential surface movement during pipe installation.

Once the installation is complete, a monitoring program of all points is to be carried out in accordance with the following instructions:

1. Monitoring should start before the excavation of the pits and pipe installation begins and readings should be taken at least twice per day for no less than two days. This is required to establish a reliable methodology and demonstrate the accuracy to be achieved.
2. Monitoring should proceed through the construction period and should be completed:
 - 1) For branch lines/lines with low traffic - (Class 1-2 Track) - At least twice daily.
 - 2) For main lines and heavy traffic lines – (Class 3-5 Track) Every 2 hours and before and after each train, whichever provides the most number of readings while the boring operation is within the ZPTL (Zone of Potential Track Loading).



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3. Monitoring should continue for at least 3 days after the completion of construction.
4. If there is any loss of ground during pipe installation, any reason to believe settlement may be delayed or any settlement is identified during the installation of pipe or subsequent monitoring period, the monitoring must be continued until the applicant's Geotechnical Engineer of Record deems it is safe to discontinue such monitoring. This must be approved by CPKC Geotechnical Engineering group or CPKC approved service provider reviewing the monitoring results.

Monitoring measurements should be taken with sufficient frequency (as noted above) to capture the unexpected performance at the earliest possible stage and be evaluated in a timely manner. Additional measures will be proposed should this monitoring protocol be considered insufficient based on the ground conditions or installation process. Track survey preference would be for survey shots to be taken remotely (i.e. off CPKC property) and without the requirement of a CPKC Flagger or representative presence on site.

Two alarm levels are proposed:-

Level 1:

ALERT – (Review Threshold) must be indicated on the field memo/report when a settlement of **50 (%)** of the critical monitoring threshold is obtained from the subsurface and/or surface settlement points. A survey of the surface points will then be carried out and work will be authorized to continue if no movement of the subsurface point has been measured from the previous reading. If movement of the rails is recorded, monitoring will be continued until rail movement is stopped. At this point, the drilling work will then be authorized to continue. See Figure C – Track Settlement Monitoring Review and Alert Threshold for Threshold values per Class of Track designation. Please contact CPKC Utilities Supervisor to obtain Class of Track designation pertaining to the proposed Utility Crossing location. CPKC Geotechnical Engineer/Utility Supervisor should be called to discuss these findings in order to discuss next steps.

Level 2:

CRITICAL – (Stop Work) - Installation **must** come to an immediate stop if monitoring points trigger Critical levels.

Above information must be indicated on the field memo/report when a settlement of specified monitoring threshold is obtained from the subsurface settlement point. A survey of the surface points will then be carried out and work will be authorized to continue if no movement is measured for at least two (2) readings taken 12 hours apart. If movement of the rails is recorded, monitoring will be continued until movement is stopped and the applicant has submitted a new pipe installation procedure. This procedure must be reviewed and approved by CPKC Geotechnical Engineering group or CPKC approved service provider reviewing the monitoring results.

The applicant and their Geotechnical Engineer of Record are responsible for ensuring that track settlement does not occur and for notifying CPKC Roadmaster or their designate, as indicated

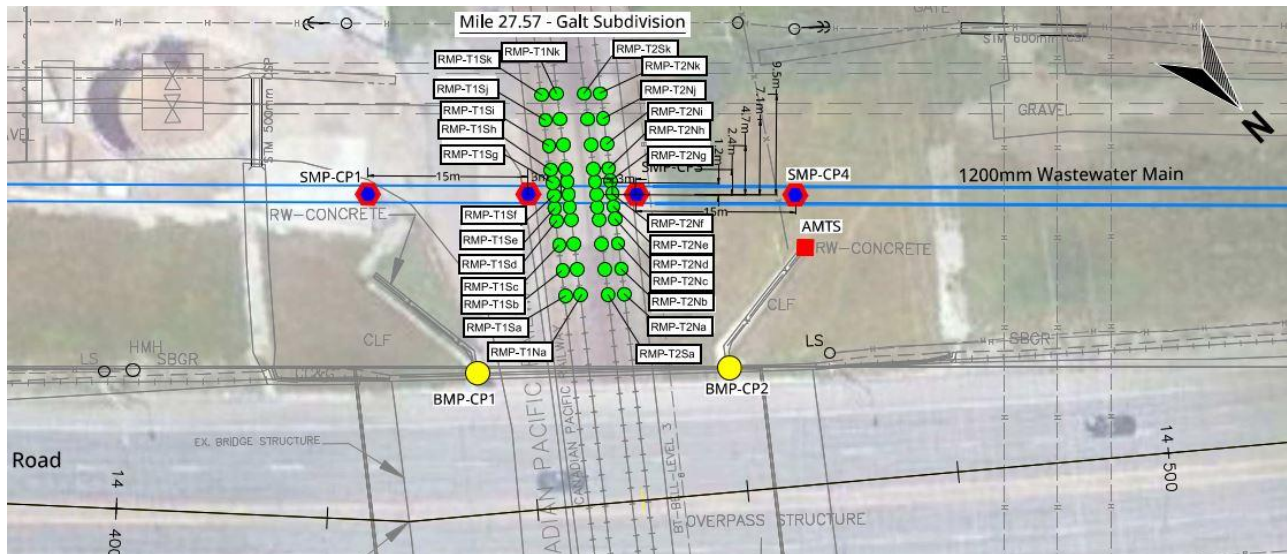


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on the 24 Hour Emergency Contact List, should unforeseeable track settlement occur or be expected.

The above guidelines do not relieve the applicant and their engineer(s) of this responsibility. The applicant or their engineer(s) shall provide the settlement information and their interpretation of the data including information such as. no track settlement, deep settlement etc., a quantitative number of how much track settlement has occurred, is likely to occur and when it is likely to occur. This information should be provided in easily understandable terms for all parties involved in the construction and monitoring and should be directed to local CPKC Roadmaster, CPKC approved service provider, Supervisor – CPKC Utilities and Director of Geotechnical Engineering.

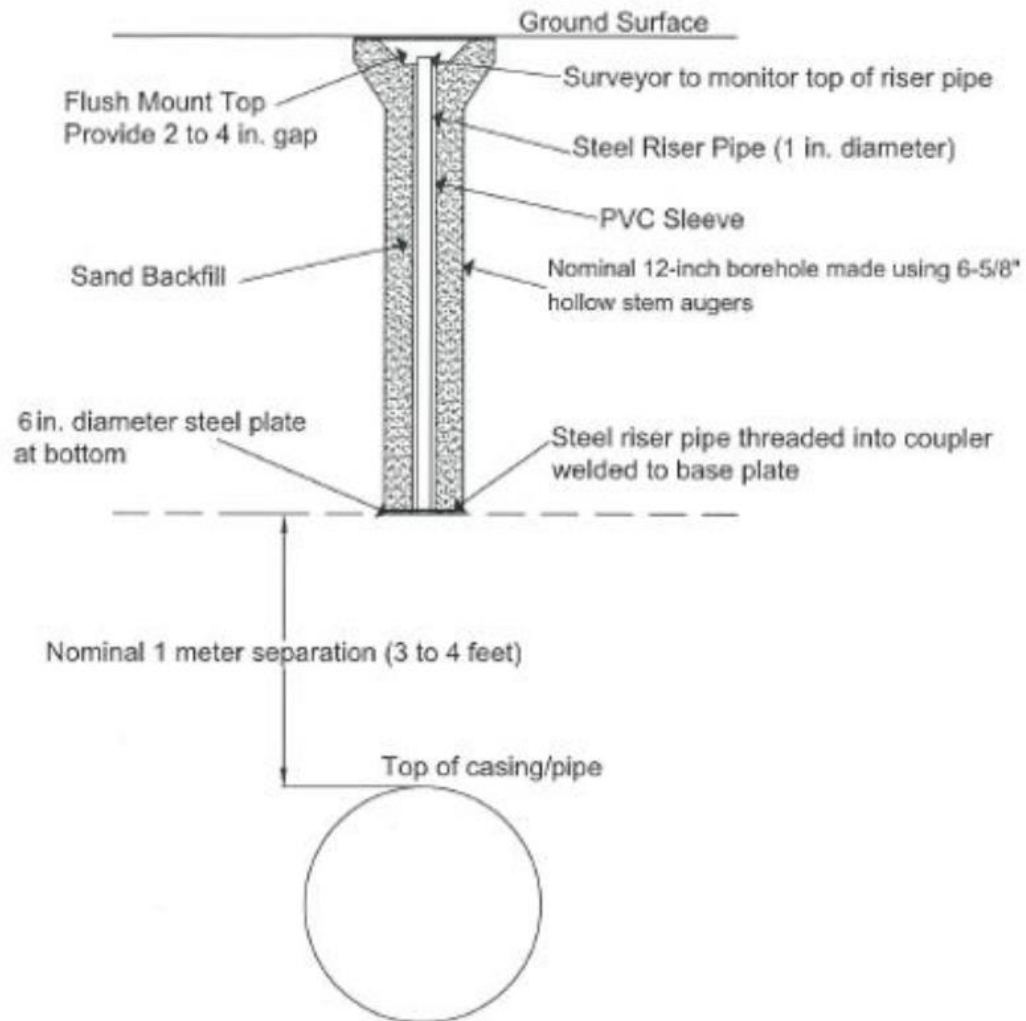
SAMPLE TRACK SETTLEMENT MONITORING DRAWING





CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks

Figure A - Sample Surface and Subsurface Settlement Monitoring Layout





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Figure B – Track Settlement Monitoring Critical and Alert Thresholds (Surface and Subsurface)

<u>Class of track</u>	<u>Critical Threshold</u>	<u>Alert Threshold</u>
1	22 mm	11 mm
2	22 mm	11 mm
3	19 mm	10 mm
4	16 mm	8 mm
5	13 mm	6 mm
6	10 mm	5 mm

Note – All above numbers are maximum values

Class of Track

TRACK CLASSES

Class	Freight Train Speed	Passenger Train Speed
1	10 MPH	15MPH
2	25 MPH	30 MPH
3	40 MPH	60 MPH
4	60 MPH	80 MPH
5	80 MPH	95 MPH* 90 MPH **
*Denotes for LRC trains – 100 MPH	** - Applies to US only	Note – Numbers above are maximum values



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Appendix C

ADDITIONAL NOTES & INSTALLATION REQUIREMENTS

1. Many of CPKC's properties contain buried parallel fibre optic networks. CPKC will supply the appropriate 1-800 numbers to call to ensure the protection of these fibre lines when crossing. The applicant must arrange with the various fibre maintenance providers for the proper hand digging and exposure of the fibre cable prior to commencing construction. No pipelines or cable crossings are to be installed at less than 1 vertical meter above or below the fibre cables, and no buried parallel occupancies, poles or anchors are to be located within 3 horizontal meters of the fibre optic cables.
2. In absolutely no instance is the utility to be installed without receiving prior approval from CPKC and arranging with the Utilities group for track protection. Any contractors entering the property prior to making these arrangements or without the presence of a CPKC representative will be subject to immediate and lengthy work stoppages by the railway.



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CASING AND INSTALLATION OF LONGITUDINAL PIPES, AND PIPES IN CLOSE PROXIMITY TO BRIDGES AND IMPORTANT STRUCTURES:

The AREMA Specifications address pipeline installation in proximity to railway bridges with the following clauses:

1. Pipelines shall be located, where practicable, to cross tracks at approximately right angles thereto but preferably at not less than 45 degrees and shall not be placed within culverts nor under railway bridges where there is a likelihood of restricting the area required for the purposes for which the bridges or culverts were built, or of endangering the foundations.
2. Pipelines laid longitudinally on railway rights-of-way shall be located as far as practicable from any tracks or other important structures. If located within 25 feet (7.62M) of the centerline of any track or where there is danger of damage from leakage to any bridge, building or other important structure, the carrier pipe shall be encased or of special design as approved by the engineer.

Whereas the AREMA specifications require that longitudinal pipelines, and those in proximity to a bridge or other important structure be encased if within 7.62 M of the track or structure, or of special design as approved by the engineer, should the pipeline be encased;

1. CPKC requires that the length of the casing pipe adjacent to a track shall be for the full length of pipe falling within the 7.62 M distance from the track, and
2. If adjacent to a bridge or structure, the casing pipe must extend to the point where the end of the casing pipe is a minimum of 7.62 M beyond the nearest points of the structure or bridge foundation.

In all cases, the design engineer must be confident that the depth, ground conditions and method of installation used will not in any way interfere with the integrity of the track bed and/or adjacent foundations and they must also provide CPKC with a stamped design plan or report, detailing the installation methodology to be used.



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The following tables may be used for water, sewer, steam and non-flammable substances, and are Metric versions of the tables contained in the AREMA manual.

Minimum Wall Thickness for Steel Casing Pipe for E80 Loading:

Diameter (mm) less than or equal to	When coated or cathodically protected Nominal Thickness (mm)	When not coated or cathodically protected Nominal Thickness (mm)
324	4.77	4.77
356	4.77	6.35
406	5.59	7.14
457	6.35	7.92
559	7.14	8.74
610	7.92	9.53
660	8.74	10.31
711	9.53	11.13
762	10.31	11.91
813	11.13	12.70
914	11.91	13.49
965	12.70	14.27
1016	13.49	15.09
1067	14.27	15.88
1168	15.09	16.66
1219	15.88	17.48
1270	16.66	18.26
1321	17.48	19.05
1372	18.26	19.84
1473	19.05	20.62
1524	19.84	21.44
1575	20.62	22.23
1626	21.44	23.01
1727	22.23	23.83
1778	23.01	24.61
1829	23.83	25.40

Note: The length of steel casing pipe in this table and the steel carrier pipe in the following table must be as per CPKC Specification 2.39 Appendix A.

The inside diameter of the casing pipe must be at least 50.8 mm larger than the outside diameter of the carrier pipe if the carrier pipe is 152.4 mm or less. For all carrier pipes with outside diameters in excess of 152.4 mm, the inside diameter of the casing pipe must be at least 101.6 mm larger than the outside diameter of the carrier pipe.



CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks

The following Tables give the minimum thickness for steel carrier pipe for E80 loading.

Note: The length of the steel carrier pipe in these tables must be as per CPKC Specification 2.39 Appendix A. Additionally, all carrier pipes that are not provided with cathodic protection, (impressed current or sacrificial anode) must be a minimum of 1.59 mm thicker than shown in these tables.

Dia. (mm)	Minimum Yield Strength (mPa) > =					Minimum Yield Strength (mPa) > =				
	241	290	358	414	483	241	290	358	414	483
	MAOP < = 689 kPa					MAOP < = 1379 kPa				
<=457.2	4.77	4.77	4.77	4.77	4.77	4.77	4.77	4.77	4.77	4.77
508	5.56	5.56	5.56	5.56	5.56	5.56	5.56	5.56	5.56	5.56
558.8	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74	5.74
609.6	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35
660.4	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14
711.2	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14
762	7.92	7.92	7.92	7.92	7.92	7.92	7.92	7.92	7.92	7.92
812.8	8.74	8.74	8.74	8.74	8.74	8.74	8.74	8.74	8.74	8.74
863.6	8.74	8.74	8.74	8.74	8.74	8.74	8.74	8.74	8.74	8.74
914.4	9.53	9.53	9.53	9.53	9.53	10.31	9.53	9.53	9.53	9.53
965.2	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31	10.31
1016	10.31	10.31	10.31	10.31	10.31	11.91	10.31	10.31	10.31	10.31
1066.8	10.31	10.31	10.31	10.31	10.31	12.7	10.31	10.31	10.31	10.31

Dia. (mm)	Minimum Yield Strength (mPa) > =					Minimum Yield Strength (mPa) > =				
	241	290	358	414	483	241	290	358	414	483
	MAOP < = 11721 kPa					MAOP < = 12411 kPa				
<= 101.6	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.78	4.78
114.3	4.78	4.78	4.78	4.78	4.78	5.16	4.78	4.78	4.78	4.78
141.3	6.55	4.78	4.78	4.78	4.78	6.55	5.56	4.78	4.78	4.78
168.3	7.11	6.35	4.78	4.78	4.78	7.92	6.35	5.56	4.78	4.78
219.1	9.53	7.92	6.35	5.56	4.78	9.53	7.92	6.35	5.56	4.78
273.1	11.13	9.27	7.92	6.5	5.56	11.91	10.31	7.92	7.09	6.35
323.9	13.49	11.13	9.53	7.92	7.14	14.27	11.91	9.53	8.74	7.14
355.6	15.09	12.7	10.31	8.74	7.92	15.88	12.7	10.31	9.53	7.92
406.4	16.66	14.27	11.13	10.31	8.74	17.48	15.09	11.91	10.31	8.74
457.2	19.05	15.88	12.7	11.13	9.53	19.84	16.66	13.49	11.91	10.31
508	20.62	17.48	14.27	12.7	10.31	22.23	18.26	15.09	12.7	11.13
558.8	23.01	19.05	15.88	13.49	11.91	24.61	19.84	16.66	14.27	12.7
609.6	25.4	20.62	16.66	15.09	12.7	26.19	22.23	18.26	15.88	13.49
660.4	26.97	23.01	18.26	15.88	13.49	28.58	23.83	19.05	16.66	14.27
711.2	29.36	24.61	19.84	17.48	15.09	30.96	25.4	20.62	18.26	15.88
1016	36.53	30.96	25.4	22.23	19.05	38.89	32.54	26.97	23.01	19.84
1066.8	38.89	32.54	26.97	23.83	19.84	---	34.14	27.79	24.61	21.44



CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks

REQUIREMENTS FOR THE DESIGN OF STEEL CULVERTS CARRYING RAILWAY TRAFFIC

1. Design Specifications

AREMA Manual of Recommended Practice, Chapter 1: Part 4: Culverts, latest edition.

2. Type of Construction, Materials, Structural Design and Installation

Culverts may be constructed with corrugated steel pipe (CSP, shop fabricated); structural plate corrugated steel pipe (SPCSP, field fabricated) or steel pipe (bored or jacked).

CSP installations shall be in accordance with CPKC Standard Plans B-1-4950-1 (Canada) or B-1-4950-2 (United States). These standard plans outline material, structural and installation requirements for CSP installations up to 1800 mm (6'-0") in diameter.

SPCSP installations, and installations using materials other than corrugated steel, require specific design and plans relating to material, structural and installation requirements to be prepared by a qualified professional engineer.

Steel pipe installations shall be in accordance with Table 4.9 "Least Nominal Wall Thickness for Steel Casing Pipe in Cased Crossings and Carrier Pipe in Uncased Crossings" in C.S.A. Standard Z662, latest edition, as amended by the Transport Canada "Standards Respecting Pipeline Crossings Under Railways" (originally invoked May 10, 2001); or as otherwise required by the proposed method of installation.

3. Hydraulic Design

Many culverts, based on history of the installation and experience of local officers, are replaced in-kind without need of a hydrological assessment. However, a hydrological assessment is required for new culvert installations, installations where a change in watercourse conditions has occurred, or where required by regulatory authorities. Where a hydrological assessment is performed, culvert requirements shall be determined in accordance with the following hydraulic criteria:

1. Culverts under main line tracks shall be designed for the following, whichever is greatest;

The 50-year flood with culvert pipes flowing no greater than 2/3 full (head to depth ratio less than 0.67); or

The 100-year flood with culvert pipes flowing no greater than full (head to depth ratio less than 1.00), where culvert cover is not less than 1500 mm (5'-0"). Where culvert cover is less than 1500 mm (5'-0") culverts shall be designed for the 100-year flood frequency flow with culvert pipes flowing no greater than 2/3 full (head to depth ratio less than 0.67).

2. Culverts under secondary and branch lines shall be designed for the following, whichever is greatest;

The 50-year flood with culvert pipes flowing no greater than full (head to depth ratio less than 1.00); or

The 100-year flood with culvert pipes flowing with a headwater depth no greater than 50% of the diameter of the pipes above the top of pipe (head to depth ratio less than 1.50). However the headwater depth shall not be less than 1 metre (3 feet) below base-of-rail.



CPKC Geotechnical Protocol for Pipeline and Utility Crossing(s) under Railway Tracks

The following table lists the minimum requirements for round CMP pipes used as casing pipes for water, sewer, steam and non-flammable materials.

Culvert Size (mm) (Inside Dia.)	Corrugation Profile (mm)	Min. Depth of Cover (base of rail to top of pipe) (mm)	Max. Depth of Cover (m) (base of rail to top of pipe)			
			Specified Wall Thickness (mm)			
			1.6	2	2.8	3.5
300	68 x 13	1100	15.2	15.2		
380	68 x 13	1100	12.2	12.2		
460	68 x 13	1100	9.1	9.1	16.8	
530	68 x 13	1100	7.6	7.6	13.7	
600	68 x 13	1100	7.6	7.6	12.2	13.7
760	68 x 13	1100			9.1	10.7

In all cases where inside diameters exceed 760 mm, CMP casing pipes shall be designed as per CPKC standard plan B-1-4950-1.

Culverts must be zinc or aluminum coated. Additional coatings and couplings shall be provided as per CPKC standard plan B-1-4950-1.

Some supplementary information contained in the AREMA specification, regarding pipeline (not including Gas and Oil pipelines) and casing pipes for wire crossings of the Railway is as follows:

Calculation for Cooper E80 Loading for pipelines in pounds per square foot

T_{E80} = Total E80 Load in pounds per square foot

L_L = Live Load in pounds per square foot

I_P = Impact Loading Percentage

L_D = Dead Load in pounds per square foot

D = Lateral Live Load Distribution Length in feet

H = Depth of cover in Feet

W = Weight of overburden in pounds per cubic foot.

$$T_{E80} = L_L * (1.0 + I_P) + L_D$$

$$L_L = 80000 / (5 * D)$$

$$L_D = W * H + 200 / D$$

$$I_P = (10 - H) * .04 \quad \text{Negative results equate to zero.}$$

$$D = (8.5 + H)$$

APPENDIX F

UP RAILROAD REQUIREMENTS – 12x8 BOX CULVERT



October 30, 2025

Project: 0800986

JEFFERSON COUNTY DRAINAGE DISTRICT NO. 6

RE: Proposed Construction of One (1) Underground Ninety-six (96) Inch Rcp (e-80 12x8 Box Culvert) For Runoff Drainage Only Between Mile Posts 28.69 on the Sabine Ind. Ld. Subdivision at or near Beaumont, Jefferson County, Texas.

Attached is an original of the agreement covering your use of the Railroad Company's right of way. **Review and return the partially executed agreement via email.**

Payment, with Project No. 0800986 referenced, in the amount of Ten Thousand Dollars (\$10,000.00) is due and payable to Union Pacific Railroad Company upon your execution of the agreement. If you require formal billing, you may consider this letter as a formal bill. In compliance with the Internal Revenue Service's new policy regarding their Form 1099, I certify that 946001323 is this Corporation's correct Federal Taxpayer Identification Number.

Send Electronic Payments to:

Name: Bank of America, Dallas, TX

Union Pacific Account = 3752021457

- ACH Routing Number = 1110-0001-2

- Wire Routing Number = 026009593

Mail Checks to:

Union Pacific Railroad Company

12567 Collection Center Drive

Chicago, IL 60693

- **CHECKS ONLY – NO AGREEMENTS**

UP does not currently offer a credit card option for these payments.

Railroad Protective Liability Insurance (RPLI) may be obtained from any insurance company which offers such coverage. Union Pacific has also worked with a national broker, Marsh USA, to make available RPLI to you or your contractor. You can find additional information, premium quotes, and application forms at (uprr.marsh.com).

If we have not received the executed document within six months from the date of this letter, this proposed offer of an agreement is withdrawn and becomes null and void.

After final approval and processing, the fully-executed agreement will be returned to you via email with instructions for coordinating your work. In no event should you begin work until you have received your counterpart of the fully-executed agreement.

If you have any questions, please contact me at klbristo@up.com.

Sincerely,

Kerin L Bristow

APPENDIX G

UP RAILROAD REQUIREMENTS – WATER LINE



April 9, 2026
Project: 0800984

JEFFERSON COUNTY DRAINAGE DISTRICT 6

Re: Proposed Underground 8 Inch Plastic Pipeline Encased In A 12.25 Inch Steel Casing For Transporting And Conveying Water Pipeline Crossing of Railroad Property at Mile Post 28.69 on the Sabine Industrial Lead at or near Beaumont, Jefferson County, Texas.

Attached is an original of the agreement covering your use of the Railroad Company's right of way. **Review and return the partially executed agreement via email.**

Payment, with Project No. 0800984 referenced, in the amount of Seven Thousand Seven Hundred Ninety Dollars (\$7,790.00) and administration fee of \$2,000 for the extended date, is due and payable to Union Pacific Railroad Company upon your execution of the agreement. If you require formal billing, you may consider this letter as a formal bill. In compliance with the Internal Revenue Service's new policy regarding their Form 1099, I certify that 946001323 is this Corporation's correct Federal Taxpayer Identification Number.

Send Electronic Payments to:

Name: Bank of America, Dallas, TX
Union Pacific Account = 3752021457
• ACH Routing Number = 1110-0001-2
• Wire Routing Number = 026009593

Mail Checks to:

Union Pacific Railroad Company
12567 Collection Center Drive
Chicago, IL 60693
• **CHECKS ONLY – NO AGREEMENTS**

UP does not currently offer a credit card option for these payments.

Railroad Protective Liability Insurance (RPLI) may be obtained from any insurance company which offers such coverage. Union Pacific has also worked with a national broker, Marsh USA, to make available RPLI to you or your contractor. You can find additional information, premium quotes, and application forms at (uprr.marsh.com).

If we have not received the executed document within six months from the date of this letter, this proposed offer of an agreement is withdrawn and becomes null and void.

After final approval and processing, the fully-executed agreement will be returned to you via email with instructions for coordinating your work. In no event should you begin work until you have received your counterpart of the fully-executed agreement.

If you have any questions, please contact me at klbristo@up.com.

Sincerely,

Kerin Bristow
Mgr Real Estate - Contracts

PIPELINE CROSSING AGREEMENT

Mile Post: 28.69, Sabine Industrial Lead
Location: Beaumont, Jefferson County, Texas

THIS AGREEMENT ("Agreement") is made and entered into as of April 9, 2026, ("Effective Date") by and between **UNION PACIFIC RAILROAD COMPANY**, a Delaware corporation, ("Licensor") and **JEFFERSON COUNTY DRAINAGE DISTRICT 6**, to be addressed at 6550 Walden Rd, Beaumont, Texas 77707 ("Licensee").

IT IS MUTUALLY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

Article 1. LICENSOR GRANTS RIGHT.

A. In consideration of the license fee to be paid by Licensee set forth below and in further consideration of the covenants and agreements to be performed by Licensee, Licensor hereby grants to Licensee the right to construct and thereafter, during the term hereof, maintain and operate an underground 8 inch plastic pipeline encased in a 12.25 inch steel casing for transporting and conveying water only, including any appurtenances required for the operation of said pipeline (collectively, "Licensee's Facilities") across Licensor's real property, trackage, or other facilities located in Beaumont, Jefferson County, State of Texas ("Railroad Property"). The specific specifications and limited purpose for Licensee's Facilities on, along, across and under Railroad Property are described in and shown on the Print and Specifications dated January 30, 2025, attached hereto as **Exhibit A** and made a part hereof.

B. Licensee represents and warrants that Licensee's Facilities will (i) only be used for an underground 8 inch plastic pipeline encased in a 12.25 inch steel casing for transporting and conveying water, and (ii) not be used to convey any other substance, any fiber optic cable, or for any other use, whether such use is currently technologically possible, or whether such use may come into existence during the life of this Agreement.

C. Licensee acknowledges that if it or its contractor provides Licensor with digital imagery depicting Licensee's Facilities ("Digital Imagery"), Licensee authorizes Licensor to use the Digital Imagery in preparing **Exhibit A**. Licensee represents and warrants that through a license or otherwise, it has the right to use the Digital Imagery and to permit Licensor to use the Digital Imagery in said manner.

Article 2. LICENSE FEE.

Upon execution of this Agreement, the Licensee shall pay to the Licensor a one-time License Fee of Seven Thousand Seven Hundred Ninety Dollars (**\$7,790.00**) and administration fee of Two Thousand Dollars (\$2000.00) for the extension of terms.

Article 3. TERM.

This Agreement shall take effect as of the Effective Date first herein written and shall continue in full force and effect until terminated as provided in the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of **Exhibit B**.

Article 4. LICENSEE'S COMPLIANCE WITH GENERAL TERMS.

Licensee represents and warrants that all work on Licensee's Facilities performed by Licensee or its contractors will strictly comply with all terms and conditions set forth herein, including the General Terms and Conditions, attached hereto as Exhibit B and made a part hereof.

Article 5. INSURANCE.

A. During the term of this Agreement, Licensee shall fully comply or cause its contractor(s) to fully comply with the insurance requirements described in **Exhibit C**, attached hereto and made a part hereof. Upon request only, Licensee shall send copies of all insurance documentation (e.g., certificates, endorsements, etc.) to Licensor at the address listed in the "NOTICES" Section of this Agreement.

B. If Licensee is subject to statute(s) limiting its insurance liability and/or limiting its ability to obtain insurance in compliance with **Exhibit C** of this Agreement, those statutes shall apply.

Article 6. DEFINITION OF LICENSEE.

For purposes of this Agreement, all references in this Agreement to Licensee will include Licensee's contractors, subcontractors, officers, agents and employees, and others acting under its or their authority (collectively, a "Contractor"). If a Contractor is hired by Licensee to perform any work on Licensee's Facilities (including initial construction and subsequent relocation, maintenance, and/or repair work), then Licensee shall provide a copy of this Agreement to its Contractor(s) and require its Contractor(s) to comply with all terms and conditions of this Agreement, including the indemnification requirements set forth in the "INDEMNITY" Section of **Exhibit B**. Licensee shall require any Contractor to release, defend, and indemnify Licensor to the same extent and under the same terms and conditions as Licensee is required to release, defend, and indemnify Licensor herein.

Article 7. ATTORNEYS' FEES, EXPENSES, AND COSTS.

If litigation or other court action or similar adjudicatory proceeding is undertaken by Licensee or Licensor to enforce its rights under this Agreement, all fees, costs, and expenses, including, without limitation, reasonable attorneys' fees and court costs, of the prevailing Party in such action, suit, or proceeding shall be reimbursed or paid by the Party against whose interest the judgment or decision is rendered. The provisions of this Article shall survive the termination of this Agreement.

Article 8. WAIVER OF BREACH.

The waiver by Licensor of the breach of any condition, covenant or agreement herein contained to be kept, observed and performed by Licensee shall in no way impair the right of Licensor to avail itself of any remedy for any subsequent breach thereof.

Article 9. ASSIGNMENT.

A. Licensee shall not assign this Agreement, in whole or in part, or any rights herein granted, without the written consent of Licensor, which must be requested in writing by Licensee. Any assignment or attempted transfer of this Agreement or any of the rights herein granted, whether voluntary, by operation of law, or otherwise, without Licensor's written consent, will be absolutely void and may result in Licensor's termination of this Agreement pursuant to the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of **Exhibit B**.

B. Upon Licensor's written consent to any assignment, this Agreement will be binding upon and inure to the benefit of the parties thereto, successors, heirs, and assigns, executors, and administrators.

Article 10. SEVERABILITY.

Any provision of this Agreement which is determined by a court of competent jurisdiction to be invalid or unenforceable shall be invalid or unenforceable only to the extent of such determination, which shall not invalidate or otherwise render ineffective any other provision of this Agreement.

Article 11. NOTICES.

Except Licensee's commencement of work notice(s) required under **Exhibit B**, all other notices required by this Agreement must be in writing, and (i) personally served upon the business address listed below ("Notice Address"), (ii) sent overnight via express delivery by a nationally recognized overnight delivery service such as Federal Express Corporation or United Parcel Service to the Notice Address, or (iii) by certified mail, return receipt requested to the Notice Address. Overnight express delivery notices will be deemed to be given upon receipt. Certified mail notices will be deemed to be given three (3) days after deposit with the United States Postal Service.

If to Licensor: Union Pacific Railroad Company
Attn: Analyst – Real Estate Utilities (Project No. 0800984)
1400 Douglas Street, MS 1690
Omaha, Nebraska 68179

If to Licensee: JEFFERSON COUNTY DRAINAGE DISTRICT 6
6550 Walden Rd
Beaumont, Texas 77707

Article 12. SPECIAL PROVISION – CONSTRUCTION OBSERVATION.

Licensor requires Licensee to provide monitoring of tracks and construction observation through Licensor approved observer named below during all construction and installation work. Licensee is to directly coordinate services with the named inspector:

Railpros Field Services
Email: RP.Utility@railpros.com
Phone (682)223-5271

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first herein written.

UNION PACIFIC RAILROAD COMPANY

**JEFFERSON
DISTRICT 6**

COUNTY

DRAINAGE

By: _____

By: _____

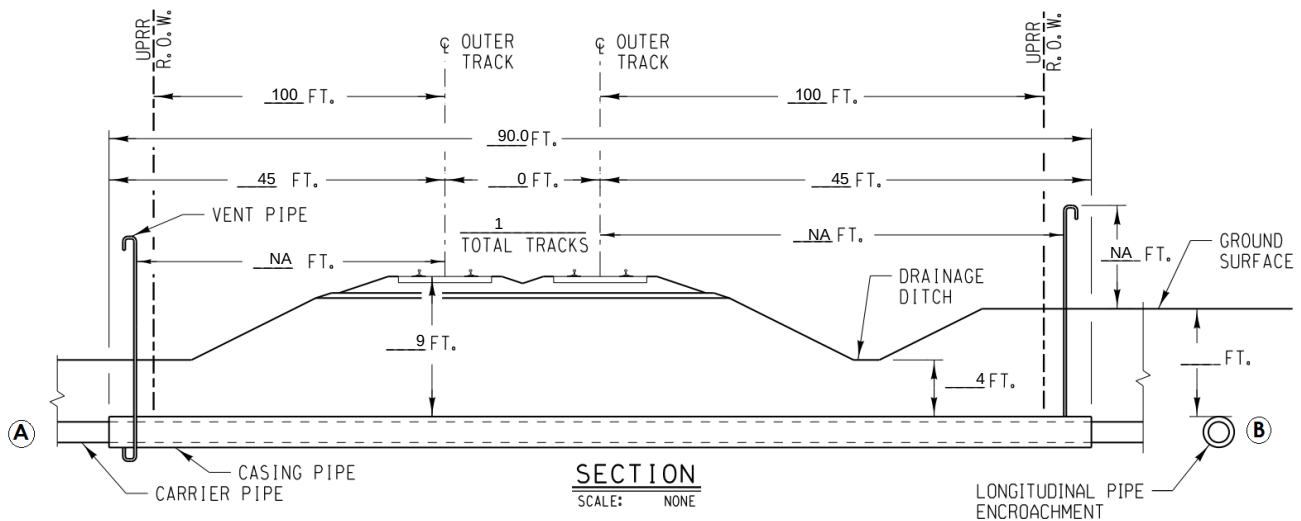
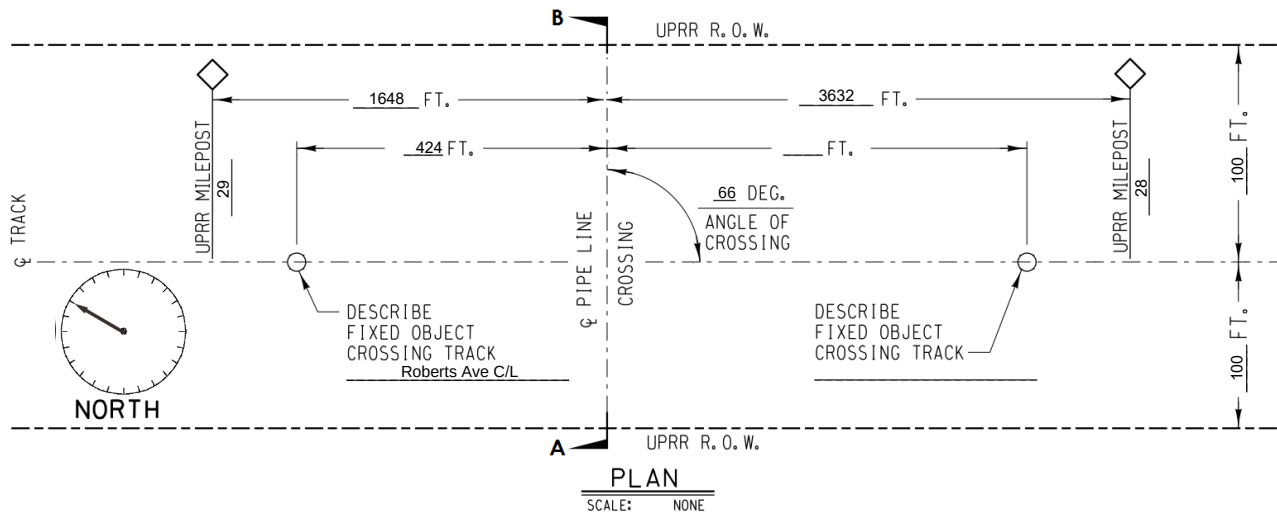
Craig O Benson
Sr Mgr Real Estate - Contracts

Name Printed: _____

Title: _____

NON-FLAMMABLE LIQUID PIPELINE

☒ CROSSING
☐ ENCROACHMENT
☐ BOTH



NOTES:

- 1) ALL DIMENSIONS MEASURED PERPENDICULAR TO THE CENTERLINE OF TRACK
- 2) REFER TO AREMA VOLUME 1, CHAPTER 1, PART 5, SECTION 5.1

- A) METHOD OF INSTALLATION BORED AND JACKED
- B) DIST. FROM CENTERLINE OF TRACK TO PIPE ENCROACHMENT _____
- C) SIGNS PROVIDED? AT MINIMUM SIGNS WILL BE PROVIDED AS STATED ABOVE
- D) CARRIER MATERIAL PLASTIC. IF RCP, CLASS V? NA.
COMMODITY TO BE CONVEYED WATER.
OPERATIONAL PRESSURE 80 PSI. MAOP 80 PSI.
WALL THICKNESS (INCH)/ SCHEDULE 40. DIAMETER 8 IN.
CATHODIC/COATING PROTECTION NO
- E) CASING MATERIAL STEEL PIPE. IF RCP, CLASS V? NA.
TOTAL LENGTH CASING PIPE: 112 FT.
WALL THICKNESS 0.6 IN. DIAMETER 12.25 IN.
CATHODIC/COATING PROTECTION YES.
CASING PIPE IS OPEN AT THE ENDS.
- F) DISTANCE FROM CENTERLINE OF TRACK TO NEAR FACE OF BORING AND JACKING PITS WHEN MEASURED AT RIGHT ANGLES
30 AND 30.



BUILDING AMERICA®

EXHIBIT "A"

SUBDIVISION: Sabine Ind. Ld.

TRACK TYPE: MAINLINE

M.P.: 28.69

LAT.: 30.058912

E.S.M.: 79+15 ±

LONG.: -94.107103

NEAREST CITY: BEAUMONT

COUNTY: JEFFERSON

STATE: TX

APPLICANT: JEFFERSON COUNTY DRAINAGE DISTRICT 6

FILE NO.: 0800984

DATE: 1/30/2025

EXHIBIT B

GENERAL TERMS AND CONDITIONS

Section 1. LIMITATION AND SUBORDINATION OF RIGHTS GRANTED.

A. The foregoing grant is subject and subordinate to the prior and continuing right and obligation of Licensors to use and maintain its entire property including the right and power of Licensors to construct, maintain, repair, renew, use, operate, change, modify or relocate railroad tracks, signal, communication, fiber optics, or other wirelines, pipelines and other facilities upon, along or across any or all parts of its property, all or any of which may be freely done at any time or times by Licensors without liability to Licensee or to any other party for compensation or damages.

B. The foregoing grant is also subject to all outstanding superior rights (including those in favor of licensees and lessees of Railroad Property) and the right of Licensors to renew and extend the same, and is made without covenant of title or for quiet enjoyment. It shall be Licensee's sole obligation to obtain such additional permission, license and grants necessary on account of any such existing rights.

Section 2. ENGINEERING REQUIREMENTS; PERMITS.

A. Licensee's Facilities will be designed, constructed, operated, maintained, repaired, renewed, modified, reconstructed, removed, or abandoned in place on Railroad Property by Licensee or its contractor to Licensors's satisfaction and in strict conformity with: (i) Licensors's current engineering standards and specifications, including those for shoring and cribbing to protect Licensors's railroad operations and facilities ("UP Specifications"), except for variances approved in advance in writing by Licensors's Assistant Vice President Engineering – Design or its authorized representative ("UP Engineering Representative"); (ii) such other additional safety standards as Licensors, in its sole discretion, elects to require, including, without limitation, American Railway Engineering and Maintenance-of-Way Association ("AREMA") standards and guidelines (collectively, "UP Additional Requirements"); and (iii) all applicable laws, rules, and regulations, including any applicable Federal Railroad Administration and Federal Energy Regulatory Commission regulations and enactments (collectively, "Laws"). If there is any conflict between UP Specifications, UP Additional Requirements, and Laws, the most restrictive will apply.

B. Licensee shall keep the soil over Licensee's Facilities thoroughly compacted, and maintain the grade over and around Licensee's Facilities even with the surface of the adjacent ground.

C. If needed, Licensee shall secure, at Licensee's sole cost and expense, any and all necessary permits required to perform any work on Licensee's Facilities.

Section 3. NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES.

A. Licensee and its contractors are strictly prohibited from commencing any work associated with Licensee's Facilities without Licensors's written approval that the work will be in strict compliance with the "ENGINEERING REQUIREMENTS; PERMITS" Section of this Exhibit B. Upon Licensors's approval, Licensee shall contact both of Licensors's field representatives ("Licensors's Field Representatives") at least ten (10) days before commencement of any work on Licensee's Facilities.

B. Licensee shall not commence any work until: (1) Licensors has determined whether flagging or other special protective or safety measures ("Safety Measures") are required for performance of the work pursuant to the "FLAGGING" Section of this **Exhibit B** and provided Licensee written

authorization to commence work; and (2) Licensee has complied with the "PROTECTION OF FIBER OPTIC CABLE SYSTEMS" Section of this **Exhibit B**.

C. If, at any time, an emergency arises involving Licensee's Facilities, Licensee or its contractor shall immediately contact Licensors Response Management Communications Center at (888) 877-7267.

Section 4. FLAGGING.

A. Following Licensee's notice to Licensors Field Representatives required under the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**, Licensors shall inform Licensee if Safety Measures are required for performance of the work by Licensee or its contractor on Railroad Property. If Safety Measures are required, no work of any kind may be performed by Licensee or its contractor(s) until arrangements for the Safety Measures have been made and scheduled. If no Safety Measures are required, Licensors will give Licensee written authorization to commence work.

B. If any Safety Measures are performed or provided by Licensors, including but not limited to flagging, Licensors shall bill Licensee for such expenses incurred by Licensors, unless Licensors and a federal, state, or local governmental entity have agreed that Licensors is to bill such expenses to the federal, state, or local governmental entity. Additional information regarding the submission of such expenses by Licensors and payment thereof by Licensee can be found in the "LICENSEE'S PAYMENT OF EXPENSES" Section of this **Exhibit B**. If Licensors performs any Safety Measures, Licensee agrees that Licensee is not relieved of any of responsibilities or liabilities set forth in this Agreement.

C. For flagging, the rate of pay per hour for each flagger will be the prevailing hourly rate in effect for an eight-hour day for the class of flagmen used during regularly assigned hours and overtime in accordance with Labor Agreements and Schedules in effect at the time the work is performed. In addition to the cost of such labor, a composite charge for vacation, holiday, health and welfare, supplemental sickness, Railroad Retirement and unemployment compensation, supplemental pension, Employees Liability and Property Damage, and Administration will be included, computed on actual payroll. The composite charge will be the prevailing composite charge in effect at the time the work is performed. One and one-half times the current hourly rate is paid for overtime, Saturdays and Sundays, and two and one-half times current hourly rate for holidays. Wage rates are subject to change, at any time, by law or by agreement between Licensors and its employees, and may be retroactive as a result of negotiations or a ruling of an authorized governmental agency. Additional charges on labor are also subject to change. If the wage rate or additional charges are changed, Licensee (or the governmental entity, as applicable) shall pay on the basis of the new rates and charges.

D. Reimbursement to Licensors will be required covering the full eight-hour day during which any flagger is furnished, unless the flagger can be assigned to other railroad work during a portion of such day, in which event reimbursement will not be required for the portion of the day during which the flagger is engaged in other railroad work. Reimbursement will also be required for any day not actually worked by the flaggers following the flaggers' assignment to work on the project for which Licensors is required to pay the flaggers and which could not reasonably be avoided by Licensors by assignment of such flaggers to other work, even though Licensee may not be working during such time. When it becomes necessary for Licensors to bulletin and assign an employee to a flagging position in compliance with union collective bargaining agreements, Licensee must provide Licensors a minimum of five (5) days notice prior to the cessation of the need for a flagger. If five (5) days notice of cessation is not given, Licensee will still be required to pay flagging charges for the days the flagger was scheduled, even though flagging is no longer required for that period. An additional ten (10) days notice must then be given to Licensors if flagging services are needed again after such five day cessation notice has been given to Licensors.

Section 5. SAFETY.

A. Safety of personnel, property, rail operations and the public is of paramount importance in the prosecution of any work on Railroad Property performed by Licensee or its contractor, and takes precedence over any work on Licensee's Facilities to be performed Licensee or its contractors. Licensee shall be responsible for initiating, maintaining and supervising all safety operations and programs in connection with any work on Licensee's Facilities. Licensee and its contractor shall, at a minimum comply, with Licensors then current safety standards located at the below web address ("Licensor's Safety Standards") to ensure uniformity with the safety standards followed by Licensor's own forces. As a part of Licensee's safety responsibilities, Licensee shall notify Licensor if it determines that any of Licensor's Safety Standards are contrary to good safety practices. Licensee and its contractor shall furnish copies of Licensor's Safety Standards to each of its employees before they enter Railroad Property.

[Union Pacific Current Safety Requirements](#)

B. Licensee shall keep the job site on Railroad Property free from safety and health hazards and ensure that their employees are competent and adequately trained in all safety and health aspects of the work.

C. Licensee represents and warrants that all parts of Licensee's Facilities within and outside of the limits of Railroad Property will not interfere whatsoever with the constant, continuous, and uninterrupted use of the tracks, property, and facilities of Licensor, and nothing shall be done or suffered to be done by Licensee at any time that would in any manner impair the safety thereof.

D. Licensor's operations and work performed by Licensor's personnel may cause delays in Licensee's or its contractor's work on Licensee's Facilities. Licensee accepts this risk and agrees that Licensor shall have no liability to Licensee or any other person or entity for any such delays. Licensee must coordinate any work on Railroad Property by Licensee or any third party with Licensor's Field Representatives in strict compliance with the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**.

E. Licensor shall have the right, if it so elects, to provide any support it deems necessary for the safety of Licensor's operations and trackage during Licensee's or its contractor's construction, maintenance, repair, renewal, modification, relocation, reconstruction, or removal of Licensee's Facilities. In the event Licensor provides such support, Licensor shall invoice Licensee, and Licensee shall pay Licensor as set forth in the "LICENSEE'S PAYMENT OF EXPENSES" Section of this **Exhibit B**.

F. Licensee may use unmanned aircraft systems ("UAS") to inspect Licensee's Facilities only upon the prior authorization from and under the direction of Licensor's Field Representatives. Licensee represents and warrants that its use of UAS on Railroad Property will comply with Licensor's then-current Unmanned Aerial Systems Policy and all applicable laws, rules and regulations, including any applicable Federal Aviation Administration regulations and enactments pertaining to UAS.

Section 6. PROTECTION OF FIBER OPTIC CABLE SYSTEMS.

Fiber optic cable systems may be buried on Railroad Property. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. In addition to the notifications required under the "NOTICE OF COMMENCEMENT OF WORK; EMERGENCIES" Section of this **Exhibit B**, Licensee shall visit up.com/CBUD to complete and submit the required form to determine if fiber optic cable is buried anywhere on Railroad Property to be used by Licensee. If it is, Licensee shall telephone the telecommunications company(ies) involved, and arrange for a cable locator, make arrangements for relocation or other protection of the fiber optic cable, all at Licensee's expense, and will not commence any work on Railroad Property until all such protection or relocation has been completed.

Section 7. LICENSEE'S PAYMENT OF EXPENSES.

A. Licensee shall bear the entire cost and expense of the design, construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities.

B. Licensee shall fully pay for all materials joined, affixed to and labor performed on Railroad Property in connection with the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, and shall not permit or suffer any mechanic's or materialman's lien of any kind or nature to be enforced against the property for any work done or materials furnished thereon at the instance or request or on behalf of Licensee. Licensee shall promptly pay or discharge all taxes, charges, and assessments levied upon, in respect to, or on account of Licensee's Facilities, to prevent the same from becoming a charge or lien upon any property of Licensor, and so that the taxes, charges, and assessments levied upon or in respect to such property shall not be increased because of the location, construction, or maintenance of Licensee's Facilities or any improvement, appliance, or fixture connected therewith placed upon such property, or on account of Licensee's interest therein. Where such tax, charge, or assessment may not be separately made or assessed to Licensee but shall be included in the assessment of the property of Licensor, then Licensee shall pay to Licensor an equitable proportion of such taxes determined by the value of Licensee's property upon property of Licensor as compared with the entire value of such property.

C. As set forth in the "FLAGGING" Section of this **Exhibit B**, Licensor shall have the right, if it so elects, to provide any Safety Measures Licensor deems necessary for the safety of Licensor's operations and trackage during Licensee's or its contractor's construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, including, but not limited to supervision, inspection, and flagging services. In the event Licensor provides such Safety Measures, Licensor shall submit an itemized invoice to Licensee's notice recipient listed in the "NOTICES" Article of this Agreement. Licensee shall pay to Licensor the total amount listed on such invoice within thirty (30) days of Licensee's receipt of such invoice.

Section 8. MODIFICATIONS TO LICENSEE'S FACILITIES.

A. This grant is subject to Licensor's safe and efficient operation of its railroad, and continued use and improvement of Railroad Property (collectively, "Railroad's Use"). Accordingly, Licensee shall, at its sole cost and expense, modify, reconstruct, repair, renew, revise, relocate, or remove (individually, "Modification", or collectively, "Modifications") all or any portion of Licensee's Facilities as Licensor may designate or identify, in its sole discretion, in the furtherance of Railroad's Use.

B. Upon any Modification of all or any portion of Licensee's Facilities to another location on Railroad Property, Licensor and Licensee shall execute a Supplemental Agreement to this Pipeline Agreement to document the Modification(s) to Licensee's Facilities on Railroad Property. If the Modifications result in Licensee's Facilities moving off of Railroad Property, this Agreement will terminate upon Licensee's completion of such Modification(s) and all requirements contained within the "TERMINATION; REMOVAL OF LICENSEE'S FACILITIES" Section of this **Exhibit B**. Any such Modification(s) off of Railroad Property will not release Licensee from any liability or other obligation of Licensee arising prior to and upon completion of any such Modifications to the Licensee's Facilities.

Section 9. RESTORATION OF RAILROAD PROPERTY.

In the event Licensee, in any manner moves or disturbs any property of Licensor in connection with the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities, then, Licensee shall, as soon as possible and at Licensee's sole cost

and expense, restore Licensor's property to the same condition as the same were before such property was moved or disturbed.

Section 10. INDEMNITY.

A. Definitions. As used in this Section:

1. "Licensor" includes Licensor, its affiliates, its and their officers, directors, agents and employees, and other railroad companies using Railroad Property at or near the location of Licensee's installation and their officers, directors, agents, and employees.
2. "Licensee" includes Licensee and its agents, contractors, subcontractors, sub-subcontractors, employees, officers, and directors, or any other person or entity acting on its behalf or under its control.
3. "Loss" includes claims, suits, taxes, loss, damages (including punitive damages, statutory damages, and exemplary damages), costs, charges, assessments, judgments, settlements, liens, demands, actions, causes of action, fines, penalties, interest, and expenses of any nature, including court costs, reasonable attorneys' fees and expenses, investigation costs, and appeal expenses.

B. Licensee shall release, defend, indemnify, and hold harmless Licensor from and against any and all Loss, even if groundless, fraudulent, or false, that directly or indirectly arises out of or is related to Licensee's construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, removal, presence, use, or operation of Licensee's Facilities, including, but not limited to, any actual or alleged:

1. Bodily harm or personal injury (including any emotional injury or disease) to, or the death of, any person(s), including, but not limited to, Licensee, Licensor, any telecommunications company, or the agents, contractors, subcontractors, sub-subcontractors, or employees of the foregoing;
2. Damage to or the disturbance, loss, movement, or destruction of Railroad Property, including loss of use and diminution in value, including, but not limited to, any telecommunications system(s) or fiber optic cable(s) on or near Railroad Property, any property of Licensee or Licensor, or any property in the care, custody, or control of Licensee or Licensor;
3. Removal of person(s) from Railroad Property;
4. Any delays or interference with track or Railroad's Use caused by Licensee's activity(ies) on Railroad Property, including without limitation the construction, maintenance, modification, reconstruction, repair, renewal, revision, relocation, or removal of Licensee's Facilities or any part thereof, any activities, labor, materials, equipment, or machinery in conjunction therewith;
5. Right(s) or interest(s) granted pursuant to this Agreement;
6. Contents escaping from Licensee's Facilities, including without limitation any actual or alleged pollution, contamination, breach, or environmental Loss;

7. Licensee's breach of this Agreement or failure to comply with its provisions, including, but not limited to, any violation or breach by Licensee of any representations and warranties Licensee has made in this Agreement; and
8. Violation by Licensee of any law, statute, ordinance, governmental administrative order, rule, or regulation, including without limitation all applicable Federal Railroad Administration regulations.

C. THE FOREGOING OBLIGATIONS SHALL APPLY TO THE FULLEST EXTENT PERMITTED BY LAW FOR THE BENEFIT OF LICENSOR TO LOSSES CAUSED BY, ARISING FROM, RELATING TO, OR RESULTING FROM, IN WHOLE OR IN PART, THE NEGLIGENCE OF LICENSOR, AND SUCH NEGLIGENCE OF LICENSOR SHALL NOT LIMIT, DIMINISH, OR PRECLUDE LICENSEE'S OBLIGATIONS TO LICENSOR IN ANY RESPECT. NOTWITHSTANDING THE FOREGOING, SUCH OBLIGATION TO INDEMNIFY LICENSOR SHALL NOT APPLY TO THE EXTENT THE LOSS IS CAUSED BY THE SOLE, ACTIVE AND DIRECT NEGLIGENCE, GROSS NEGLIGENCE, OR WILLFUL MISCONDUCT OF LICENSOR AS DETERMINED IN A FINAL JUDGMENT BY A COURT OF COMPETENT JURISDICTION.

Section 11. TERMINATION; REMOVAL OF LICENSEE'S FACILITIES.

A. If Licensee does not use the right herein granted on Licensee's Facilities for one (1) year, or if Licensee continues in default in the performance of any provision of this Agreement for a period of thirty (30) days after written notice from Licensor to Licensee specifying such default, Licensor may, at its sole discretion, terminate this Agreement by written notice to Licensee at the address listed in the "NOTICES" Article of this Agreement. This Agreement will not terminate until Licensee complies with Paragraphs "C" and "D" of this Section found below.

B. In addition to the provisions of Paragraph "A" above, this Agreement may be terminated by written notice given by either party, without cause, upon thirty (30) days written notice to the non-terminating party at the address listed in the "NOTICES" Article of this Agreement. This Agreement will not terminate until Licensee complies with Paragraphs "C" and "D" of this Section found below.

C. Prior to the effective date of any termination described in this Section, Licensee shall submit an application to Licensor's online Utility Contracts System at [this link](#) for Licensee's removal, or if applicable, abandonment in place of Licensee's Facilities located on Railroad Property ("Removal/Abandonment Work"). Upon the UP Engineering Representative's approval of Licensee's application for the Removal/Abandonment Work, Licensor and Licensee shall execute a separate consent document that will govern Licensee's performance of the Removal/Abandonment Work from those portions of Railroad Property not occupied by roadbed and/or trackage ("Consent Document"). Licensee shall then restore the impacted Railroad Property to the same or reasonably similar condition as it was prior to Licensee's installation of Licensee's Facilities. For purposes of this Section, Licensee's (i) performance of the Removal/Abandonment Work, and (ii) restoration work will hereinafter be collectively referred to as the "Restoration Work".

D. Following Licensee's completion of the Restoration Work, Licensee shall provide a written certification letter to Licensor at the address listed in the "NOTICES" Article of this Agreement which certifies that the Restoration Work has been completed in accordance with the Consent Document. Licensee shall report to governmental authorities, as required by law, and notify Licensor immediately if any environmental contamination is discovered during Licensee's performance of the Restoration Work. Upon discovery, the Licensee shall initiate any and all removal, remedial and restoration actions that are necessary to restore the property to its original, uncontaminated condition. Licensee shall provide written certification to Licensor at the address listed in the "NOTICES" Article of this Agreement that environmental contamination has been remediated and the property has been

restored in accordance with Licensor's requirements. Upon Licensor's receipt of Licensee's restoration completion certifications, this Agreement will terminate.

E. In the event that Licensee fails to complete any of the Restoration Work, Licensor may, but is not obligated, to perform the Restoration Work. Any such work actually performed by Licensor will be at the cost and expense of Licensee. In the event that Licensor performs any of the Restoration Work, Licensee shall release Licensor from any and all Loss (defined in the "INDEMNITY" Section of this **Exhibit B**) arising out of or related to Licensor's performance of the Restoration Work.

F. Termination of this Agreement for any reason will not affect any of rights or obligations of the parties which may have accrued, or liabilities or Loss (defined in the "INDEMNITY" Section of this **Exhibit B**), accrued or otherwise, which may have arisen prior to such termination.

EXHIBIT C

INSURANCE REQUIREMENTS

In accordance with Article 5 of this Agreement, Licensee shall (1) procure and maintain at its sole cost and expense, or (2) require its Contractor(s) to procure and maintain, at their sole cost and expense, the following insurance coverage:

A. **Commercial General Liability Insurance.** Commercial general liability (CGL) with a limit of not less than \$2,000,000 each occurrence and an aggregate limit of not less than \$4,000,000. CGL insurance must be written on ISO occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage).

The policy must also contain the following endorsement, WHICH MUST BE STATED ON THE CERTIFICATE OF INSURANCE:

- Contractual Liability Railroads ISO form CG 24 17 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.

B. **Business Automobile Coverage Insurance.** Business auto coverage written on ISO form CA 00 01 10 01 (or a substitute form providing equivalent liability coverage) with a limit of not less \$2,000,000 for each accident, and coverage must include liability arising out of any auto (including owned, hired, and non-owned autos).

The policy must contain the following endorsements, WHICH MUST BE STATED ON THE CERTIFICATE OF INSURANCE:

- "Coverage For Certain Operations In Connection With Railroads" ISO form CA 20 70 10 01 (or a substitute form providing equivalent coverage) showing "Union Pacific Railroad Company Property" as the Designated Job Site.

C. **Workers' Compensation and Employers' Liability Insurance.** Coverage must include but not be limited to:

- Licensee's statutory liability under the workers' compensation laws of the state(s) affected by this Agreement.
- Employers' Liability (Part B) with limits of at least \$500,000 each accident, \$500,000 disease policy limit \$500,000 each employee.

If Licensee is self-insured, evidence of state approval and excess workers' compensation coverage must be provided. Coverage must include liability arising out of the U. S. Longshoremen's and Harbor Workers' Act, the Jones Act, and the Outer Continental Shelf Land Act, if applicable.

D. **Environmental Liability Insurance.** Environmental Legal Liability Insurance (ELL) applicable to bodily injury, property damage, including loss of use of damaged property or of property that has not been physically injured or destroyed, cleanup costs, and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims, or compliance with statute, all in connection with any loss arising from the insured's performance under this Agreement. Except with respect to the limits of insurance, and any rights or duties specifically assigned to the first named insured, this insurance must apply as if each named insured were the only named insured; and separately to the additional insured against which claim is made or suit is brought. Coverage shall be maintained in an amount of at least \$2,000,000 per loss, with an annual aggregate of at least \$4,000,000.

Licensee warrants that any retroactive date applicable to ELL insurance coverage under the policy is the same as or precedes the Effective Date of this Agreement, and that continuous coverage

will be maintained for a period of five (5) years beginning from the time the work under this Agreement is completed or if coverage is cancelled for any reason the policies extended discovery period, if any, will be exercised for the maximum time allowed.

E. **Railroad Protective Liability Insurance.** Licensee must maintain for the duration of work "Railroad Protective Liability" insurance written on ISO occurrence form CG 00 35 12 04 (or a substitute form providing equivalent coverage) on behalf of Licensor only as named insured, with a limit of not less than \$2,000,000 per occurrence and an aggregate of \$6,000,000. The definition of "JOB LOCATION" and "WORK" on the declaration page of the policy shall refer to this Agreement and shall describe all WORK or OPERATIONS performed under this Agreement. Notwithstanding the foregoing, Licensee does not need Railroad Protective Liability Insurance after its initial construction work is complete and all excess materials have been removed from Licensor's property; PROVIDED, however, that Licensee shall procure such coverage for any subsequent maintenance, repair, renewal, modification, reconstruction, or removal work on Licensee's Facilities.

F. **Umbrella or Excess Insurance.** If Licensee utilizes umbrella or excess policies, and these policies must "follow form" and afford no less coverage than the primary policy.

Other Requirements

G. All policy(ies) required above (except business automobile, workers' compensation and employers' liability) must include Licensor as "Additional Insured" using ISO Additional Insured Endorsement CG 20 26 (or substitute form(s) providing equivalent coverage). The coverage provided to Licensor as additional insured shall not be limited by Licensee's liability under the indemnity provisions of this Agreement. BOTH LICENSOR AND LICENSEE EXPECT THAT LICENSOR WILL BE PROVIDED WITH THE BROADEST POSSIBLE COVERAGE AVAILABLE BY OPERATION OF LAW UNDER ISO ADDITIONAL INSURED FORM CG 20 26.

H. Punitive damages exclusion, if any, must be deleted (and the deletion indicated on the certificate of insurance), unless (a) insurance coverage may not lawfully be obtained for any punitive damages that may arise under this Agreement, or (b) all punitive damages are prohibited by all states in which this Agreement will be performed.

I. Licensee waives all rights of recovery, and its insurers also waive all rights of subrogation of damages against Licensor and its agents, officers, directors and employees for damages covered by the workers' compensation and employers' liability or commercial umbrella or excess liability obtained by Licensee required in this Agreement, where permitted by law. This waiver must be stated on the certificate of insurance.

J. All insurance policies must be written by a reputable insurance company acceptable to Licensor or with a current Best's Insurance Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the work is to be performed.

K. The fact that insurance is obtained by Licensee will not be deemed to release or diminish the liability of Licensee, including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by Licensor from Licensee or any third party will not be limited by the amount of the required insurance coverage.